Februar 2026

BERND HAMANN, PH.D. (DR. RER. NAT.)

Professor für Informatik und Stratovan Mitgründer

Department of Computer Science
University of California
One Shields Avenue
3035 Kemper Hall
Davis, CA 95616-8562
U.S.A.

Nachricht: +1 530 752 7004
Fax: +1 530 752 4767
Email: bhamann@ucdavis.edu
WWW: http://www.idav.ucdavis.edu/∼hamann
und http://web.cs.ucdavis.edu/∼hamann

LEBENSLAUF

1963:
Geboren im Dezember 1963 in Alfeld (Leine), Deutschland (Staatsangehörigkeiten: Bundesrepublik Deutschland und Vereinigte Staaten von Amerika).

1983:
Abitur (Notendurchschnitt: 0,9), Gymnasium Alfeld, Deutschland.

1985:
Vor-Diplom in Informatik, Technische Universität Braunschweig, Deutschland.

1985–1986:
Anwendungsprogrammierer, Stahlwerke Peine-Salzgitter AG, Salzgitter, Deutschland.

1986:
Vor-Diplom in Mathematik, Technische Universität Braunschweig, Deutschland.

1988:
Diplom in Informatik, Technische Universität Braunschweig, Deutschland.

1988–1991:
Wissenschaftlicher Assistent in Informatik, Arizona State University, Tempe, Arizona, U.S.A.

1991:
Ph.D. (Dr. rer. nat.) in Informatik (Betreuer: Prof. Dr. Gregory M. Nielson), Arizona State University, Tempe, Arizona, U.S.A.

1991–1994:

Assistant Professor in Informatik (Computer-Aided Geometric Design, Computer-Graphik und Visualisierung), Mississippi State University, Mississippi State, Mississippi, U.S.A.

1991–1995:

Wissenschaftler am Mississippi State University-National Science Foundation (NSF) Engineering Research Center for Computational Field Simulation, Mississippi State University, Mississippi State, Mississippi, U.S.A.

1992:

Ruf an die Vanderbilt University (abgelehnt), Assistant Professor in Mathematik (Assistenzprofessur), Nashville, Tennessee, U.S.A.

1994–1995:

Associate Professor in Informatik, Mississippi State University, Mississippi State, Mississippi, U.S.A.

1995–2000:

Associate Professor in Informatik (Computer-Aided Geometric Design, Computer-Graphik und Visualisierung), University of California, Davis, California, U.S.A. („Tenure", Unkündbarkeit seit Juli 1997).

1995–2005:

Adjunct Professor (Honorarprofessor) in Computer Science and Engineering (Informatik), High Performance Computing Collaboratory (formerly the Mississippi State University-NSF Engineering Research Center for Computational Field Simulation), Mississippi State, Mississippi, U.S.A.

1997–2004:

Co-Direktor, Center for Image Processing and Integrated Computing (CIPIC), University of California, Davis, California, U.S.A.

1998–2013:

Participating Guest Researcher, Data Analysis Group, Center for Applied Scientific Computing (CASC), Lawrence Livermore National Laboratory (LLNL), Livermore, California, U.S.A.

1999–2017:

Faculty Computer Scientist, Visualization Group, Computational Research Division (CRD), Lawrence Berkeley National Laboratory (LBNL), University of California, Berkeley, California, U.S.A., Oktober 1999 - September 2017.

seit 2000:

Full Professor in Informatik (Computer-Aided Geometric Design, Computer-Graphik, Visualisierung, Virtual Reality), University of California, Davis, California, U.S.A., *Fakultätsmitglied der Graduiertenprogramme in Computer Science, Applied Mathematics, Health Informatics und Neuroscience.*

2001:

Ruf an die Simon Fraser University (abgelehnt), Full Professor in Informatik – **Tier-1 Canadian Research Chair (Endowed Professorship/Stiftungsprofessur)** in Informatik, Burnaby, British Columbia, Kanada.

2003–2012:

Vizepräsident für Forschung (außerordentlich) / Associate Vice Chancellor for Research (Interdisciplinary Research and Strategic Initiatives), Office of Research, University of California, Davis, California, U.S.A.

2004:

Co-Direktor, Institute for Data Analysis and Visualization (IDAV), University of California, Davis, California, U.S.A., Mai - Juni 2004.

2004–2016:

Affiliated faculty member, Institute for Data Analysis and Visualization (IDAV), University of California, Davis, California, U.S.A.

2004–2019:

Affiliated lead scientist and faculty member, W. M. Keck Foundation Center for Active Visualization in the Earth Sciences (KeckCAVES), University of California, Davis, California, U.S.A.

2005–2013:

Co-Direktor, International Research Training Group (IRTG), ,,Visualization of Large and Unstructured Data Sets", University of Kaiserslautern, Germany, and University of California, Davis (lead institutions) and Arizona State University, University of California, Irvine, and The University of Utah (partner institutions), U.S.A., Januar 2005 - Dezember 2013.

2005:

Mitgründer, Stratovan Corporation, Sacramento, California, U.S.A.

2005:

Ruf an die Wright State University (abgelehnt), Full Professor in Informatik – **LexisNexis/Ohio Eminent Scholar (Endowed Professorship/Stiftungsprofessur)** in Informatik **($1,500,000 endowment)**, Dayton, Ohio, U.S.A.

2006–2010:

University of California Presidential Chair in Undergraduate Education, ,,Scientific Visualization in the Geological Sciences: An Interdisciplinary Research Experience for Undergraduates", Office of the Provost, University of California, Davis, California, U.S.A., Juli 2006 - Juni 2010.

2007:

Ruf an die University of Nevada, Las Vegas (abgelehnt) – **Vice President for Research and Dean of the Graduate College (Vizepräsident für Forschung und Dekan des Graduiertenkollegs)**, Las Vegas, Nevada, U.S.A.

2010:

Kandidat für die Position des **Rektor der Universität Leipzig**, September 2010, Universität Leipzig; Kandidatur zurückgezogen.

2012–2017:

Direktor (UC Davis), Los Alamos National Laboratory - UC Davis Institute of Next-generation Visualization and Analysis (INGVA), Los Alamos National Laboratory, New Mexico, and University of California, Davis, U.S.A., Oktober 2012 - September 2017.

2012:

Ruf an die Naval Postgraduate School (abgelehnt) – **Executive Vice President and Provost (Exekutiver Vizepräsident und Provost)**, Monterey, California, U.S.A.

REDAKTIONSAKTIVITÄTEN UND VERÖFFENTLICHUNGEN

Editorial Boards (Mitgliedschaften in Redaktionsvorständen)

[1] IEEE Transactions on Visualization and Computer Graphics (TVCG), Januar 1999 – März 2003.

Bücher, Proceedings und Journal-Sonderausgaben

[16] Aurich, J. C., Ravani, B., Ebert, A., Hamann, B., Müller, R., Zohdi, T. and Kirsch, B., eds. (2017), *Physical Modeling for Virtual Manufacturing Systems and Processes*, Applied Mechanics and Materials 869, special issue, Scientific.Net, Trans Tech Publications Inc., Zürich, Switzerland.

[15] Linsen, L., Hamann, B. and Hege, H.-C., eds. (2016), *Visualization in Medicine and Life Sciences III*, ISBN 978-3-319-24521-8, Mathematics and Visualization Series, Springer-Verlag, Heidelberg, Germany.

[14] Linsen, L., Hagen, H., Hamann, B. and Hege, H.-C., eds. (2012), *Visualization in Medicine and Life Sciences II*, ISBN 978-3-642-21607-7, Mathematics and Visualization Series, Springer-Verlag, Heidelberg, Germany.

[13] Möller, T., Hamann, B. and Russell, R. D., eds. (2009), *Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration*, ISBN 978-3-540-25076-0, Mathematics and Visualization Series, Springer-Verlag, Heidelberg, Germany.

[12] Wolter, F.-E., Hamann, B. and Polthier, K., eds. (2009), *Advances in Shape Modeling and Analysis*, Computer-Aided Design 41(10), special issue, Elsevier Science Publishing Co. Inc., New York, New York, pp. 699–763.

[11] Linsen, L., Hagen, H. and Hamann, B., eds. (2008), *Visualization in Medicine and Life Sciences*, ISBN 978-3-540-72629-6, Mathematics and Visualization Series, Springer-Verlag, Heidelberg, Germany.

[10] Wolters, H. J. and Hamann, B., eds. (2006), *Applications of Geometric Modeling in the Life Sciences*, Computer Aided Geometric Design 23(6), special issue, Elsevier Science Publishing Co. Inc., New York, New York, pp. 481–557.

[9] Brunnett, G., Hamann, B., Müller, H. and Linsen, L., eds. (2004), *Geometric Modeling for Scientific Visualization*, ISBN 3-540-40116-4, Mathematics and Visualization Series, Springer-Verlag, Heidelberg, Germany.

[8] Bajcsy, R., Gross, M., Hamann, B., Joy, K. I. and Staadt, O. G. (2003), *Collaborative Virtual Reality and Visualization*, electronic workshop proceedings, Department of Computer Science, University of California, Davis, California, http://graphics.cs.ucdavis.edu/CVRV2003/program.html.

[7] Farin, G., Hamann, B. and Hagen, H., eds. (2003), *Hierarchical and Geometrical Methods in Scientific Visualization*, ISBN 3-540-43313-9, Mathematics and Visualization Series, Springer-Verlag, Heidelberg, Germany.

[6] Ertl, T., Hamann, B. and Varshney, A., eds. (2000), Proceedings of *IEEE Visualization 2000*, ISBN 0-7803-5897-X, IEEE Computer Society Press, Los Alamitos, California.

[5] Farin, G., Hagen, H. and Hamann, B., eds. (2000), *Hierarchical Approximation and Geometrical Methods for Scientific Visualization*, electronic workshop proceedings, Department of Computer Science, University of California, Davis, California, http://graphics.cs.ucdavis.edu/hvm00/program.html.

[4] Ebert, D. S., Gross, M. and Hamann, B., eds. (1999), Proceedings of *IEEE Visualization '99*, ISBN 0-7803-6478-3, IEEE Computer Society Press, Los Alamitos, California.

[3] Hamann, B. and Sarraga, R. F., eds. (1995), *Grid Generation, Finite Elements, and Geometric Design*, Computer Aided Geometric Design 12(7), special issue, ISSN 0167-8396(199511)12:7, Elsevier Science Publishing Co. Inc., New York, New York, pp. 647–784.

[2] Hamann, B. (1991), *Visualization and Modeling Contours of Trivariate Functions*, Ph.D. dissertation, Department of Computer Science, Arizona State University, Tempe, Arizona.

[1] Hamann, B. (1988), *Smoothing Algorithms for Curves and Surfaces in CAGD*, in German (*Glättungsalgorithmen für Kurven und Flächen in CAGD*), M.S. thesis, Department of Computer Science, Technical University of Braunschweig, Braunschweig, Germany.

Veröffentlichungen in Journalen

[153] Zhang, X., Hamann, B., Wang, D., Wang, H., Wang, Y., Yin, Y. and Gao, H. (2024), FMGDN: Flexible multi-grained dilation network empowered multimedia image inpainting for electronic consumer, in IEEE Transactions on Consumer Electronics 70(2), pp. 4816–4827.

[152] Chen, T., Zhang, X., Hamann, B., Wang, D. and Zhang, H. (2022), A multi-level feature integration network for image inpainting, Multimedia Tools and Applications (MTAP) 81(27), Springer-Verlag, pp. 38781–38802.

[151] Claus, F., Hamann, B. and Hagen, H. (2022), A finite-element based mesh morphing approach for surface meshes, Computer-Aided Design 146, article 103232, Elsevier, 17 pages, DOI https://doi.org/10.1016/j.cad.2022.103232.

[150] Mosbach, D., Schladitz, K., Hamann, B. and Hagen, H. (2022), A local approach for computing smooth B-spline surfaces for arbitrary quadrilateral base meshes, Journal of Computing and Information Science in Engineering 22(1), The American Society of Mechanical Engineers (ASME), pp. 011003-1–011003-10.

[149] Murugesan, S., Kiran, M., Hamann, B. and Weber, G. H. (2022), Netostat: Analyzing dynamic flow patterns in high-speed networks, in: Zhu, M., Neuwirth, S. M. and Kiran, M., eds. Cluster Computing 25, special issue (Supercomputing 2020 (SC20) – Seventh Annual International Workshop on Innovating the Network for Data-intensive Science (INDIS 2020)), Springer-Verlag, pp. 2915–2930.

[148] Banesh, D., Petersen, M. R., Ahrens, J. P., Turton, T. L., Samsel, F., Schoonover, J. and Hamann, B. (2021), An image-based framework for ocean feature detection and analysis, Journal of Geovisualization and Spatial Analysis 5(2), article 17, Springer-Verlag, 21 pages.

[147] Claus, F., Hagen, H. and Hamann, B. (2021), Calculating the gravity-free shape of sheet metal parts, The International Journal of Advanced Manufacturing Technology 113, Springer-Verlag, pp. 3401–3417.

[146] Claus, F., Hamann, B., Leitte, H. and Hagen, H. (2021), Decomposing deviations of scanned surfaces of sheet metal assemblies, Journal of Manufacturing Systems 61, Elsevier, pp. 125–138.

[145] Mosbach, D., Gospodnetic, P., Rauhut, M., Hamann, B. and Hagen, H. (2021), Feature driven viewpoint placement for model based surface inspection, Machine Vision and Applications 32(1), article 8, Springer-Verlag, 21 pages.

[144] Pulido, J., Dutra da Silva, R., Livescu, D. and Hamann, B. (2021), Multiresolution classification of turbulence features in image data through machine learning, Computers and Fluids 214, article 104770, Elsevier, 11 pages.

[143] Vargas, A. R. S., Werneck, R., Moura, R., Mendes Junior, P., Prates, R., Castro, M., Goncalves, M., Hossain, M., Zampieri, M., Ferreira, A., Davolio, A., Hamann, B., Schiozer, D. J. and Rocha, A. (2021), A visual analytics approach to anomaly detection in hydrocarbon reservoir time series data, Journal of Petroleum Science and Engineering 206, article 108988, Elsevier, 15 pages.

[142] Aldrich, G. A., Lukasczyk, J., Hyman, J. D., Srinivasan, G., Viswanathan, H. S., Garth, C., Leitte, H., Ahrens, J. P. and Hamann, B. (2020), A query-based framework for searching, sorting and exploring data ensembles, IEEE Computing in Science and Engineering 22(2), pp. 64–76.

[141] Linares, O. A. C., Hamann, B. and Neto, J. B. (2020), Segmenting cellular retinal images by optimizing super-pixels, multi-level modularity, and cell boundary representation, IEEE Transactions on Image Processing 29(1), pp. 809–818.

[140] Murugesan, S., Bouchard, K. E., Brown, J., Kiran, M., Lurie, D., Hamann, B. and Weber, G. H. (2020), State-based network similarity visualization, Information Visualization 19(2), SAGE Publications Ltd., pp. 96–113.

[139] Pulido, J., Zheng, C., Thorman, P. and Hamann, B. (2020), SnowPac: A multi-scale cubic B-spline wavelet compressor for astronomical images, Monthly Notices of the Royal Astronomical Society (MNRAS) 493(2), John Wiley & Sons, pp. 2545–2555.

[138] Rüdiger, P., Claus, F., Hamann, B., Hagen, H. and Leitte, H. (2020), Combining visual analytics and machine learning for reverse engineering in assembly quality control, in: Wischgoll, T., Kao, D.L. and Chiang, Y.-J., eds., Journal of Imaging Science and Technology 64(6), special issue (Electronic Imaging 2021 – Visualization and Data Analysis 2021), Society for Imaging Science and Technology, pp. 060405-1–060405-13 (presented at: "Electronic Imaging 2021 – Visualization and Data Analysis 2021," San Francisco, California, January 2021).

[137] Vargas, A. R. S., Hamann, B. and Ferreira de Oliveira, M. C. (2020), TV-MV analytics: A visual analytics framework to explore time-varying multivariate data, Information Visualization 19(1), SAGE Publications Ltd., pp. 3–23.

[136] Vargas, A. R. S., Rollmann, K., Almeida, F., Davolio, A., Hamann, B., Schiozer, D. J. and Rocha, A. (2020), A synthetic case study of measuring the misfit between 4D seismic data and numerical reservoir simulation models through the momenta tree, Computers and Geosciences 145, article 104617, Elsevier, 15 pages.

[135] Banesh, D., Petersen, M. R., Wendelberger, J. R., Ahrens, J. P. and Hamann, B. (2019), Comparison of piecewise linear change point detection with traditional methods for ocean and climate data, in: Rink, K., Bujack, R., Jänicke, S. and Zeckzer, D., eds., *Visual Data Exploration*, Environmental Earth Sciences 78(21), special issue, article 623, Springer-Verlag, 16 pages.

[134] Kronenberger, M., Schladitz, K., Wirjadi, O., Weber, C., Hamann, B. and Hagen, H. (2019), Endpoint detection of partially overlapping straight fibers using high positive Gaussian curvature in 3D images, Image Analysis and Stereology 38(3), Slovenian Society for Stereology and Quantitative Image Analysis, pp. 245–253.

[133] Linares, O. A. C., Bianchi, J., Raveli, D., Neto, J. B. and Hamann, B. (2019), Mandible and skull segmentation in cone beam computed tomography using super-voxels and graph clustering, The Visual Computer 35(10), Springer-Verlag, pp. 1461–1474.

[132] Beketayev, K., Yeliussizov, D., Morozov, D., Weber, G. H. and Hamann, B. (2018), Measuring the error in approximating the sub-level set topology of sampled scalar data, International Journal of Computational Geometry and Applications (IJCGA) 28(1), World Scientific Publishing Company, pp. 57–77.

[131] Borges, V. R. P., Ferreira de Oliveira, M. C., Silva, T. G., Vieira, A. A. H. and Hamann, B. (2018), Region growing for segmenting green microalgae images, IEEE/ACM Transactions on Computational Biology and Bioinformatics 15(1), pp. 257–270.

[130] Gillmann, C., Wischgoll, T., Hamann, B. and Hagen, H. (2018), Accurate and reliable extraction of surfaces from image data using a multi-dimensional uncertainty model, in: Chen, F., Dokken, T., Grandine, T. and Morin, G., eds., *Geometric Modeling: Interoperability and New Challenges*,

Graphical Models 99, special issue, Elsevier, pp. 13–21 (invited presentation at: "Dagstuhl Seminar on Geometric Modelling, Interoperability and New Challenges," Dagstuhl, Germany, May/June 2017).

[129] Giménez, A., Gamblin, G. T., Jusufi, I., Bhatele, A., Schulz, M. W. J., Bremer, P.-T. and Hamann, B. (2018), MemAxes: Visualization and analytics for characterizing complex memory performance behaviors, IEEE Transactions on Visualization and Computer Graphics 24(7), pp. 2180–2193.

[128] Kronenberger, M., Schladitz, K., Hamann, B. and Hagen, H. (2018), Fiber segmentation in crack regions of steel fiber reinforced concrete using principal curvature, Image Analysis and Stereology 37(2), Slovenian Society for Stereology and Quantitative Image Analysis, pp. 127–137.

[127] Pulido, J., Livescu, D., Kanov, K., Burns, R., Canada, C. V., Ahrens, J. P. and Hamann, B. (2018), Remote visual analysis of large turbulence databases at multiple scales, Journal of Parallel and Distributed Computing 120, Elsevier, pp. 115–126.

[126] Rupprecht, F.-A., Kasakow, G., Aurich, J. C., Hamann, B. and Ebert, A. (2018), Improving collaboration efficiency via diverse networked mobile devices, in: Luo, Y., Huang, T. and Duh, H., eds., Journal of Multimodal User Interfaces 12(2), special issue (Cooperative Design, Visualization and Engineering for Multimodal Systems and Datasets), Springer-Verlag, pp. 91–108.

[125] Aldrich, G. A., Hyman, J. D., Karra, S., Gable, C. W., Makedonska, N., Viswanathan, H. S., Woodring, J. L. and Hamann, B. (2017), Analysis and visualization of discrete fracture networks using a flow topology graph, IEEE Transactions on Visualization and Computer Graphics 23(8), pp. 1896–1909.

[124] Gillmann, C., Post, T. M., Kirsch, B., Wischgoll, T., Hartig, J., Hamann, B., Hagen, H. and Aurich, J. C. (2017), An industrial vision system to analyze the wear of cutting tools, in: Aurich, J. C., Ravani, B., Ebert, A., Hamann, B., Müller, R., Zohdi, T. and Kirsch, B., eds., Applied Mechanics and Materials 869, special issue (Physical Modeling for Virtual Manufacturing Systems and Processes), Scientific.Net, pp. 183–194 (presented at: "First Conference on Physical Modeling for Virtual Manufacturing Systems and Processes," Speyer, Germany, June 2017).

[123] Lukasczyk, L., Aldrich, G. A., Steptoe, M., Favelier, G., Gueunet, C., Tierny, J., Maciejewski, R., Hamann, B. and Leitte, H. (2017), Viscous fingering: A topological visual analytic approach, in: Aurich, J. C., Ravani, B., Ebert, A., Hamann, B., Müller, R., Zohdi, T. and Kirsch, B., eds., Applied Mechanics and Materials 869, special issue (Physical Modeling for Virtual Manufacturing Systems and Processes), Scientific.Net, pp. 9–19 (presented at: "First Conference on Physical Modeling for Virtual Manufacturing Systems and Processes," Speyer, Germany, June 2017).

[122] Murugesan, S., Bouchard, K. E., Brown, J., Hamann, B., Seeley, W., Trujillo, A. and Weber, G. H. (2017), Brain modulyzer: Interactive visual analsis of functional brain connectivity, IEEE/ACM Transactions on Computational Biology and Bioinformatics 14(4), pp. 805–818.

[121] Murugesan, S., Bouchard, K. E., Chang, E. F., Dougherty, M., Hamann, B. and Weber, G. H. (2017), Multi-scale visual analysis of time-varying electrocorticography data via clustering of brain regions, in: Ji, S., Shi, L. and Tong, H., eds., BMC Bioinformatics 18(Suppl 6):236, special issue, BioMed Central Ltd., pp. 1–15.

[120] Niu, D., Bremer, P.-T., Lindstrom, P., Hamann, B., Zhou, Y. and Zhang, C. (2017), Two-dimensional shape retrieval using the distribution of extrema of Laplacian eigenfunctions, The Visual Computer 33(5), Springer-Verlag, pp. 607–624.

[119] Post, T. M., Hamann, B., Hagen, H. and Aurich, J. C. (2017), Ensemble visualization of bottlenecks in planar flow networks, in: Aurich, J. C., Ravani, B., Ebert, A., Hamann, B., Müller, R., Zohdi, T. and Kirsch, B., eds., Applied Mechanics and Materials 869, special issue (Physical Modeling for Virtual Manufacturing Systems and Processes), Scientific.Net, pp. 234–243 (presented at: "First Conference on Physical Modeling for Virtual Manufacturing Systems and Processes," Speyer, Germany, June

2017).

[118] Post, T. M., Ilsen, R., Hamann, B., Hagen, H. and Aurich, J. C. (2017), User-guided visual analysis of cyber-physical production systems, in: Ravani, B. and Aurich, J. C., eds., Journal of Computing and Information Science in Engineering (JCISE) 17(2), special issue, The American Society of Mechanical Engineers (ASME), pp. 021005-1–021005-8.

[117] Vargas, A. R. S., Vani, B. C., Shimabukuro, M. H., Monico, J. F. G., Ferreira de Oliveira, M. C. and Hamann, B. (2017), Visual analytics of time-varying multivariate ionospheric scintillation data, in: Torchelsen, R. P. and Panozzo, D., eds., Computers and Graphics 68, special issue, Proceedings of *XXX SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI 2017)*, Elsevier, pp. 96–107 (presented at: "XXX SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI 2017)," Niteroi, Brazil, October 2017).

[116] Wang, X., Zhao, Z.-L., Capps, A. G. and Hamann, B. (2017), An iterative closest point approach for the registration of volumetric human retina image data obtained by optical coherence tomography, Multimedia Tools and Applications (MTAP) 76(5), Springer-Verlag, pp. 6843–6857.

[115] usaacs, K. E., Gamblin, G. T., Bhatele, A., Schulz, M., Hamann, B. and Bremer, P.-T. (2016), Ordering traces logically to identify lateness in message passing programs, IEEE Transactions on Parallel and Distributed Systems 27(3), pp. 829–840.

[114] Pulido, J., Livescu, D., Woodring, J. L., Ahrens, J. P. and Hamann, B. (2016), Survey and analysis of multiresolution methods for turbulence data, Computers and Fluids 125, Elsevier, pp. 39–58.

[113] Streletz, G. J., Gebbie, G. A., Kreylos, O., Hamann, B., Kellogg, L. H. and Spero, H. J. (2016), Interpolating sparse scattered data using flow information, Journal of Computational Science 16, Elsevier, pp. 156–169.

[112] Dutra da Silva, R., Schwartz, W. R., Pedrini, H., Pulido, J. and Hamann, B. (2015), A topology-based approach to computing neighborhood-of-interest points using the Morse complex, Journal of Visual Communication and Image Representation 30, Elsevier, pp. 299–311.

[111] Yang, X., Malak, R. C., Lauer, C., Weidig, C., Hagen, H., Hamann, B., Aurich, J. C. and Kreylos, O. (2015), Manufacturing system design with virtual factory tools, in: Mourtzis, D., Maropoulos, P. G. and Chryssolouris, G., eds., International Journal of Computer Integrated Manufacturing 28(1), special issue, Taylor and Francis, Inc., pp. 25–40.

[110] Zheng, C., Pulido, J., Thorman, P. and Hamann, B. (2015), An improved method for object detection in astronomical images, Monthly Notices of the Royal Astronomical Society (MNRAS) 451(4), John Wiley & Sons, pp. 4445–4459.

[109] Isaacs, K. E., Bremer, P.-T., Jusufi, I., Gamblin, G. T., Bhatele, A., Schulz, M. W. J. and Hamann, B. (2014), Combing the communication hairball: Visualizing parallel execution traces using logical time, in: Chen, M., Ebert, D. S., Hauser, H., Heer, J., North, C., Qu, H., Shen, H.-W., Tory, M. and Ynnerman, A., eds., *IEEE Information Visualization Conference 2014 (InfoVis 2014)*, IEEE Transactions on Visualization and Computer Graphics 20(12), pp. 2349–2358 (presented at: "IEEE Information Visualization Conference 2014 (InfoVis 2014)," Paris, France, November 2014).

[108] Weidig, C., Galambos, P., Csapo, A., Zentay, P., Baranyi, P., Aurich, J. C., Hamann, B. and Kreylos, O. (2014), Future Internet-based collaboration in factory planning, Acta Polytechnica Hungarica – Journal of Applied Sciences 11(7), Óbuda University, Hungarian Academy of Engineering and IEEE Hungary Section, Budapest, Hungary, pp. 157–177.

[107] Zawadzki, R. J., Capps, A. G., Kim, D.-Y., Panorgias, A., Stevenson, S. B., Hamann, B. and Werner, J. S. (2014), Progress on developing adaptive optics – optical coherence tomography for in vivo retinal imaging: Monitoring and correction of eye motion artifacts, in: Ilev, I. K., Boppart, S. A., Andersson-Engels, S., Kim, B.-M., Perelman, L. T. and Tuchin, V., eds., IEEE Journal of Selected

Topics in Quantum Electronics 20(2), special issue (Biophotonics), paper 7100912 (12 pages).

[106] Chen, F., Obermaier, H., Hagen, H., Hamann, B., Tierny, J. and Pascucci, V. (2013), Topology analysis of time-dependent multi-fluid data using Reeb graph, in: Bremer, P.-T., Hagen, H. and Pascucci, V., eds., Computer Aided Geometric Design 30(6), special issue (Foundations of Topological Analysis), Elsevier, pp. 557–566 (presented at: "Foundations of Topological Analysis Workshop 2010," Salt Lake City, Utah, October 2010).

[105] Engel, D., Hummel, M., Höpel, F., Bein, K. J., Wexler, A. S., Garth, C., Hamann, B. and Hagen, H. (2013), Towards high-dimensional data analysis in air quality research, in: Preim, B., Rheingans, P. and Theisel, H., eds., *Joint Eurographics-IEEE VGTC Conference on Visualization 2013*, Computer Graphics Forum 32(3) (Proceedings of "EuroVis 2013"), Eurographics/Wiley-Blackwell, pp. 101–110 (presented at: "Joint Eurographics-IEEE VGTC Conference on Visualization (EuroVis 2013)," Leipzig, Germany, June 2013).

[104] Petersen, M. R., Williams, S. J., Maltrud, M. E., Hecht, M. W. and Hamann, B. (2013), A three-dimensional eddy census of a high-resolution global ocean simulation, Journal of Geophysical Research: Oceans 118(4), American Geophysical Union (AGU), pp. 1759–1774.

[103] Shafii, S., Obermaier, H., Linn, R. R., Koo, E., Hlawitschka, M., Garth, C., Hamann, B. and Joy, K. I. (2013), Visualization and analysis of vortex-turbine intersections in wind farms, IEEE Transactions on Visualization and Computer Graphics 19(9), pp. 1579–1591.

[102] Williams, S. J., Hlawitschka, M., Dillard, S. E., Thoma, D. and Hamann, B. (2013), Multi-region Delaunay complex segmentation, in: Bremer, P.-T., Hagen, H. and Pascucci, V., eds., Computer Aided Geometric Design 30(6), special issue (Foundations of Topological Analysis), Elsevier, pp. 588–596 (presented at: "Foundations of Topological Analysis Workshop 2010," Salt Lake City, Utah, October 2010).

[101] Zhu, Y., Ramakrishnan, A. S., Hamann, B. and Neff, M. P. (2013), A system for automatic animation of piano performances, Computer Animation and Virtual Worlds 24(5), John Wiley & Sons, pp. 445–456.

[100] Aurich, J. C., Yang, X., Schröder, S., Hering-Bertram, M., Biedert, T., Hagen, H. and Hamann, B. (2012), Noise investigation in manufacturing systems: an acoustic simulation and virtual reality enhanced method, in: Duffie, N. A., ed., CIRP Journal of Manufacturing Science and Technology, special issue (The 44th CIRP International Conference on Manufacturing Systems 2011), Elsevier, pp. 337–347.

[99] Cowgill, E. S., Bernardin, T. S., Oskin, M. E., Bowles, C. J., Yikilmaz, M. B., Kreylos, O., Elliott, A. J., Bishop, S. M., Gold, R. D., Morelan, A., Bawden, G. W., Hamann, B. and Kellogg, L. H. (2012), Interactive terrain visualization enables virtual field work during rapid scientific response to the 2010 Haiti earthquake, in: Frankel, K. L. and Madin, I. P., eds., Geosphere 8(4), special issue (Applications of Lidar in the Earth Sciences), The Geological Society of America, pp. 787–804.

[98] Engel, D., Greff, K., Garth, C., Bein, K. J., Wexler, A. S., Hamann, B. and Hagen, H. (2012), Visual steering and verification of mass spectrometry data factorization in air quality research, in: Dykes, J., Laidlaw, D. H., Müller, K., Santucci, G., Scheuermann, G., Ward, M. and Weaver, C., eds., *IEEE Visualization 2012*, IEEE Transactions on Visualization and Computer Graphics 18(12), pp. 2275–2284 (presented at: "IEEE Visualization 2012," Seattle, Washington, October 2012).

[97] Shafii, S., Dillard, S. E., Hlawitschka, M. and Hamann, B. (2012), The topological effects of smoothing, IEEE Transactions on Visualization and Computer Graphics 18(1), pp. 160–172.

[96] Westerteiger, R., Compton, T., Bernardin, T. S., Cowgill, E. S., Gwinner, K., Hamann, B., Gerndt, A. and Hagen, H. (2012), Interactive retro-deformation of terrain for reconstructing 3D fault displacements, in: Dykes, J., Laidlaw, D. H., Müller, K., Santucci, G., Scheuermann, G., Ward, M. and

Weaver, C., eds., *IEEE Visualization 2012*, IEEE Transactions on Visualization and Computer Graphics 18(12), pp. 2208–2215 (presented at: "IEEE Visualization 2012," Seattle, Washington, October 2012).

[95] Williams, S. J., Petersen, M. R., Hecht, M. W., Maltrud, M. E., Patchett, J. M., Ahrens, J. P. and Hamann, B. (2012), Interface exchange as an indicator for eddy heat transport, in: Bruckner, S., Miksch, S. and Pfister, H., eds., *Joint Eurographics-IEEE VGTC Conference on Visualization 2012*, Computer Graphics Forum 31(3) (Proceedings of "EuroVis 2012"), Eurographics/Wiley-Blackwell, pp. 1125–1134 (presented at: "Joint Eurographics-IEEE VGTC Conferene on Visualization (EuroVis 2012)," Vienna, Austria, June 2012).

[94] Beketayev, K., Weber, G. H., Haranczyk, M., Bremer, P.-T., Hlawitschka, M. and Hamann, B. (2011), Topology-based visualization of transformation pathways in complex chemical systems, in: Hauser, H., Pfister, H. and van Wijk, J. J., eds., *Joint Eurographics-IEEE VGTC Symposium on Visualization 2011*, Computer Graphics Forum 30(3) (Proceedings of "EuroVis 2011"), Eurographics/Wiley-Blackwell, pp. 663–672 (presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2011)," Bergen, Norway, May/June 2011).

[93] Bernardin, T. S., Cowgill, E. S., Kreylos, O., Bowles, C. J., Gold, P. O., Hamann, B. and Kellogg, L. H. (2011), Crusta: A new virtual globe for real-time visualization of sub-meter digital topography at planetary scales, in: Bailey, J. E. and Chen, A., eds., Computers and Geosciences 37(1), special issue (Virtual Globes in Science), Elsevier, pp. 75–85.

[92] Engel, D., Rosenbaum, R., Hamann, B. and Hagen, H. (2011), Structural decomposition trees, in: Hauser, H., Pfister, H. and van Wijk, J. J., eds., *Joint Eurographics-IEEE VGTC Symposium on Visualization 2011*, Computer Graphics Forum 30(3) (Proceedings of "EuroVis 2011"), Eurographics/Wiley-Blackwell, pp. 921–930 (presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2011)," Bergen, Norway, May/June 2011).

[91] Obermaier, H., Billen, M. I., Hagen, H., Hering-Bertram, M. and Hamann, B. (2011), Visualizing strain anisotropy in mantle flow fields, Computer Graphics Forum 30(8), Eurographics/Wiley-Blackwell, pp. 2301–2313.

[90] Stevens, E. W., Sumner, D. Y., Harwood, C. L., Crutchfield, J. P., Hamann, B., Kreylos, O., Puckett, E. and Senge, P. (2011), Understanding microbialite morphology using a comprehensive suite of three-dimensional analysis tools, Astrobiology 11(6), Mary Ann Liebert, Inc. Publishers, New Rochelle, New York, pp. 509–518.

[89] Vančo, M., Hamann, B., Kreylos, O., Billen, M. I. and Jadamec, M. A. (2011), Distance field computation for geological slab surface data sets, Computing and Visualization in Science 14(4), Springer-Verlag, pp. 143–156.

[88] Williams, S. J., Hecht, M. W., Petersen, M. R., Strelitz, R. A., Maltrud, M. E., Ahrens, J. P., Hlawitschka, M. and Hamann, B. (2011), Visualization and analysis of eddies in a global ocean simulation, in: Hauser, H., Pfister, H. and van Wijk, J. J., eds., *Joint Eurographics-IEEE VGTC Symposium on Visualization 2011*, Computer Graphics Forum 30(3) (Proceedings of "EuroVis 2011"), Eurographics/Wiley-Blackwell, pp. 991–1000 (presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2011)," Bergen, Norway, May/June 2011).

[87] Williams, S. J., Petersen, M. R., Bremer, P.-T., Hecht, M. W., Pascucci, V., Ahrens, J. P., Hlawitschka, M. and Hamann, B. (2011), Adaptive extraction and quantification of geophysical vortices, in: van Ham, F., Machiraju, R., Müller, K. Scheuermann, G. and Weaver, C., eds., *IEEE Visualization 2011*, IEEE Transactions on Visualization and Computer Graphics 17(12), pp. 2088–2095 (presented at: "IEEE Visualization 2011," Providence, Rhode Island, October 2011).

[86] Burkhart, D., Umlauf, G. and Hamann, B. (2010), Adaptive and feature-preserving subdivision for

high-quality tetrahedral meshes, Computer Graphics Forum 29(1), Eurographics/Wiley-Blackwell, pp. 117–127.

[85] Burkhart, D., Hamann, B. and Umlauf, G. (2010), Iso-geometric finite element analysis based on Catmull-Clark subdivision solids, in: Sorkine, O. and Lévy, B., eds., *Eurographics Symposium on Geometry Processing 2010 (SGP 2010)*, Computer Graphics Forum 29(5) (Proceedings of "Eurographics Symposium on Geometry Processing 2010"), Eurographics/Wiley-Blackwell, pp. 1575–1584 (presented at: "Eurographics Symposium on Geometry Processing 2010 (SGP 2010)," Lyon, France, July 2010).

[84] Forte, A. M., Cowgill, E. S., Bernardin, T. S., Kreylos, O. and Hamann, B. (2010), Late Cenozoic deformation of the Kura fold-thrust belt, southern Greater Caucasus, Geological Society of America Bulletin 122, The Geological Society of America, pp. 465–486.

[83] Hlawitschka, M., Garth, C., Tricoche, X., Kindlmann, G., Scheuermann, G., Joy, K. I. and Hamann, B. (2010), Direct visualization of fiber information by coherence, in: Bartz, D., Bohn, S. and Hoffmann, J., eds., International Journal of Computer Assisted Radiology and Surgery (IJCARS) 5(2), special issue, Springer-Verlag, pp. 125–131.

[82] Hummel, M., Garth, C., Hamann, B., Hagen, H. and Joy, K. I. (2010), IRIS: Illustrative rendering of integral surfaces, in: Machiraju, R., Möller, T. and Pfister, H., eds., *IEEE Visualization 2010*, IEEE Transactions on Visualization and Computer Graphics 16(6), pp. 1319–1328 (presented at: "IEEE Visualization 2010," Salt Lake City, Utah, October 2010).

[81] Rübel, O., Weber, G. H., Huang, M.-Y., Bethel, E. W., Biggin, M. D., Fowlkes, C. C., Luengo Hendriks, C. L., Keränen, S. V. E., Eisen, M. B., Knowles, D. W., Malik, J., Hagen, H. and Hamann, B. (2010), Integrating data clustering and visualization for the analysis of 3D gene expression data, IEEE/ACM Transactions on Computational Biology and Bioinformatics 7(1), pp. 64–79.

[80] Yamazaki, I., Natarajan, V., Bai, Z. and Hamann, B. (2010), Segmenting point-sampled surfaces, The Visual Computer 26(12), Springer-Verlag, pp. 1421–1433.

[79] Bethel, E. W., Johnson, C., Ahern, S., Bell, J. B., Bremer, P.-T., Childs, H. R., Cormier-Michel, E., Day, M., Deines, E., Fogal, T., Garth, C., Geddes, C. G. R., Hagen, H., Hamann, B., Hansen, C. D., Jacobsen, J. S., Joy, K. I., Krüger, J., Meredith, J. S., Messmer, P., Ostrouchov, G., Pascucci, V., Potter, K., Prabhat, Pugmire, D., Rübel, O., Sanderson, A., Silva, C. T., Ushizima, D. M., Weber, G. H., Whitlock, B. and Wu, K. (2009), Occam's razor and petascale visual data analysis, in: Hules, J. A., ed., Journal of Physics: Conference Series 180, special issue, Institute of Physics (IOP) Publishing, paper 012084, available on-line at http://www.iop.org/EJ/toc/1742-6596/180/1; also published as TR LBNL-2210E, Lawrence Berkeley National Laboratory, Berkeley, California (http://www-vis.lbl.gov/Publications/2009/LBNL-2210E.pdf) (presented at: "Scientific Discovery through Advanced Computing (SciDAC) 2009," San Diego, California, June 2009).

[78] Dillard, S. E., Natarajan, V., Weber, G. H., Pascucci, V. and Hamann, B. (2009), Topology-guided tessellation of quadratic elements, in: Asano, T., ed., International Journal of Computational Geometry and Applications (IJCGA) 19(2), special issue, World Scientific Publishing Company, pp. 195–211.

[77] Rübel, O., Geddes, C. G. R., Cormier-Michel, E., Wu, K., Prabhat, Weber, G. H., Ushizima, D. M., Messmer, P., Hagen, H., Hamann, B. and Bethel, E. W. (2009), Automatic beam path analysis of laser wakefield particle acceleration data, Computational Science and Discovery 2 (2009) 015005, Institute of Physics (IOP) Publishing, available on-line at http://www.iop.org/EJ/abstract/1749-4699/2/1/015005/, 38 pages.

[76] Weber, G. H., Rübel, O., Huang, M.-Y., DePace, A. H., Fowlkes, C. C., Keränen, S. V. E., Luengo Hendriks, C. L., Hagen, H., Knowles, D. W., Malik, J., Biggin, M. D. and Hamann, B. (2009), Visual exploration of three-dimensional gene expression using physical views and linked abstract views, IEEE/ACM Transactions on Computational Biology and Bioinformatics 6(2), pp. 296–309.

[75] Wu, K., Ahern, S., Bethel, E. W., Chen, J. H., Childs, H. R., Cormier-Michel, E., Geddes, C. G. R., Gu, J., Hagen, H., Hamann, B., Koegler, W., Lauret, J., Meredith, J. S., Messmer, P., Otoo, E., Perevoztchikov, V., Poskanzer, A., Prabhat, Rübel, O., Shoshani, A., Sim, A., Stockinger, K., Weber, G. H. and Zhang, W.-M. (2009), FastBit: Interactively searching massive data, in: Hules, J. A., ed., Journal of Physics: Conference Series 180, special issue, Institute of Physics (IOP) Publishing, paper 012053, available on-line at http://www.iop.org/EJ/toc/1742-6596/180/1; also published as TR LBNL-2164E, Lawrence Berkeley National Laboratory, Berkeley, California (http://crd.lbl.gov/~kewu/ps/LBNL-2164E.html) (presented at: "Scientific Discovery through Advanced Computing (SciDAC) 2009," San Diego, California, June 2009).

[74] Zawadzki, R. J., Choi, S. S., Fuller, A. R., Evans, J. W., Hamann, B. and Werner, J. S. (2009), Cellular resolution volumetric in vivo retinal imaging with adaptive optics – optical coherence tomography, in: Fujimoto, J. G., Drexler, W., Schuman, J. S. and Hitzenberger, C. K., eds., Optics Express – The International Electronic Journal of Optics 17(5), special issue (Optical Coherence Tomography in Ophthalmology), Optical Society of America, pp. 4084–4094 (also published by The Virtual Journal of Biomedical Optics (VJBO) 4(5), Optical Society of America, May 5, 2009, http://www.opticsinfobase.org/vjbo/virtual_issue.cfm).

[73] Ahlborn, B. A., Kreylos, O., Shafii, S., Hamann, B. and Staadt, O. G. (2008), Design and implementation of a foveal projection display, in: Baciu, G., Sun, H. and Wu, E., eds., International Journal of Image and Graphics (IJIG) 8(2), special issue, World Scientific Publishing Company, pp. 243–263.

[72] Billen, M. I., Kreylos, O., Hamann, B., Jadamec, M. A., Kellogg, L. H., Staadt, O. G. and Sumner, D. Y. (2008), A geoscience perspective on immersive 3D gridded data visualization, Computers and Geosciences 34(9), Elsevier, pp. 1056–1072.

[71] Feng, Z. X., Hotz, I., Hamann, B. and Joy, K. I. (2008), Anisotropic noise samples, IEEE Transactions on Visualization and Computer Graphics 14(2), pp. 342–354.

[70] Fowlkes, C. C., Luengo Hendriks, C. L., Keränen, S. V. E., Weber, G. H., Rübel, O., Huang, M.-Y., Chatoor, S., DePace, A. H., Simirenko, L., Henriquez, C. N., Beaton, A., Weiszmann, R., Celniker, S. E., Hamann, B., Knowles, D. W., Biggin, M. D., Eisen, M. B. and Malik, J. (2008), A quantitative spatiotemporal atlas of gene expression in the Drosophila blastoderm, Cell 133(2), Elsevier, pp. 364–374.

[69] Gyulassy, A. G., Bremer, P.-T., Hamann, B. and Pascucci, V. (2008), A practical approach to Morse-Smale complex computation: Scalability and generality, winner of the "IEEE SciVis Test of Time Award 2008" (awarded in 2022), in: Chen, M., Hansen, C. D. and Ma, K.-L., eds., *IEEE Visualization 2008*, IEEE Transactions on Visualization and Computer Graphics 14(6), pp. 1619–1626 (presented at: "IEEE Visualization 2008," Columbus, Ohio, October 2008).

[68] Hart, L. A., Wood, M. W., Wiley, D. F., Hamann, B., Molinaro, M., Meyers, S., Stevenson, F. T. and Storm, W. (2008), BioSafaris: a rationale for educational software on human biology and health in pre-college as an alternative to dissection, in: Yoshimura, I., Okumura, H. and Hagino, S., eds., Proceedings of *Sixth World Congress on Alternatives and Animal Use in the Life Sciences*, Alternatives to Animal Testing and Experimentation (AATEX) 14, special issue, Japanese Society of Alternatives to Animal Experiments (JSAAE), Tokyo, Japan, pp. 243–248 (presented at: "Sixth World Congress on Alternatives and Animal Use in the Life Sciences," Tokyo, Japan, August 2007).

[67] Kellogg, L. H., Bawden, G. W., Bernardin, T. S., Billen, M. I., Cowgill, E. S., Hamann, B., Jadamec, M. A., Kreylos, O., Staadt, O. G. and Sumner, D. Y. (2008), Interactive visualization to advance earthquake simulation, in: Tiampo, K. F., Weatherly, D. and Weinstein, S. A., eds., Pure and Applied Geophysics 165(3-4), special issue, Birkhäuser/Springer-Verlag, pp. 621–633.

[66] Vančo, M., Hamann, B. and Brunnett, G. (2008), Surface reconstruction from unorganized point

data with quadrics, Computer Graphics Forum 27(6), Eurographics/Wiley-Blackwell, pp. 1593–1606.

[65] Dillard, S. E., Bingert, J. F., Thoma, D. and Hamann, B. (2007), Construction of simplified boundary surfaces from serial-sectioned metal micrographs, in: Chen, M., Hansen, C. D. and Pang, A., eds., *IEEE Visualization 2007*, IEEE Transactions on Visualization and Computer Graphics 13(6), pp. 1528–1535 (presented at: "IEEE Visualization 2007," Sacramento, California, October/November 2007).

[64] Fuller, A. R., Zawadzki, R. J., Choi, S. S., Wiley, D. F., Werner, J. S. and Hamann, B. (2007), Segmentation of three-dimensional retinal image data, in: Chen, M., Hansen, C. D. and Pang, A., eds., *IEEE Visualization 2007*, IEEE Transactions on Visualization and Computer Graphics 13(6), pp. 1719–1726 (presented at: "IEEE Visualization 2007," Sacramento, California, October/November 2007).

[63] Gu, S., Anderson, I., Kunin, V., Cipriano, M. J., Minovitsky, S., Weber, G. H., Amenta, N., Hamann, B. and Dubchak, I. L. (2007), TreeQ-VISTA: an interactive tree visualization tool with functional annotation query capabilities, Bioinformatics 23(6), Oxford University Press, pp. 764–766.

[62] Gyulassy, A. G., Duchaineau, M. A., Natarajan, V., Pascucci, V., Bringa, E. M., Higginbotham, A. and Hamann, B. (2007), Topologically clean distance fields, in: Chen, M., Hansen, C. D. and Pang, A., eds., *IEEE Visualization 2007*, IEEE Transactions on Visualization and Computer Graphics 13(6), pp. 1432–1439 (presented at: "IEEE Visualization 2007," Sacramento, California, October/November 2007).

[61] Gyulassy, A. G., Natarajan, V., Pascucci, V. and Hamann, B. (2007), Efficient computation of Morse-Smale complexes for three-dimensional scalar functions, in: Chen, M., Hansen, C. D. and Pang, A., eds., *IEEE Visualization 2007*, IEEE Transactions on Visualization and Computer Graphics 13(6), pp. 1440–1447 (presented at: "IEEE Visualization 2007," Sacramento, California, October/November 2007).

[60] Linsen, L., Hamann, B. and Joy, K. I. (2007), Wavelets for adaptively refined $\sqrt[3]{2}$-subdivision meshes, International Journal of Computers and Applications 29(3), ACTA Press, pp. 223–231.

[59] Schlemmer, M., Heringer, M., Morr, F., Hotz, I., Hering-Bertram, M., Garth, C., Kollmann, W., Hamann, B. and Hagen, H. (2007), Moment invariants for the analysis of 2D flow fields, in: Chen, M., Hansen, C. D. and Pang, A., eds., *IEEE Visualization 2007*, IEEE Transactions on Visualization and Computer Graphics 13(6), pp. 1743–1750 (presented at: "IEEE Visualization 2007," Sacramento, California, October/November 2007).

[58] Sreevalsan-Nair, J., Linsen, L. and Hamann, B. (2007), Topologically accurate dual isosurfacing using ray intersection, Journal of Virtual Reality and Broadcasting 4(4), The Library, Duesseldorf University of Applied Sciences, 12 pages.

[57] Staadt, O. G., Natarajan, V., Weber, G. H., Wiley, D. F. and Hamann, B. (2007), Interactive processing and visualization of image data for biomedical and life science applications, in: Auer, M., Peng, H. and Singh, A., eds., BMC Cell Biology 8(Suppl 1):S10, special issue, BioMed Central Ltd.

[56] Weber, G. H., Dillard, S. E., Carr, H., Pascucci, V. and Hamann, B. (2007), Topology-controlled volume rendering, IEEE Transactions on Visualization and Computer Graphics 13(2), pp. 330–341.

[55] Zawadzki, R. J., Fuller, A. R., Wiley, D. F., Hamann, B., Choi, S. S. and Werner, J. S. (2007), Adaptation of a support vector machine algorithm for segmentation and visualization of retinal structures in volumetric optical coherence tomography data sets, in: Drexler, W. and Fujimoto, J. G., eds., Journal of Biomedical Optics 12(4), special issue, SPIE – The International Society for Optical Engineering, pp. 041206-1–041206-8.

[54] Bernardin, T. S., Cowgill, E. S., Gold, R. D., Hamann, B. Kreylos, O. and Schmitt, A. (2006), Interactive mapping on 3-D terrain models, Geochemistry, Geophysics, Geosystems (G^3) 7(10), American

Geophysical Union (AGU) and The Geochemical Society.

[53] Bethel, E. W., Johnson, C., Hansen, C. D., Parker, S., Sanderson, A., Silva, C. T., Tricoche, X., Pascucci, V., Childs, H. R., Cohen, J. D., Duchaineau, M. A., Laney, D. E., Lindstrom, P., Ahern, S., Meredith, J. S., Ostrouchov, G., Joy, K. I. and Hamann, B. (2006), VACET: Proposed SciDAC2 Visualization and Analytics Center for Enabling Technologies, in: Tang, W. M., ed., Journal of Physics: Conference Series 46, special issue, Institute of Physics (IOP) Publishing, pp. 561–569; also published as TR LBNL-60413, Lawrence Berkeley National Laboratory, Berkeley, California (http://www.osti.gov/bridge/servlets/purl/927814-wMTiMH/) (presented at: "Scientific Discovery through Advanced Computing (SciDAC) 2006," Denver, Colorado, June 2006).

[52] Gyulassy, A. G., Natarajan, V., Pascucci, V., Bremer, P.-T. and Hamann, B. (2006), A topological approach to simplification of three-dimensional scalar functions, in: Silva, C. T., Gröller, E. and Rushmeier, H. E., eds., IEEE Transactions on Visualization and Computer Graphics 12(4), special issue, pp. 474–484.

[51] Kil, Y. J., Renzulli, P. A., Kreylos, O., Hamann, B., Monno, G. and Staadt, O. G. (2006), 3D warp brush modeling, Computers and Graphics 30(4), Elsevier, pp. 610–618.

[50] Luengo Hendriks, C. L., Keränen, S. V. E., Fowlkes, C. C., Simirenko, L., Weber, G. H., Henriquez, C. N., Kaszuba, D. W., Hamann, B., Eisen, M. B., Malik, J., Sudar, J. D., Biggin, M. D. and Knowles, D. W. (2006), 3D morphology and gene expression in the Drosophila blastoderm at cellular resolution I: data acquisition pipeline, BMC Genome Biology 7:R123, BioMed Central Ltd.

[49] Natarajan, V., Wang, Y., Bremer, P.-T., Pascucci, V. and Hamann, B. (2006), Segmenting molecular surfaces, in: Wolters, H. J. and Hamann, B., eds., Computer Aided Geometric Design 23(6), special issue, Elsevier, pp. 495–509.

[48] Park, S. W., Linsen, L., Kreylos, O., Owens, J. D. and Hamann, B. (2006), Discrete Sibson interpolation, IEEE Transactions on Visualization and Computer Graphics 12(2), pp. 243–253.

[47] Gray, J. T., Linsen, L., Hamann, B. and Joy, K. I. (2005), Adaptive multi-valued volume data visualization using data-dependent error metrics, International Journal of Modelling and Simulation 25(2), ACTA Press, pp. 135–143.

[46] Linsen, L., Karis, B. J., McPherson, E. G. and Hamann, B. (2005), Tree growth visualization, Journal of WSCG (Winter School of Computer Graphics) 13(1–3) (Proceedings of *The Thirteenth International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2005 (WSCG 2005)*), ISSN 1213-6972, UNION Agency - Science Press, Plzen, Czech Republic, pp. 81–88 (presented at: "The Thirteenth International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2005 (WSCG 2005)," Plzen, Czech Republic, January/February 2005).

[45] Shah, N. Y., Teplitsky, M. V., Minovitsky, S., Pennacchio, L. A., Hugenholtz, P., Hamann, B. and Dubchak, I. L. (2005), SNP-VISTA: An interactive SNP visualization tool, BMC Bioinformatics 6:292, BioMed Central Ltd.

[44] Bertram, M., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2004), Generalized B-spline subdivision-surface wavelets for geometry compression, IEEE Transactions on Visualization and Computer Graphics 10(3), pp. 326–338.

[43] Bremer, P.-T., Edelsbrunner, H., Hamann, B. and Pascucci, V. (2004), A topological hierarchy for functions on triangulated surfaces, in: Turk, G., van Wijk, J. J. and Moorhead, R. J., eds., IEEE Transactions on Visualization and Computer Graphics 10(4), special issue, pp. 385–396.

[42] Crivelli, S. N., Kreylos, O., Hamann, B., Max, N. L. and Bethel, E. W. (2004), ProteinShop: A tool for interactive protein manipulation and steering, Journal of Computer-Aided Molecular Design (JCAMD) 18, Kluwer Academic Publishers, pp. 271–285.

[41] Linsen, L., Pascucci, V., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2004), Wavelet-based multiresolution with $\sqrt[n]{2}$ subdivision, in: Hahmann, S., Brunnett, G., Farin, G. and Goldman, R. N., eds., *Geometric Modelling: Dagstuhl 2002*, Computing 72(1–2), special issue, Springer-Verlag, pp. 129–142.

[40] Mahrous, K. M., Bennett, J. C., Scheuermann, G., Hamann, B. and Joy, K. I. (2004), Topological segmentation in three-dimensional vector fields, IEEE Transactions on Visualization and Computer Graphics 10(2), pp. 198–205.

[39] Shah, N. Y., Couronne, O., Pennacchio, L. A., Brudno, M., Batzoglou, S., Bethel, E. W., Rubin, E. M., Hamann, B. and Dubchak, I. L. (2004), Phylo-VISTA: An interactive visualization tool for multiple DNA sequence alignments, Bioinformatics 20(5), Oxford University Press, pp. 636–643.

[38] Wiley, D. F., Bertram, M. and Hamann, B. (2004), On a construction of a hierarchy of best linear spline approximations using a finite element approach, IEEE Transactions on Visualization and Computer Graphics 10(5), pp. 548–563.

[37] Bonnell, K. S., Duchaineau, M. A., Schikore, D. R., Hamann, B. and Joy, K. I., (2003), Material interface reconstruction, IEEE Transactions on Visualization and Computer Graphics 9(4), pp. 500–511.

[36] Hamann, B., Bethel, E. W., Simon, H. D. and Meza, J. C. (2003), NERSC "Visualization Greenbook" – Future visualization needs of the DOE computational science community hosted at NERSC, The International Journal of High Performance Computing Applications 17(2), SAGE Publications Ltd., pp. 97–123.

[35] Jankun-Kelly, T. J., Kreylos, O., Shalf, J. M., Ma, K.-L., Hamann, B., Joy, K. I. and Bethel E. W. (2003), Deploying web-based visual exploration tools on the grid, IEEE Computer Graphics and Applications 23(2), special issue on graphics applications for grid computing, pp. 40–50.

[34] Jeremić, B., Scheuermann, G., Frey, J., Yang, Z., Hamann, B., Joy, K. I. and Hagen, H. (2002), Tensor visualizations in computational geomechanics, International Journal for Numerical and Analytical Methods in Geomechanics 26, pp. 925–944.

[33] Heckel, B., Uva, A. E., Hamann, B. and Joy, K. I. (2001), Surface reconstruction using adaptive clustering methods, in: Brunnett, G., Bieri, H. and Farin, G., eds., *Geometric Modeling: Dagstuhl 1999*, Computing Suppl. 14, Springer-Verlag, pp. 199–218.

[32] Kreylos, O. and Hamann, B. (2001), On simulated annealing and the construction of linear spline approximations for scattered data, IEEE Transactions on Visualization and Computer Graphics 7(1), pp. 17–31.

[31] Schätzl, R., Hagen, H., Barnes, J. C., Hamann, B. and Joy, K. I. (2001), Data-dependent triangulation in the plane with adaptive knot placement, in: Brunnett, G., Bieri, H. and Farin, G., eds., *Geometric Modelling: Dagstuhl 1999*, Computing Suppl. 14, Springer-Verlag, pp. 309–321.

[30] Bertram, M., Barnes, J. C., Hamann, B., Joy, K. I., Pottmann, H. and Wushour, D. (2000), Piecewise optimal triangulation for the approximation of scattered data in the plane, Computer Aided Geometric Design 17(8), Elsevier, pp. 767–787.

[29] Kreylos, O. and Hamann, B. (2000), Data structures for optimizing linear spline approximations, in: Gröller, E., Hauser, H. and Ribarsky, W., eds., Computers and Graphics 24, special issue on data visualization, Elsevier, pp. 353–361.

[28] Pinskiy, D. V., Meyer, J., Hamann, B., Joy, K. I., Brugger, E. S. and Duchaineau, M. A. (2000), A hierarchical error-controlled octree data structure for large-scale visualization, Crossroads – The ACM Student Magazine, Spring 2000, Association for Computing Machinery, New York, New York, pp. 26–31 (WWW: http://www.acm.org/crossroads/xrds6-3/lsv_oct.html).

[27] Pottmann, H., Krasauskas, R., Hamann, B., Joy, K. I. and Seibold, W. (2000), On piecewise linear

approximation of quadratic functions, Journal for Geometry and Graphics 4(1), Heldermann Verlag, pp. 9–31.

[26] Scheuermann, G., Hamann, B., Joy, K. I. and Kollmann, W. (2000), Visualizing local vector field topology, Journal of Electronic Imaging 9(4), special section on visualization and data analysis, SPIE – The International Society for Optical Engineering, pp. 356–367.

[25] Hamann, B., Jordan, B. W. and Wiley, D. F. (1999), On a construction of a hierarchy of best linear spline approximations using repeated bisection, IEEE Transactions on Visualization and Computer Graphics 5(1/2), pp. 30–46, p. 190 (errata).

[24] LaMar E. C., Hamann, B. and Joy, K. I. (1999), High-quality rendering of smooth isosurfaces, Journal of Visualization and Computer Animation 10, Wiley, pp. 79–90.

[23] Trotts, I. J., Hamann, B. and Joy, K. I. (1999), Simplification of tetrahedral meshes with error bounds, IEEE Transactions on Visualization and Computer Graphics 5(3), pp. 224–237.

[22] Gieng, T. S., Hamann, B., Joy, K. I., Schussman, G. L. and Trotts, I. J. (1998), Constructing hierarchies for triangle meshes, IEEE Transactions on Visualization and Computer Graphics 4(2), pp. 145–161.

[21] Jean, B. A. and Hamann, B. (1998), An efficient surface-surface intersection algorithm using adaptive surface triangulations and space partitioning trees, in Mathematical Engineering in Industry 7(1), VSP, pp. 25–40.

[20] Hamann, B. and Tsai, P.-Y. (1998), Decomposing trimmed surfaces using the Voronoi diagram and a scan line algorithm, Applied Mathematics and Computation 89, Elsevier, pp. 327–344 (presented at: "Second Mississippi State Conference on Differential Equations and Computational Simulations," Mississippi State University, Mississippi State, Mississippi, April 1995).

[19] Farin, G. and Hamann, B. (1997), Current trends in geometric modeling and selected computational applications, Journal of Computational Physics 138(1), Academic Press, pp. 1–15.

[18] Hamann, B., Trotts, I. J. and Farin, G. (1997), On approximating contours of the piecewise trilinear interpolant using triangular rational-quadratic Bézier patches, IEEE Transactions on Visualization and Computer Graphics 3(3), pp. 215–227.

[17] Thompson, J. F. and Hamann, B. (1997), A survey of grid generation techniques and systems with emphasis on recent developments, Surveys on Mathematics for Industry 6, Springer-Verlag, pp. 289–310.

[16] Hamann, B. and Jean, B. A. (1996), Interactive surface correction based on a local approximation scheme, Computer Aided Geometric Design 13(4), Elsevier, pp. 351–368 (presented at: "Third SIAM Conference on Geometric Design," Tempe, Arizona, November 1993).

[15] Hamann, B., Jean, B. A. and Tsai, P.-Y. (1996), Interactive construction of B-spline approximations of surfaces and a tessellation algorithm for the representation of trimmed surfaces for use in numerical grid generation, ZAMM – Zeitschrift für Angewandte Mathematik und Mechanik (Applied Mathematics and Mechanics) 76, Suppl. 1, pp. 417–418 (presented at: "The Third International Congress on Industrial and Applied Mathematics (ICIAM/SIAM) '95," Hamburg, Germany, July 1995).

[14] Hamann, B. and Tsai, P.-Y. (1996), A tessellation algorithm for the representation of trimmed NURBS surfaces with arbitrary trimming curves, Computer-Aided Design 28(6/7), Elsevier, pp. 461–472 (presented at: "Third Workshop on Proximity Graphs," Mississippi State University, Mississippi State, Mississippi, December 1994).

[13] Khamayseh, A. and Hamann, B. (1996), Elliptic grid generation using NURBS surfaces, Computer Aided Geometric Design 13(4), Elsevier, pp. 369–386.

[12] Hamann, B. and Foley, T. A. (1995), A quartic spline based on a variational approach, in: Farin, G., Hagen, H. Noltemeier, H., eds., *Geometric Modelling: Dagstuhl 1993*, Computing Suppl. 10, Springer-

Verlag, pp. 199–210 (presented at: "Second SIAM Conference on Geometric Design," Tempe, Arizona, November 1991).

[11] Hamann, B., Thornburg, H. J. and Hong, G. (1995), Automatic unstructured grid generation based on iterative point insertion, Computing 55(2), Springer-Verlag, pp. 135–161.

[10] Hamann, B., Wu, D. and Moorhead, R. J. (1995), On particle path generation based on quadrilinear interpolation and Bernstein-Bézier polynomials, IEEE Transactions on Visualization and Computer Graphics 1(3), pp. 210–217 (invited presentation at: "Second Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, May 1994).

[9] Hamann, B. (1994), Construction of B-spline approximations for use in numerical grid generation, Applied Mathematics and Computation 65(1–3), Elsevier, special issue, pp. 295–314 (presented at: "Differential Equations & Computational Simulations," Mississippi State University, Mississippi State, Mississippi, March 1993).

[8] Hamann, B. (1994), Curvature approximation of 3D manifolds in 4D space, Computer Aided Geometric Design 11(6), Elsevier, pp. 621–633.

[7] Hamann, B. and Chen, J.-L. (1994), Data point selection for piecewise trilinear approximation, Computer Aided Geometric Design 11(5), Elsevier, pp. 477–489.

[6] Hamann, B. and Chen, J.-L. (1994), Data point selection for piecewise linear curve approximation, Computer Aided Geometric Design 11(3), Elsevier, pp. 289–301.

[5] Hamann, B. (1994), A data reduction scheme for triangulated surfaces, Computer Aided Geometric Design 11(2), Elsevier, pp. 197–214.

[4] Hamann, B. (1993), Curvature approximation for triangulated surfaces, in: Farin, G., Hagen, H. and Noltemeier, H., eds., *Geometric Modelling*, Computing Suppl. 8, Springer-Verlag, pp. 139–153 (invited presentation at: "First Dagstuhl Seminar on Geometric Modelling," Dagstuhl, Germany, July 1991).

[3] Hamann, B. (1992), Modeling contours of trivariate data, Mathematical Modelling and Numerical Analysis (Modélisation Mathématique et Analysis Numérique) 26(1), Gauthier-Villars, France, pp. 51–75 (presented at: "Topics in CAGD '90," Erice, Italy, May 1990).

[2] Hamann, B. (1991), Visualization techniques for the representation of three-dimensional data sets, in German (Visualisierungstechniken zur Darstellung dreidimensionaler Datenmengen), CAD Computergraphik 13(5), Austrian Computer Graphics Association, Vienna, Austria, pp. 129–139.

[1] Nielson, G. M., Foley, T. A., Hamann, B. and Lane, D. A. (1991), Visualizing and modeling scattered multivariate data, IEEE Computer Graphics and Applications 11(3), special issue on visualization, pp. 47–55.

Referierte Veröffentlichungen in Büchern

[70] Claus, F., Hagen, H., Leonhardt, V., Leitte, H. and Hamann, B. (2021), Interactive quality inspection of measured deviations in sheet assemblies, in: Garth, C., Aurich, J. C., Linke, B., Müller, R., Ravani, B., Weber, G. H. and Kirsch, B., eds., *Physical Modeling for Virtual Manufacturing Systems and Processes 2020 (iPMVM 2020)*, OpenAccess Series in Informatics (OASIcs), Vol. 89, Schloss Dagstuhl – Leibniz Center for Informatics, Wadern, Germany, pp. 6:1–6:18 (presented at: "Third Conference on Physical Modeling for Virtual Manufacturing Systems and Processes 2020 (iPMVM 2020)," Dagstuhl, Germany, November 2020), https://www.dagstuhl.de/dagpub/978-3-95977-183-2.

[69] Dutra da Silva, R., Pedrini, H. and Hamann, B. (2021), The discrete Morse complex of images: Algorithms, modeling and applications, in: Garth, C., Aurich, J. C., Linke, B., Müller, R., Ravani, B., Weber, G. H. and Kirsch, B., eds., *Physical Modeling for Virtual Manufacturing Systems and Processes 2020 (iPMVM 2020)*, OpenAccess Series in Informatics (OASIcs), Vol. 89, Schloss Dagstuhl

– Leibniz Center for Informatics, Wadern, Germany, pp. 18:1–18:19 (presented at: "Third Conference on Physical Modeling for Virtual Manufacturing Systems and Processes 2020 (iPMVM 2020)," Dagstuhl, Germany, November 2020), https://www.dagstuhl.de/dagpub/978-3-95977-183-2.

[68] Mosbach, D., Schladitz, K., Hamann, B. and Hagen, H. (2021), Topologically robust B-spline reconstruction of fibers from 3D images, in: Hotz, I., Masood, T. B., Sadlo, F. and Tierny, J., eds., *Topological Methods in Data Analysis and Visualization VI: Theory, Software, and Software*, Springer-Verlag, Heidelberg, Germany, pp. 271–286.

[67] Naranjo Valero, C. X., Srinavasan, S. K., Ebert, A. and Hamann, B. (2021), Enhanced freehand interaction by combining vision and EMG-based systems in mixed reality environments, in: Arabnia, H. R., Deligiannidis, L., Grimaila, M. R., Hodson, D. D., Joe, K., Sekijima, M. and Tinetti, F. G., eds. Advances in Parallel and Distributed Processing and Applications, Proceedings of *The 2020 World Congress in Computer Science, Computer Engineering and Applied Computing (CSCE 20), The Seventeenth International Conference on Modeling, Simulation and Visualization (MSV 20)*, Springer-Verlag, Heidelberg, Germany, pp. 895–909 (presented at: "The 2020 World Congress in Computer Science, Computer Engineering and Applied Computing (CSCE 20), The Seventeenth International Conference on Modeling, Simulation and Visualization (MSV 20)," Las Vegas, Nevada, July 2020).

[66] Weber, P., Rupprecht, F., Wiesen, S., Hamann, B. and Ebert, A. (2021), Assessing cognitive load via pupillometry, in: Arabnia, H. R., Ferens, K., de la Fuente, D., Kozerenko, E. B., Olivas Varela, J. A. and Tinetti, F. G. eds., Advances in Artificial Intelligence and Applied Cognitive Computing, Proceedings of *The 2020 World Congress in Computer Science, Computer Engineering and Applied Computing (CSCE 20), The Fourth International Conference on Applied Cognitive Computing (ACC 20)*, Springer-Verlag, Heidelberg, Germany, pp. 1087–1096 (presented at: "The 2020 World Congress in Computer Science, Computer Engineering and Applied Computing (CSCE 20), The Fourth International Conference on Applied Cognitive Computing (ACC 20)," Las Vegas, Nevada, July 2020).

[65] Capps, A. G., Zawadzki, R. J., Werner, J. S. and Hamann, B. (2016), Combined volume registration and visualization, in: Linsen, L., Hamann, B. and Hege, H.-C., eds., *Visualization in Medicine and Life Sciences III*, Springer-Verlag, Heidelberg, Germany, pp. 73–91 (presented at: "Third International Workshop on Visualization in Medicine and Life Sciences," Leipzig, Germany, June 2013).

[64] Denker, K., Hamann, B. and Umlauf, G. (2015), On-line CAD reconstruction with accumulated means of local geometric properties, in: Boissonnat, J.-D., Cohen, A., Gibaru, O., Gout, C., Lyche, T., Mazure, M.-L. and Schumaker, L. L., eds., *Curves and Surfaces, Eighth International Conference 2014*, Lecture Notes in Computer Science (LNCS) Series, Vol. 9213, Springer-Verlag, Heidelberg, Germany, pp. 181–201 (presented at: "Eighth International Conference on Curves and Surfaces," Paris, France, June 2014).

[63] Beketayev, K., Yeliussizov, D., Morozov, D., Weber, G. H. and Hamann, B. (2014), Measuring the distance between merge trees, in: Bremer, P.-T., Hotz, I., Pascucci, V. and Peikert, R., eds., *Topological Methods in Data Analysis and Visualization III*, Springer-Verlag, Heidelberg, Germany, pp 151–165 (presented at: "Topological Methods in Data Analysis and Visualization (TopoInVis 2013)," Davis, California, March 2013).

[62] Shafii, S., Obermaier, H., Hamann, B. and Joy, K. I. (2014), Topological features in glyph-based corotation visualization, in: Bremer, P.-T., Hotz, I., Pascucci, V. and Peikert, R., eds., *Topological Methods in Data Analysis and Visualization III*, Springer-Verlag, Heidelberg, Germany, pp. 263–276 (presented at: "Topological Methods in Data Analysis and Visualization (TopoInVis 2013)," Davis, California, March 2013).

[61] Engel, D., Hagen, H., Hamann, B. and Rosenbaum, R. (2013), Structural decomposition trees: Semantic and practical implications, in: Csurka, G., Kraus, M., Laramee, R. S., Richard, P. and Braz,

J., eds., *Computer Vision, Imaging and Computer Graphics – Theory and Applications*, Communications in Computer and Information Science (CCIS) Series, Vol. 359, Springer-Verlag, Heidelberg, Germany, pp. 193–208 (extended version of a proceedings paper presented at: "International Conference on Information Visualization Theory and Applications 2012 (IVAPP 2012)," Rome, Italy, February 2012).

[60] Eichelbaum, S., Hlawitschka, M., Hamann, B. and Scheuermann, G. (2012), Fabric-like visualization of tensor field data on arbitrary surfaces in image space, in: Laidlaw, D. H. and Vilanova, A., eds., *New Developments in the Visualization and Processing of Tensor Fields*, Springer-Verlag, Heidelberg, Germany, pp. 71–92 (invited presentation at: "New Developments in the Visualization and Processing of Tensor Fields," Dagstuhl, Germany, July 2009).

[59] Eichelbaum, S., Hlawitschka, M., Hamann, B. and Scheuermann, G. (2012), Image space tensor field visualization using a LIC-like method, in: Linsen, L., Hagen, H., Hamann, B. and Hege, H.-C., eds., *Visualization in Medicine and Life Sciences II*, Springer-Verlag, Heidelberg, Germany, pp. 193–210 (presented at: "Second International Workshop on Visualization in Medicine and Life Sciences," Bremerhaven, Germany, July 2009).

[58] Engel, D., Hüttenberger, L. and Hamann, B. (2012), A survey of dimension reduction methods for high-dimensional data analysis and visualization, in: Garth, C., Middel, A. and Hagen, H., eds., *Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling and Engineering*, OpenAccess Series in Informatics (OASIcs), Vol. 27, Schloss Dagstuhl – Leibniz Center for Informatics, Wadern, Germany, pp. 135–149 (based on an invited presentation at: "Fifth Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, June 2011), http://www.dagstuhl.de/oasics, ISBN 978-3-939897-46-0.

[57] Hlawitschka, M., Hijazi, Y., Knoll, A. M. and Hamann, B. (2012), Towards a high-quality visualization of higher-order Reynold's glyphs for diffusion tensor imaging, in: Linsen, L., Hagen, H., Hamann, B. and Hege, H.-C., eds., *Visualization in Medicine and Life Sciences II*, Springer-Verlag, Heidelberg, Germany, pp. 211–227 (presented at: "Second International Workshop on Visualization in Medicine and Life Sciences," Bremerhaven, Germany, July 2009).

[56] Hlawitschka, M. W., Chen, F., Bart, H.-J. and Hamann, B. (2012), CFD simulation of liquid-liquid extraction columns and visualization of Eulerian datasets, in: Garth, C., Middel, A. and Hagen, H., eds., *Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling and Engineering*, OpenAccess Series in Informatics (OASIcs), Vol. 27, Schloss Dagstuhl – Leibniz Center for Informatics, Wadern, Germany, pp. 59–70 (based on an invited presentation at: "Fifth Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, June 2011), http://www.dagstuhl.de/oasics, ISBN 978-3-939897-46-0.

[55] Rübel, O., Keränen, S. V. E., Biggin, M. D., Knowles, D. W., Weber, G. H., Hagen, H., Hamann, B. and Bethel, E. W. (2012), Linking advanced visualization and MATLAB for the analysis of 3D gene expression data, in: Linsen, L., Hagen, H., Hamann, B. and Hege, H.-C., eds., *Visualization in Medicine and Life Sciences II*, Springer-Verlag, Heidelberg, Germany, pp. 267–285 (presented at: "Second International Workshop on Visualization in Medicine and Life Sciences," Bremerhaven, Germany, July 2009).

[54] Westerteiger, R., Gerndt, A. and Hamann, B. (2012), Spherical terrain rendering using the hierarchical HEALPix grid, in: Garth, C., Middel, A. and Hagen, H., eds., *Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling and Engineering*, OpenAccess Series in Informatics (OASIcs), Vol. 27, Schloss Dagstuhl – Leibniz Center for Informatics,

Wadern, Germany, pp. 13–23 (based on an invited presentation at: "Fifth Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, June 2011), http://www.dagstuhl.de/oasics, ISBN 978-3-939897-46-0.

[53] Yang, X., and Hamann, B. and Aurich, J. C. (2012), Virtual reality supported visualization and evaluation of noise levels in manufacturing environments, in: Garth, C., Middel, A. and Hagen, H., eds., *Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling and Engineering*, OpenAccess Series in Informatics (OASIcs), Vol. 27, Schloss Dagstuhl – Leibniz Center for Informatics, Wadern, Germany, pp. 1–12 (based on an invited presentation at: "Fifth Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, June 2011), http://www.dagstuhl.de/oasics, ISBN 978-3-939897-46-0.

[52] Burkhart, D., Hamann, B. and Umlauf, G. (2011), Finite element analysis for linear elastic solids based on subdivision schemes, in: Middel, A., Scheler, I. and Hagen, H., eds., *Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling and Engineering*, OpenAccess Series in Informatics (OASIcs), Vol. 10, Schloss Dagstuhl – Leibniz Center for Informatics, Wadern, Germany, pp. 1–10 (invited presentation at: "Fourth Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," University of California, Davis, Bodega Marine Laboratory (BML), Bodega Bay, California, March 2010), http://www.dagstuhl.de/dagpub/978-3-939897-29-3.

[51] Dillard, S. E., Thoma, D. and Hamann, B. (2011), Reconstructing cell complexes from cross-sections, in: Pascucci, V., Tricoche, X., Hagen, H. and Tierny, J., eds., *Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications*, Springer-Verlag, Heidelberg, Germany, pp. 43–54 (presented at: "Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications (TopoInVis 2009)," Salt Lake City, Utah, February 2009).

[50] Gyulassy, A. G., Bremer, P.-T., Hamann, B. and Pascucci, V. (2011), Practical considerations in Morse-Smale complex computation, in: Pascucci, V., Tricoche, X., Hagen, H. and Tierny, J., eds., *Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications*, Springer-Verlag, Heidelberg, Germany, pp. 67–78 (presented at: "Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications (TopoInVis 2009)," Salt Lake City, Utah, February 2009).

[49] Keller, P., Kreylos, O., Cowgill, E. S., Kellogg, L. H., Hering-Bertram, M., Hamann, B. and Hagen, H. (2011), Construction of implicit surfaces from point clouds using a feature-based approach, in: Hagen, H., ed., *Scientific Visualization: Interactions, Features, Metaphors – Dagstuhl Seminar 09251 (2009)*, Dagstuhl Follow-Ups, Vol. 2, ISBN 978-3-939897-26-2, Schloss Dagstuhl – Leibniz Center for Informatics, Wadern, Germany, pp. 129–143.

[48] Keller, P., Kreylos, O., Vančo, M., Hering-Bertram, M., Cowgill, E. S., Kellogg, L. H., Hamann, B. and Hagen, H. (2011), Extracting and visualizing structural features in environmental point cloud LiDaR data sets, in: Pascucci, V., Tricoche, X., Hagen, H. and Tierny, J., eds., *Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications*, Springer-Verlag, Heidelberg, Germany, pp. 179–192 (presented at: "Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications (TopoInVis 2009)," Salt Lake City, Utah, February 2009).

[47] Sreevalsan-Nair, J., Auer, C., Hamann, B. and Hotz, I. (2011), Topology-based interpolation and segmentation of 2D tensor fields, Eigenvector-based interpolation and segmentation of 2D tensor fields, in: Pascucci, V., Tricoche, X., Hagen, H. and Tierny, J., eds., *Topological Methods in Data Analysis and*

Visualization: Theory, Algorithms, and Applications, Springer-Verlag, Heidelberg, Germany, pp. 139–150 (presented at: "Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications (TopoInVis 2009)," Salt Lake City, Utah, February 2009).

[46] Bernardin, T. S., Cowgill, E. S., Gold, R. D., Hamann, B. Kreylos, O. and Schmitt, A. (2010), Real-time terrain mapping, in: Hagen, H. ed., *Scientific Visualization: Advanced Concepts – Dagstuhl Seminars 05231 (2005) and 07291 (2007)*, Dagstuhl Follow-Ups, Vol. 1, ISBN 978-3-939897-19-4, Schloss Dagstuhl – Leibniz Center for Informatics, Wadern, Germany, pp. 275–288 (invited presentation at: "Sixth Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, June 2005).

[45] Hamann, B. (2010), On curved simplicial elements and best quadratic spline approximation for hierarchical data representation, in: Hagen, H., ed., *Scientific Visualization: Advanced Concepts – Dagstuhl Seminars 05231 (2005) and 07291 (2007)*, Dagstuhl Follow-Ups, Vol. 1, ISBN 978-3-939897-19-4, Schloss Dagstuhl – Leibniz Center for Informatics, Wadern, Germany, pp. 45–61.

[44] Hotz, I., Sreevalsan-Nair, J., Hagen, B. and Hamann, B. (2010), Tensor field reconstruction based on eigenvector and eigenvalue interpolation, in: Hagen, H., ed., *Scientific Visualization: Advanced Concepts – Dagstuhl Seminars 05231 (2005) and 07291 (2007)*, Dagstuhl Follow-Ups, Vol. 1, ISBN 978-3-939897-19-4, Schloss Dagstuhl – Leibniz Center for Informatics, Wadern, Germany, pp. 110–123 (invited presentation at: "Sixth Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, June 2005).

[43] Lehner, B., Hamann, B. and Umlauf, G. (2010), Generalized swap operation for tetrahedrizations, in: Hagen, H., ed., *Scientific Visualization: Advanced Concepts – Dagstuhl Seminars 05231 (2005) and 07291 (2007)*, Dagstuhl Follow-Ups, Vol. 1, ISBN 978-3-939897-19-4, Schloss Dagstuhl – Leibniz Center for Informatics, Wadern, Germany, pp. 30–44.

[42] Ushizima, D. M., Geddes, C. G. R., Cormier-Michel, E., Bethel, E. W., Jacobsen, J. S., Prabhat, Rübel, O., Weber, G. H., Hamann, B., Messmer, P. and Hagen, H. (2010), Automated detection and analysis of particle beams in laser-plasma accelerator simulations, in: Zhang, Y., ed., *Machine Learning*, In-Tech Education and Publishing, Vienna, Austria, pp. 367–389.

[41] Bremer, P.-T., Pascucci, V. and Hamann, B. (2009), Maximizing adaptivity in hierarchical topological models using cancellation trees, in: Möller, T., Hamann, B. and Russell, R. D., eds., *Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration*, Springer-Verlag, Heidelberg, Germany, pp. 1–18 (invited presentation at: "Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration," Banff International Research Station, The Banff Centre, Banff, Alberta, Canada, May 2004).

[40] Feng, Z. X., Hotz, I., Hamann, B. and Joy, K. I. (2009), Dense glyph sampling for visualization, in: Laidlaw, D. H. and Weickert, J., eds., *Visualization and Processing of Tensor Fields: Advances and Perspectives*, Springer-Verlag, Heidelberg, Germany, pp. 177–193 (invited presentation at: "Visualization and Processing of Tensor Fields," Dagstuhl, Germany, January 2007).

[39] Gyulassy, A. G., Linsen, L. and Hamann, B. (2009), Time- and space-efficient error calculation for multiresolution direct volume rendering, in: Möller, T., Hamann, B. and Russell, R. D., eds., *Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration*, Springer-Verlag, Heidelberg, Germany, pp. 271–283.

[38] Hlawitschka, M., Weber, G. H., Anwander, A., Carmichael, O. T., Hamann, B. and Scheuermann, G. (2009), Interactive volume rendering of diffusion tensor data, in: Laidlaw, D. H. and Weickert, J., eds., *Visualization and Processing of Tensor Fields: Advances and Perspectives*, Springer-Verlag, Heidelberg, Germany, pp. 161–176 (invited presentation at: "Visualization and Processing of Tensor Fields," Dagstuhl, Germany, January 2007).

[37] Hotz, I., Feng, Z. X., Hamann, B. and Joy, K. I. (2009), Tensor field visualization using a fabric-like

texture on arbitrary two-dimensional surfaces, in: Möller, T., Hamann, B. and Russell, R. D., eds., *Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration*, Springer-Verlag, Heidelberg, Germany, pp. 139–155 (invited presentation at: "Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration," Banff International Research Station, The Banff Centre, Banff, Alberta, Canada, May 2004).

[36] Shah, N. Y., Dillard, S. E., Weber, G. H. and Hamann, B. (2009), Volume visualization of multiple alignment of large genomic DNA, in: Möller, T., Hamann, B. and Russell, R. D., eds., *Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration*, Springer-Verlag, Heidelberg, Germany, pp. 325–342.

[35] Huang, M.-Y., Rübel, O., Weber, G. H., Luengo Hendriks, C. L., Biggin, M. D., Hagen, H. and Hamann, B. (2008), Segmenting gene expression patterns of early-stage Drosophila embryos, in: Linsen, L., Hagen, H. and Hamann, B., eds., *Visualization in Medicine and Life Sciences*, Springer-Verlag, Heidelberg, Germany, pp. 313–327.

[34] Lehner, B., Umlauf, G. and Hamann, B. (2008), Survey of techniques for data-dependent triangulations, in: Hagen, H., and Hering-Bertram, M. and Garth, C., eds., *Visualization of Large and Unstructured Data Sets*, GI Lecture Notes in Informatics, Vol. S-7, Gesellschaft für Informatik (GI), Bonn, Germany, pp. 178–187 (invited presentation at: "Second Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, September 2007).

[33] Natarajan, V., Koehl, P., Wang, Y. and Hamann, B. (2008), Visual analysis of biomolecular surfaces, in: Linsen, L., Hagen, H. and Hamann, B., eds., *Visualization in Medicine and Life Sciences*, Springer-Verlag, Heidelberg, Germany, pp. 237–255.

[32] Rübel, O., Weber, G. H., Huang, M.-Y., Bethel, E. W., Keränen, S. V. E., Fowlkes, C. C., Luengo Hendriks, C. L., DePace, A. H., Simirenko, L., Eisen, M. B., Biggin, M. D., Hagen, H., Malik, J., Knowles, D. W. and Hamann, B. (2008), PointCloudExplore 2: Visual exploration of 3D gene expression, in: Hagen, H., Hering-Bertram, M. and Garth, C., eds., *Visualization of Large and Unstructured Data Sets*, GI Lecture Notes in Informatics, Vol. S-7, Gesellschaft für Informatik (GI), Bonn, Germany, pp. 125–137 (invited presentation at: "Second Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, September 2007).

[31] Gregorski, B. F., Wiley, D. F, Childs, H. R., Hamann, B. and Joy, K. I. (2006), Adaptive contouring with quadratic tetrahedra, in: Bonneau, G.-P., Ertl, T. and Nielson, G. M., eds., *Scientific Visualization: The Visual Extraction of Knowledge from Data*, Springer-Verlag, Heidelberg, Germany, pp. 3–15.

[30] Hotz, I., Feng, Z. X., Hagen, H., Hamann, B. and Joy, K. I. (2006), Tensor field visualization using a metric interpretation, in: Weickert, J. and Hagen, H., eds., *Visualization and Processing of Tensor Fields*, Springer-Verlag, Heidelberg, Germany, pp. 269–281 (invited presentation at: "Perspectives Workshop: Visualization and Image Processing of Tensor Fields," Dagstuhl, Germany, April 2004).

[29] Lehner, B., Umlauf, G., Hamann, B. and Ustin, S. L. (2006), Topographic distance functions for interpolation of meteorological data, in: Hagen, H., Kerren, A. and Dannenmann, P., eds., *Visualization of Large and Unstructured Data Sets*, GI Lecture Notes in Informatics, Vol. S-4, Gesellschaft für Informatik (GI), Bonn, Germany, pp. 119–131.

[28] Rübel, O., Weber, G. H., Keränen, S. V. E., Fowlkes, C. C., Luengo Hendriks, C. L., Simirenko, L., Shah, N. Y., Eisen, M. B., Biggin, M. D., Hagen, H., Sudar, J. D., Malik, J., Knowles, D. W. and Hamann, B. (2006), PointCloudXplore: a visualization tool for 3D gene expression data, in: Hagen, H., Kerren, A. and Dannenmann, P., eds., *Visualization of Large and Unstructured Data Sets*, GI

Lecture Notes in Informatics, Vol. S-4, Gesellschaft für Informatik (GI), Bonn, Germany, pp. 107–117 (invited presentation at: "First Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Dagstuhl, Germany, June 2006).

[27] Schlemmer, M., Hagen, H., Hotz, I. and Hamann, B. (2006), Clifford pattern matching for color image edge detection, in: Hagen, H., Kerren, A. and Dannenmann, P., eds., *Visualization of Large and Unstructured Data Sets*, GI Lecture Notes in Informatics, Vol. S-4, Gesellschaft für Informatik (GI), Bonn, Germany, pp. 47–58 (invited presentation at: "First Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Dagstuhl, Germany, June 2006).

[26] Vivodtzev, F., Linsen, L., Hamann, B., Joy, K. I. and Olshausen, B. (2006), Brain mapping using topology graphs obtained by surface segmentation, in: Bonneau, G.-P., Ertl, T. and Nielson, G. M., eds., *Scientific Visualization: The Visual Extraction of Knowledge from Data*, Springer-Verlag, Heidelberg, Germany, pp. 35–48 (invited presentation at: "Fifth Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, June 2003).

[25] Heckel, B. and Hamann, B. (2004), Divisive parallel clustering for multiresolution analysis, in: Brunnett, G., Hamann, B., Müller, H. and Linsen, L., eds., *Geometric Modelling for Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 345–358 (presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Tahoe City, California, October 2000).

[24] Linsen, L., Gray, J. T., Pascucci, V., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2004), Hierarchical large-scale volume representation with $\sqrt[3]{2}$ subdivision and trivariate B-spline wavelets, in: Brunnett, G., Hamann, B., Müller, H. and Linsen, L., eds., *Geometric Modelling for Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 359–377.

[23] Bertram, M., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2003), Generalizing lifted tensor-product wavelets to irregular polygonal domains, in: Post, F. H., Nielson, G. M. and Bonneau, G.-P., eds., *Data Visualization: the State of the Art*, Kluwer Academic Publishers, Norwell, Massachusetts, pp. 289–300 (invited presentation at: "Fourth Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, May 2000).

[22] Bertram, M., Konkle, S. E., Hagen, H., Hamann, B. and Joy, K. I. (2003), Terrain modeling using Voronoi hierarchies, in: Farin, G., Hamann, B. and Hagen, H., eds., *Hierarchical and Geometrical Methods in Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 89–97 (presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Tahoe City, California, October 2000).

[21] Bremer, P.-T., Porumbescu, S. D., Hamann, B. and Joy, K. I. (2003), Automatic semi-regular mesh construction from adaptive distance fields, in: Lyche, T., Mazure, M.-L. and Schumaker, L. L., eds., *Curve and Surface Design: Saint-Malo 2002*, Nashboro Press, Brentwood, Tennessee, pp. 11–20 (presented at: "Fifth International Conference on Curves and Surfaces," Saint-Malo, France, June/July 2002).

[20] Duchaineau, M. A., Porumbescu, S. D., Bertram, M., Hamann, B. and Joy, K. I. (2003), Dataflow and remapping for wavelet compression and view-dependent optimization of billion-triangle isosurfaces, in: Farin, G., Hamann, B. and Hagen, eds., *Hierarchical and Geometrical Methods in Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 1–17 (presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Tahoe City, California, October 2000).

[19] Gregorski, B. F., Sigeti, D. E., Ambrosiano, J. J., Graham, G., Wolinsky, M., Duchaineau, M. A.,

Hamann, B. and Joy, K. I. (2003), Multiresolution representation of datasets with material interfaces, in: Farin, G., Hamann, B. and Hagen, H., eds., *Hierarchical and Geometrical Methods in Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 99–117 (presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Tahoe City, California, October 2000).

[18] Konkle, S. E., Moran, P. J., Hamann, B. and Joy, K. I. (2003), Fast methods for computing isosurface topology with Betti numbers, in: Post, F. H., Nielson, G. M. and Bonneau, G.-P., eds., *Data Visualization: the State of the Art*, Kluwer Academic Publishers, Norwell, Massachusetts, pp. 363–375.

[17] Kreylos, O., Bethel, E. W., Ligocki, T. J. and Hamann, B. (2003), Virtual-reality-based interactive exploration of multiresolution data, in: Farin, G., Hamann, B. and Hagen, H., eds., *Hierarchical and Geometrical Methods in Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 205–224.

[16] LaMar, E. C., Hamann, B. and Joy, K. I. (2003), Efficient error calculation for multiresolution texture-based volume visualization, in: Farin, G., Hamann, B. and Hagen, H., eds., *Hierarchical and Geometrical Methods in Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 51–62.

[15] Ligocki, T. J., Van Straalen, B., Shalf, J. M., Weber, G. H. and Hamann, B. (2003), A framework for visualizing hierarchical computations, in: Farin, G., Hamann, B. and Hagen, H., eds., *Hierarchical and Geometrical Methods in Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 197–204 (presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Tahoe City, California, October 2000).

[14] Meyer, J., Borg, R., Hamann, B., Joy, K. I. and Olson, A. J. (2003), Network-based rendering techniques for large-scale volume data sets, in: Farin, G., Hamann, B. and Hagen, H., eds., *Hierarchical and Geometrical Methods in Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 283–295 (presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Tahoe City, California, October 2000).

[13] Meyer, J., Borg, R., Takanashi, I., Lum, E. B. and Hamann, B., (2003), Segmentation and texture-based hierarchical rendering techniques for large-scale real-color biomedical image data, in: Post, F. H., Nielson, G. M. and Bonneau, G.-P., eds., *Data Visualization: the State of the Art*, Kluwer Academic Publishers, Norwell, Massachusetts, pp. 169–182 (invited presentation at: "Fourth Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, May 2000).

[12] Scheuermann, G., Hamann, B., Joy, K. I. and Kollmann, W. (2003), Localizing vector field topology, in: Post, F. H., Nielson, G. M. and Bonneau, G.-P., eds., *Data Visualization: the State of the Art*, Kluwer Academic Publishers, Norwell, Massachusetts, pp. 19–35 (invited presentation at: "Fourth Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, May 2000).

[11] Weber, G. H., Kreylos, O., Ligocki, T. J., Shalf, J. M., Hagen, H., Hamann, B. and Joy, K. I. (2003), Extraction of crack-free isosurfaces from adaptive mesh refinement data, in: Farin, G., Hamann, B. and Hagen, H., eds., *Hierarchical and Geometrical Methods in Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 19–40 (presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Tahoe City, California, October 2000).

[10] Wiley, D. F., Bertram, M., Jordan, B. W., Hamann, B., Joy, K. I., Max, N. L. and Scheuermann, G. (2003), Hierarchical spline approximation, in: Farin, G., Hamann, B. and Hagen, H., eds., *Hierarchical and Geometrical Methods in Scientific Visualization*, Springer-Verlag, Heidelberg, Germany, pp. 63–88 (presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Tahoe City, California, October 2000).

[9] Bremer, P.-T., Hamann, B., Kreylos, O. and Wolter, F.-E. (2001), Simplification of closed triangulated surfaces using simulated annealing, in: Lyche, T. and Schumaker, L. L., eds., *Mathematical Methods*

for Curves and Surfaces: Oslo 2000, Vanderbilt University Press, Nashville, Tennessee, pp. 45–54 (presented at: "The Fifth International Conference on Mathematical Methods for Curves and Surfaces," Oslo, Norway, June/July 2000).

[8] Hamann, B., Jean, B. A. and Razdan, A. (1999), Computer-aided geometric design techniques for surface grid generation, in: Thompson, J. F., Soni, B. K. and Weatherill, N. P., eds., *Handbook of Grid Generation*, CRC Press, Boca Raton, Florida, pp. 29-1–29-26.

[7] Hamann, B. and Jordan, B. W. (1998), Triangulations from repeated bisection, in: Dæhlen, M., Lyche, T. and Schumaker, L. L., eds., *Mathematical Methods for Curves and Surfaces II*, Vanderbilt University Press, Nashville, Tennessee, pp. 229–236.

[6] Hamann, B. and Moorhead, R. J. (1997), A survey of grid generation methodologies and scientific visualization efforts, in: Nielson, G. M., Hagen, H. and Müller, H., eds., *Scientific Visualization: Overviews, Methodologies, and Techniques*, IEEE Computer Society Press, Los Alamitos, California, pp. 59–101.

[5] Barnhill, R. E., Farin, G. and Hamann, B. (1995), NURBS and grid generation, in: Babuska, I., Flaherty, J. E., Henshaw, W. D., Hopcroft, J. E, Oliger, J. E. and Tezduyar, T., eds., *Modeling, Mesh Generation, and Adaptive Numerical Methods for Partial Differential Equations*, The IMA Volumes in Mathematics and its Applications 75, Springer-Verlag, New York, New York, pp. 1–21 (presented at: "IMA Summer Program on Modeling, Mesh Generation, and Adaptive Numerical Methods for Partial Differential Equations," Minneapolis, Minnesota, July 1993).

[4] Hamann, B., Chen, J.-L. and Hong, G. (1994), Automatic generation of unstructured grids for volumes outside or inside closed surfaces, in: Weatherill, N. P., Eiseman, P. R., Häuser, J. and Thompson, J. F., eds., *Numerical Grid Generation in Computational Fluid Dynamics and Related Fields*, Pineridge Press Ltd., Swansea, United Kingdom, pp. 187–197 (presented at: "Fourth International Conference on Numerical Grid Generation in Computational Fluid Dynamics and Related Fields," Swansea, United Kingdom, April 1994).

[3] Jean, B. A. and Hamann, B. (1994), Interactive techniques for correcting CAD/CAM data, in: Weatherill, N. P., Eiseman, P. R., Häuser, J. and Thompson, J. F., eds., *Numerical Grid Generation in Computational Fluid Dynamics and Related Fields*, Pineridge Press Ltd., Swansea, United Kingdom, pp. 317–328 (presented at: "Fourth International Conference on Numerical Grid Generation in Computational Fluid Dynamics and Related Fields," Swansea, United Kingdom, April 1994).

[2] Remotigue, M. G., Gaither, A., Hamann, B., Jean, B. A., Mastin, C. W., Parmley, K. P., Soni, B. K., Thompson, J. F. and Vaughan, P. (1994), The National Grid Project: Making dreams into reality, in: Weatherill, N. P., Eiseman, P. R., Häuser, J. and Thompson, J. F., eds., *Numerical Grid Generation in Computational Fluid Dynamics and Related Fields*, Pineridge Press Ltd., Swansea, United Kingdom, pp. 429–439 (presented at: "Fourth International Conference on Numerical Grid Generation in Computational Fluid Dynamics and Related Fields," Swansea, United Kingdom, April 1994).

[1] Hamann, B., Farin, G. and Nielson, G. M. (1991), A parametric triangular patch based on generalized conics, in: Farin, G., ed., *NURBS for Curve and Surface Design*, SIAM, Philadelphia, Pennsylvania, pp. 75–85 (presented at: "First SIAM Conference on Geometric Design," Tempe, Arizona, November 1989).

Referierte Veröffentlichungen in Konferenz-Proceedings (und ausgewählte Poster)

[260] Linares, O. A. C., Belizario, I. V., Batah, S. S., Hamann, B., Fabro, A. T., Azevedo-Marques, P. M. and Traina, A. J. M. (2024), RadPleura: A radiomics-based framework for lung pleura classification in histology images from interstitial lung diseases, in: Golemati, S. and Konofagou, E. E., eds., Proceedings of *21st IEEE International Symposium on Biomedical Imaging (ISBI 2024)*, IEEE Xplore Digital Library, IEEE Press, Piscataway, New Jersey, 5 pages (presented at: "21st IEEE International Symposium on Biomedical Imaging (ISBI 2024)," Athens, Greece, May 2024).

[259] Claus, F., Hagen, H. and Hamann, B. (2021), Calculating stress-free shapes of sheet metal parts measured with over-constrained fixtures, in: Bartholomew, P., Janoske, U., Rohwer, K., Symington, I., Svobodnik, A., Tabaddor, M., Wood, J. and Wright, L., eds., Proceedings of *NAFEMS World Congress 2021 (NWC 21)*, National Agency for Finite Element Methods and Standards (NAFEMS) Ltd., Hamilton, United Kingdom, 18 pages (presented at: "NAFEMS World Congress 2021 (NWC 21)," Salzburg, Austria, October 2021).

[258] Banesh, D., Lo, L.-T., Kilian, P., Guo, F. and Hamann, B. (2020), Topological analysis of magnetic reconnection in kinetic plasma simulations, short paper, in: Bertini, E., Bujack, R., Collins, C., Dou, W., Lex, A. and Ropinski, T., eds., Proceedings of *IEEE Scientific Visualization 2020 (SciVis 2020), Short Papers*, IEEE Xplore Digital Library, IEEE Press, Piscataway, New Jersey, pp. 6–10 (presented at: "IEEE Scientific Visualization 2020 (SciVis 2020), Short Papers," Salt Lake City, Utah, October 2020).

[257] Linares, O. A. C., Vargas, A. R. S., Faical, B. S., Hamann, B., Fabro, A. T. and Traina, A. J. M. (2020), Efficient segmentation of cell nuclei in histopathological images, in: Garcia Seco de Herrera, A. and Rodriguez, A., eds., Proceedings of *33rd IEEE International Symposium on Computer-based Medical Systems (CBMS 2020)*, IEEE Xplore Digital Library, IEEE Press, Piscataway, New Jersey, pp. 47–52 (presented at: "33rd IEEE International Symposium on Computer-based Medical Systems (CBMS 2020)," Rochester, Minnesota, July 2020).

[256] Vargas, A. R. S., Rollmann, K., Almeida, F., Davolio, A., Hamann, B., Schiozer, D. J. and Rocha, A. (2020), Leveraging phylogenetic trees to assess variability of reservoir models, in: Gonzalez, K., Hincapie, R., Pastor, P. and Valbuena, E., eds., Proceedings of *2020 Society of Petroleum Engineers (SPE) Virtual Latin American and Caribbean Petroleum Engineering Conference*, OnePetro Online Library, OnePetro, Richardson, Texas, SPE-199099-MS, 11 pages (presented at: "2020 Society of Petroleum Engineers (SPE) Virtual Latin American and Caribbean Petroleum Engineering Conference," July 2020).

[255] Banesh, D., Wendelberger, J. R., Petersen, M. R., Ahrens, J. P. and Hamann, B. (2019), Change point detection for ocean eddy analysis, in: Bujack, R., Rink, K., Zeckzer, D., and Jänicke, S., eds., Proceedings of *Eurographics Workshop on Visualisation in Environmental Sciences 2018 (EnvirVis 2018)*, Eurographics Digital Library, pp. 27–33 (presented at: "Eurographics Workshop on Visualisation in Environmental Sciences 2018 (EnvirVis 2018)," Brno, Czech Republic, June 2018).

[254] Linares, O. A. C., Faical, B. S., Barbosa, P., Hamann, B., Fabro, A. T. and Traina, A. J. M. (2019), How to automatically identify regions of interest in high-resolution images of lung biopsy for interstitial fibrosis diagnosis, in: Menasalvas, E., Spiliopoulou, M. and Luna, J. M., eds., Proceedings of *32nd IEEE International Symposium on Computer-based Medical Systems (CBMS 2019)*, IEEE Xplore Digital Library, IEEE Press, Piscataway, New Jersey, pp. 571–574 (presented at: "32nd IEEE International Symposium on Computer-based Medical Systems (CBMS 2019)," Cordoba, Spain, June 2019).

[253] Pulido, J., Lukic, Z., Thorman, P., Zheng, C., Ahrens, J. P. and Hamann, B. (2019), Data reduction using lossy compression for cosmology and astrophysics workflows, in: Klein, B. M., Pickett,

W. E. and Scalettar, R. T., eds., Proceedings of *XXX IUPAP Conference on Computational Physics 2018 (CCP 2018)*, Open Access Journal of Physics: Conference Series (JPCS), Vol. 1290, Institute of Physics (IOP) Conference Series, IOP Publishing Ltd., Bristol, United Kingdom, 10 pages (presented at: "XXX IUPAP Conference on Computational Physics 2018 (CCP 2018)," Davis, California, July/August 2018).

[252] Rupprecht, F.-A., Heck, B., Hamann, B. and Ebert, A. (2019), Signal-processing transformation from smartwatch to arm movement gestures, in: Nunes, I. L., ed., Proceedings of *Ninth International Conference on Applied Human Factors and Ergonomics and the Affiliated Conferences (AHFE 2018)*, Advances in Intelligent Systems and Computing Series, Vol. 781, Springer-Verlag, pp. 109–121 (presented at: "Ninth International Conference on Applied Human Factors and Ergonomics and the Affiliated Conferences (AHFE 2018)," Orlando, Florida, July 2018).

[251] Rupprecht, F.-A., Naranjo Valero, C. X., Olakumni, J., Ebert, A. and Hamann, B. (2019), When bigger is simply better after all: Natural and multi-modal interaction with large displays using a smartwatch, in: Kokil, U. and Ota, T., eds., Proceedings of *The Twelfth International Conference on Advances in Human-Computer Interactions (ACHI 2019)*, Xpert Publishing Services (XPS), Wilmington, Delaware – ThinkMind Digital Library, pp. 57–65 (presented at: "The Twelfth International Conference on Advances in Human-Computer Interactions (ACHI 2019)," Athens, Greece, February 2019).

[250] Gillmann, C., Wischgoll, T., Hamann, B. and Ahrens, J. P.. (2018), Modeling and visualization of uncertainty-aware geometry using multi-variate normal distributions, in: Misue, K., Sadlo, F. and Shi, L. eds., Proceedings of *Eleventh IEEE Pacific Visualization Symposium (PacificVis 2018), Visualization Notes*, IEEE Computer Society Press, Los Alamitos, California, pp. 106–110 (presentated at: "Eleventh IEEE Pacific Visualization Symposium (PacificVis 2018), Visualization Notes," Kobe, Japan, April 2018).

[249] Post, T. M., Gillmann, C., Wischgoll, T., Hamann, B. and Hagen, H. (2018), Visual analytics of cascaded bottlenecks in planar flow networks, in: Jänicke, S., Hotz, I. and Liu, S., eds., Proceedings of *Leipzig Symposium on Visualization in Applications 2018 (LEVIA 2018)*, Leipzig University Library, University of Leipzig, Leipzig, Germany, 9 pages (presented at: "Leipzig Symposium on Visualization in Applications (LEVIA 2018)," Leipzig, Germany, October 2018).

[248] Banesh, D., Schoonover, J., Ahrens, J. P. and Hamann, B. (2017), Extracting, visualizing and tracking mesoscale ocean eddies in two-dimensional image sequences using contours and moments, in: Rink, K., Middel, A., Zeckzer, D. and Bujack, R., eds., Proceedings of *Eurographics Workshop on Visualisation in Environmental Sciences 2017 (EnvirVis 2017)*, Eurographics Digital Library, pp. 43–47 (presented at: "Eurographics Workshop on Visualisation in Environmental Sciences 2017 (EnvirVis 2017)," Barcelona, Spain, June 2017).

[247] Fütterling, V., Lojewski, C., Pfreundt, F.-J., Hamann, B. and Ebert, A. (2017), Accelerated single ray tracing for wide vector units, in: Havran, V. and Vaiyanathan, K., eds., Proceedings of *High-performance Graphics 2017 (HPG '17)*, ACM Digital Library, ACM Press, New York, New York, 9 pages (presented at "High-performance Graphics 2017 (HPG '17)," Los Angeles, California, July 2017).

[246] Giménez, A., Gamblin, G. T., Bhatele, A., Wood, C., Shoga, K., Marathe, A., Bremer, P.-T., Hamann, B. and Schulz, M. (2017), ScrubJay: Deriving knowledge from the disarray of HPC performance data, in: Benoit, A. and Heroux, M. A., eds., Proceedings of *Supercomputing 2017 (SC17)*, ACM/IEEE, IEEE Press, Piscataway, New Jersey, 12 pages (article no. 35) (presented at: "Supercomputing 2017 (SC17)," Denver, Colorado, November 2017).

[245] Post, T. M., Wischgoll, T., Hamann, B. and Hagen, H. (2017), A high-dimensional data quality

metric using Pareto optimality, extended abstract and poster, in: Puig, A. and Isenberg, T., eds., *Joint Eurographics-IEEE VGTC Conference on Visualization 2017, Extended Abstracts and Posters* (Proceedings of "EuroVis 2017"), Eurographics Digital Library, pp. 133–135 (presented at: "Joint Eurographics-IEEE VGTC Conference on Visualization (EuroVis 2017)," Barcelona, Spain, June 2017).

[244] Rupprecht, F.-A., Ebert, A., Schneider, A. and Hamann, B. (2017), Virtual reality meets smartwatch: intuitive, natural, and multi-modal interaction, extended abstract and poster, in: Erickson, I., Semaan, B. and Tsandilas, T., eds., *Proceedings of Computer-Human Interaction 2017 (CHI 2017), Late-Breaking Work*, ACM Digital Library, ACM Press, New York, New York, pp. 2884–2890 (presented at: "Computer-Human Interaction 2017 (CHI 2017), Late-Breaking Work," Denver, Colorado, May 2017).

[243] Zhang, X., Hamann, B., Pan, X. and Zhang, C. (2017), Superpixel-based image inpainting with simple user guidance, in: Luo, J., Zeng, W. and Zhang, Y.-J., eds., Proceedings of *24th IEEE International Conference on Image Processing 2017 (ICIP 2017)*, IEEE Computer Society Press, Los Alamitos, California, pp. 3785–3789 (presented at: "24th IEEE International Conference on Image Processing (ICIP 2017)," Beijing, P. R. China, September 2017).

[242] Aldrich, G. A., Lukasczyk, J., Steptoe, M., Maciejewski, R., Leitte, H. and Hamann, B. (2016), Viscous fingers: A topological visual analytic approach, Scientific Visualization Contest 2016 submission, paper and poster, in: Geveci, B. and Garth, C., eds., *IEEE Visualization 2016 – Scientific Visualization Contest*, IEEE Xplore Digital Library, IEEE Press, Piscataway, New Jersey, 7 pages (presented at: "IEEE Visualization 2016 – Scientific Visualization Contest," Baltimore, Maryland, October 2016).

[241] Murugesan, S., Bouchard, K. E., Chang, E. F., Dougherty, M., Hamann, B. and Weber, G. H. (2016), Hierarchical spatio-temporal visual analysis of cluster evolution in electrocorticography data, winner of the only "Best Paper Award," in: Ji, S., Shi, L., Tong, H., Huang, S. and Thompson, P., eds., Proceedings of *BrainKDD: The Third International Workshop on Data Mining and Visualization for Brain Science*, held in conjunction with *The Seventh ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB 2016)*, ACM/IEEE, ACM Digital Library, ACM Press, New York, New York, pp. 630–639 (presented at: "BrainKDD: The Third International Workshop on Data Mining and Visualization for Brain Science," held in conjunction with "The Seventh ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB 2016)," Seattle, Washington, October 2016).

[240] Post, T. M., Wischgoll, T., Bryant, A. R., Hamann, B., Müller, P. and Hagen, H. (2016), Visually guided flow tracking in software-defined networking, case study/short paper, in: Best, D. M., Staheli, D., Prigent, N., Engle, S. and Harrison, L., eds., on-line proceedings of *IEEE Symposium on Visualization for Cybersecurity 2016 (VizSec 2016)*, http://vizsec.org, IEEE Computer Society Press, Los Alamitos, California, 4 pages (presented at: "IEEE Symposium on Visualization for Cybersecurity 2016 (VizSec 2016)," Baltimore, Maryland, October 2016).

[239] Rupprecht, F.-A., Hamann, B., Weidig, C., Aurich, J. C. and Ebert, A. (2016), IN2CO – A visualization framework for intuitive collaboration, short paper, in: Bertini, E., Elmqvist, N. and Wischgoll, T., eds., *Joint Eurographics-IEEE VGTC Conference on Visualization 2016, Short Papers* (Proceedings of "EuroVis 2016"), Eurographics Digital Library, pp. 131–135 (presented at: "Joint Eurographics-IEEE VGTC Conference on Visualization (EuroVis 2016), Short Papers," Groningen, The Netherlands, June 2016).

[238] Borges, V. R. P., Hamann, B., Silva, T. G., Vieira, A. A. H. and Ferreira de Oliveira, M. C. (2015), A highly accurate level set approach for segmenting green microalgae images, in: Papa, J. P.,

Sander, P. V., Marroquim, R. and Farrell, R., eds., Proceedings of *XXVIII SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI 2015)*, IEEE Xplore Digital Library, IEEE Press, Piscataway, New Jersey, pp. 87–94 (presented at: "XXVIII SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI 2015)," Salvador, Brazil, August 2015).

[237] Isaacs, K. E., Bhatele, A., Lifflander, J., Böhme, D., Gamblin, G. T., Schulz, M., Hamann, B. and Bremer, P.-T. (2015), Recovering logical structure from Charm++ event traces, in: Deelman, E. and Moreira, J., eds., Proceedings of *Supercomputing 2015 (SC15)*, ACM/IEEE, ACM Digital Library, ACM Press, New York, New York, 12 pages (article no. 49) (presented at: "Supercomputing 2015 (SC15)," Austin, Texas, November 2015).

[236] Kronenberger, M., Weber, C., Gebbie, G. A., Kreylos, O., Kellogg, L. H., Lisiecki, L. E., Peterson, C. D., Spero, H. J., Hamann, B. and Hagen, H. (2015), A novel distance measure for ocean reconstruction from sparse observations demonstrated on the Atlantic, in: Talbot, J., Keahey, A. and Wright, W., eds., Proceedings of *IEEE Scientific Visualization 2015 (SciVis 2015) – Visualization in Practice*, IEEE Computer Society Press, Los Alamitos, California (presented at: "IEEE Scientific Visualization 2015 (SciVis 2015) – Visualization in Practice," Chicago, Illinois, October 2015).

[235] Rüdiger, P., Weber, C., Matsui, H., Heien, E., Kellogg, L. H., Hamann, B. and Hagen, H. (2015), Pre-filtering of turbulent vector fields in the geodynamo, in: Talbot, J., Keahey, A. and Wright, W., eds., Proceedings of *IEEE Scientific Visualization 2015 (SciVis 2015) – Visualization in Practice*, IEEE Computer Society Press, Los Alamitos, California (presented at: "IEEE Scientific Visualization 2015 (SciVis 2015) – Visualization in Practice," Chicago, Illinois, October 2015).

[234] Aldrich, G. A., Giménez, A., Oskin, M. E., Strelitz, R. A., Woodring, J. L., Kellogg, L. H. and Hamann, B. (2014), Curvature-based crease surfaces for wave visualization, in: Bender, J., Kuijper, A., von Landesberger, T. and Urban, P., eds., Proceedings of *Nineteenth International Fall Workshop on Vision, Modeling, and Visualization 2014 (VMV 2014)*, Eurographics Digital Library, pp. 39–46 (presented at: "Nineteenth International Fall Workshop on Vision, Modeling, and Visualization 2014 (VMV 2014)," Darmstadt, Germany, October 2014).

[233] Giménez, A., Gamblin, G. T., Rountree, B., Bhatele, A., Jusufi, I., Bremer, P.-T. and Hamann, B. (2014), Dissecting on-node memory access performance: a semantic approach, in: de Supinski, B. R. and Hall, M., eds., Proceedings of *Supercomputing 2014 (SC14)*, ACM/IEEE, IEEE Press, Piscataway, New Jersey, pp. 166–176 (presented at: "Supercomputing 2014 (SC14)," New Orleans, Louisiana, November 2014).

[232] Isaacs, K. E., Gamblin, G. T., Bhatele, A., Bremer, P.-T., Schulz, M. W. J. and Hamann, B. (2014), Extracting logical structure and identifying stragglers in parallel execution traces, poster presentation, in: Larus, J., ed., Proceedings of *Nineteenth ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP 2014)*, ACM Press, New York, New York, pp. 397–398 (presented at: "Nineteenth ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP 2014)," Orlando, Florida, February 2014).

[231] Isaacs, K. E., Giménez, A., Jusufi, I., Gamblin, G. T., Bhatele, A., Schulz, M. W. J. Hamann, B. and Bremer, P.-T. (2014), State of the art of performance visualization, in: Borgo, R., Maciejewski, R. and Viola, I., eds., *Joint Eurographics-IEEE VGTC Conference on Visualization 2014, State-of-the-Art Reports (STARS)* (Proceedings of "EuroVis 2014"), Eurographics Digital Library (presented at: "Joint Eurographics-IEEE VGTC Conference on Visualization (EuroVis 2014), State-of-the-Art Reports (STARS)," Swansea, United Kingdom, June 2014).

[230] McCarthy, C. M., Isaacs, K. E., Bhatele, A., Bremer, P.-T. and Hamann, B. (2014), Visualizing the five-dimensional torus network of the IBM Blue Gene/Q, in: Bremer, P.-T., Mohr, B., Pascucci, V. and Schulz, M., eds., Proceedings of *First Workshop on Visual Performance Analysis (VPA)*, IEEE

Xplore Digital Library, IEEE Press, Piscataway, New Jersey, 4 pages (presented at: "First Workshop on Visual Performance Analysis (VPA)," New Orleans, Louisiana, November 2014).

[229] Pulido, J., Dutra da Silva, R., Sumner, D. Y., Pedrini, H. and Hamann, B. (2014), Constructing point clouds from underwater stereo movies, in: Bebis, G., Boyle, R., Parvin, B., Koracin, D., McMahan, R., Jerald, J., Zhang, H., Drucker, S. M., Kambhamettu, C., El Choubassi, M., Deng, Z. and Carlson, M., eds., Proceedings of *Tenth International Symposium on Visual Computing (ISVC 14)*, Lecture Notes in Computer Science (LNCS) Series, Vol. 8887, Springer-Verlag, Heidelberg, Germany, pp. 423–434 (presented at: "Tenth International Symposium on Visual Computing (ISVC 14)," Las Vegas, Nevada, December 2014).

[228] Streletz, G. J., Kronenberger, M., Weber, C., Gebbie, G. A., Hagen, H., Hamann, B., Kreylos, O., Kellogg, L. H., Garth, C. and Spero, H. J. (2014), A comparison of methods for ocean reconstruction from sparse observations, poster presentation, abstract number PP11B-1356, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2014*, Eos Trans. AGU 95, Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2014," San Francisco, California, December 2014).

[227] Aldrich, G. A., Gable, C. W., Painter, S. L., Makedonska, N., Hamann, B. and Woodring, J. L. (2013), Visualization and hierarchical analysis of flow in discrete fracture network models, poster presentation, abstract number IN31B-1502, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2013*, Eos Trans. AGU 94, Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2013," San Francisco, California, December 2013).

[226] Banesh, D., Oskin, M. E., Mu, A. Y., Vu, C. N., Westerteiger, R., Krishnan, A., Hamann, B., Glennie, C. L., Hinojosa-Corona, A. and Borsa, A. A. (2013), Intercomparison of registration techniques and interactive 3D visualization of differential LiDAR from the 2010 El Mayor-Cucapah earthquake, poster presentation, abstract number G33A-0980, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2013*, Eos Trans. AGU 94, Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2013," San Francisco, California, December 2013).

[225] Bauer, J., Ebert, A., Kreylos, O. and Hamann, B. (2013), Generalized eyes-free interaction for use with large displays, in: Humayoun, S. R., Hess, S. and Ebert, A., eds., Electronic Proceedings of *Workshop on Prototyping to Support the Interaction Designing in Mobile Application Development (PID-MAD 2013)*, 4 pages (presented at: "Workshop on Prototyping to Support the Interaction Designing in Mobile Application Development (PID-MAD 2013)," Munich, Germany, August 2013).

[224] Bauer, J., Ebert, A., Kreylos, O. and Hamann, B. (2013), Marking menus for eyes-free interaction using smart phones and tablets, in: Cuzzocrea, A., Kittl, C., Simos, D. E., Weippl, W. and Xu, L., eds., Proceedings of *International Conference on Availability, Reliability and Security in Information Systems and HCI (ARES 2013)*, Lecture Notes in Computer Science (LNCS) Series, Vol. 8127, Springer-Verlag, Heidelberg, Germany, pp. 481–494 (presented at: "International Conference on Availability, Reliability and Security in Information Systems and HCI (ARES 2013) – International Cross-Domain Conference and Workshop (CD-ARES 2013), Regensburg, Germany, September 2013).

[223] Capps, A. G., Zawadzki, R. J., Werner, J. S. and Hamann, B. (2013), Combined volume registration and visualization, in: Linsen, L., Hamann, B. and Hege, H.-C., eds., Proceedings of *Third International Workshop on Visualization in Medicine and Life Sciences 2013, Short Papers*, Eurographics Digital Library, 5 pages (presented at: "Third International Workshop on Visualization in Medicine and Life Sciences 2013," Leipzig, Germany, June 2013).

[222] Denker, K., Hagel, D., Raible, J., Umlauf, G. and Hamann, B. (2013), On-line reconstruction of

CAD geometry, in: Furukawa, Y., Stamos, I. and Taylor, C. J., eds., Proceedings of *Three-dimensional Vision 2013 (3DV 2013)*, IEEE Computer Society Press, Los Alamitos, California, pp. 151–158 (presented at: "Three-dimensional Vision (3DV 2013)," Seattle, Washington, June/July 2013).

[221] Shafii, S., Obermaier, H., Kolář, V., Hlawitschka, M., Garth, C., Hamann, B. and Joy, K. I. (2013), Illustrative rendering of vortex cores, short paper, in: Hlawitschka, M. and Weinkauf, T., eds., Proceedings of *Joint Eurographics-IEEE VGTC Conference on Visualization 2013, Short Papers*, Eurographics Digital Library, 5 pages (presented at: "Joint Eurographics-IEEE VGTC Conference on Visualization (EuroVis 2013)," Leipzig, Germany, June 2013).

[220] Streletz, G. J., Gebbie, G. A., Hamann, B., Kreylos, O., Kellogg, L. H., and Spero, H. J. (2013), Flow-based ocean reconstructions from sparse observations, poster presentation, abstract number NG21A-1474, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2013*, Eos Trans. AGU 94, Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2013," San Francisco, California, December 2013).

[219] Zhu, Y., Ramakrishnan, A. S., Hamann, B. and Neff, M. P. (2013), Automatic animation system of piano performances, in: Abstract Proceedings of *Interdisciplinary Graduate and Professional Student Symposium 2013 (IGPS 2013)*, Office of Graduate Studies, University of California, Davis, p. 50 ("Interdisciplinary Graduate and Professional Student Symposium 2013 (IGPS 2013)," University of California, Davis, April 2013).

[218] Beketayev, K., Weber, G. H., Morozov, D., Abzhanov, A. and Hamann, B. (2012), Geometry-preserving topological landscapes, in: Lim, J.-H., Yu, R., Natarajan, V. and Linsen, L., eds., Proceedings of *Workshop at SIGGRAPH ASIA (WASA) 2012, Visualization Track*, ACM Press, New York, New York, pp. 155–160 (presented at: "Workshop at SIGGRAPH ASIA (WASA) 2012, Visualization Track," held in conjunction with "ACM SIGGRAPH ASIA 2012," Fusionopolis, Singapore, November 2012).

[217] Bhatele, A., Gamblin, G. T., Isaacs, K. E., Gunney, B. T. N., Schulz, M. W. J., Bremer, P.-T. and Hamann, B. (2012), Novel views of performance data to analyze large-scale adaptive applications, in: Hollingsworth, J. K., ed., Proceedings of *Supercomputing 2012 (SC12)*, ACM/IEEE, ACM Press, New York, New York, 11 pages (presented at: "Supercomputing 2012 (SC12)," Salt Lake City, Utah, November 2012).

[216] Bhatele, A., Gamblin, G. T., Langer, S. H., Bremer, P.-T., Draeger, E. W., Hamann, B., Isaacs, K. E., Landge, A. G., Levine, J. A., Pascucci, V., Schulz, M. W. J. and Still, C. H. (2012), Mapping applications with collectives over sub-communicators on torus networks, in: Hollingsworth, J. K., ed., Proceedings of *Supercomputing 2012 (SC12)*, ACM/IEEE, ACM Press, New York, New York, 11 pages (presented at: "Supercomputing 2012 (SC12)," Salt Lake City, Utah, November 2012).

[215] Demir, D., Beketayev, K., Weber, G. H., Bremer, P.-T., Pascucci, V., and Hamann, B. (2012), Topology exploration with hierarchical landscapes, in: Lim, J.-H., Yu, R., Natarajan, V. and Linsen, L., eds., Proceedings of *Workshop at SIGGRAPH ASIA (WASA) 2012, Visualization Track*, ACM Press, New York, New York, pp. 147–154 (presented at: "Workshop at SIGGRAPH ASIA (WASA) 2012, Visualization Track," held in conjunction with "ACM SIGGRAPH ASIA 2012," Fusionopolis, Singapore, November 2012).

[214] Galambos, P., Weidig, C., Baranyi, P., Aurich, J. C., Hamann, B. and Kreylos, O. (2012), VirCA NET: A case study for collaboration in shared virtual space, in: Baranyi, P., ed., Proceedings of *Third IEEE International Conference on Cognitive Infocommunications (CogInfoCom2012)*, IEEE Computer Society Press, Los Alamitos, California, pp. 273–277 (presented at: "Third IEEE International Conference on Cognitive Infocommunications (CogInfoCom2012)," Kosice, Slovakia, December 2012).

[213] Galambos, P., Weidig, C., Zentay, P., Csapo, A., Baranyi, P., Aurich, J. C., Hamann, B. and

Kreylos, O. (2012), VirCA NET: A collaborative use case scenario on factory layout planning, in: Baranyi, P., ed., Proceedings of *Third IEEE International Conference on Cognitive Infocommunications (CogInfoCom2012)*, IEEE Computer Society Press, Los Alamitos, California, pp. 467–468 (presented at: "Third IEEE International Conference on Cognitive Infocommunications (CogInfoCom2012)," Kosice, Slovakia, December 2012).

[212] Isaacs, K. E., Landge, A. G., Gamblin, G. T., Bremer, P.-T., Pascucci, V. and Hamann, B. (2012), Exploring performance data with Boxfish, electronic poster presentation, in: Hollingsworth, J. K., ed., Proceedings of *Supercomputing 2012 (SC12)*, ACM/IEEE, ACM Press, New York, New York, 13 pages (presented at: "Supercomputing 2012 (SC12)," Salt Lake City, Utah, November 2012).

[211] Menck, N., Yang, X., Weidig, C., Winkes, P., Lauer, C., Hagen, H., Hamann, B. and Aurich, J. C. (2012), Collaborative factory planning in virtual reality, in: Chryssolouris, G. and Mourtzis, D., eds., Proceedings of *45th CIRP Conference on Manufacturing Systems (45th CIRP CMS 2012)*, Laboratory for Manufacturing Systems and Automation, Department of Mechanical Engineering and Aeronautics, University of Patras, Greece, pp. 359–366 (presented at: "45th CIRP Conference on Manufacturing Systems (45th CIRP CMS 2012)," Athens, Greece, May 2012).

[210] Mouradian, J. A. V., Hamann, B. and Rosenbaum, R. (2012), A general approach for similarity-based linear projections using a genetic algorithm, in: Wong, P. C., Kao, D. L., Hao, M. C., Chen, C., Kosara, R., Livingston, M. A., Park, J. and Roberts, I., eds., *Visualization and Data Analysis 2012*, Proc. SPIE Vol. 8294, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 82940L-1–82940L-12 (presented at: "Electronic Imaging 2012," Burlingame, California, January 2012).

[209] Narayan, A., Sreevalsan-Nair, J., Gaither, K. P. and Hamann, B. (2012), Isosurface extraction from hybrid unstructured grids containing pentahedral elements, in: Kraus, M. and Laramee, R. S., eds., Proceedings of *International Conference on Information Visualization Theory and Applications 2012 (IVAPP 2012)*, available on-line at http://www.scitepress.org/DigitalLibrary/, SciTePress Digital Library, Institute for Systems and Technologies of Information, Control and Communication (INSTICC), Setúbal, Portugal, pp. 660–669 (presented at: "International Conference on Information Visualization Theory and Applications 2012 (IVAPP 2012)," Rome, Italy, February 2012).

[208] Rosenbaum, R., Engel, D., Mouradian, J. A. V., Hagen, H. and Hamann, B. (2012), Interpretation, interaction and scalability for structural decomposition trees, in: Kraus, M. and Laramee, R. S., eds., Proceedings of *International Conference on Information Visualization Theory and Applications 2012 (IVAPP 2012)*, available on-line at http://www.scitepress.org/DigitalLibrary/, SciTePress Digital Library, Institute for Systems and Technologies of Information, Control and Communication (INSTICC), Setúbal, Portugal, pp. 636–647 (presented at: "International Conference on Information Visualization Theory and Applications 2012 (IVAPP 2012)," Rome, Italy, February 2012).

[207] Rosenbaum, R. and Hamann, B. (2012), Evaluation of progressive treemaps to convey tree and node properties, in: Wong, P. C., Kao, D. L., Hao, M. C., Chen, C., Kosara, R., Livingston, M. A., Park, J. and Roberts, I., eds., *Visualization and Data Analysis 2012*, Proc. SPIE Vol. 8294, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 82940F-1–82940F-12 (presented at: "Electronic Imaging 2012," Burlingame, California, January 2012).

[206] Rosenbaum, R. and Hamann, B. (2012), Raster image adaptation for mobile devices using profiles, in: Creutzburg, R., Akopian, D., Snoek, C. G. M., Sebe, N. and Kennedy, L., eds., *Multimedia on Mobile Devices 2012*, Proc. SPIE Vol. 8304, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 83040H-1–83040H-10 (presented at: "Electronic Imaging 2012," Burlingame, California, January 2012).

[205] Rosenbaum, R., Zhi, J. and Hamann, B. (2012), Progressive parallel coordinates, in: Hauser, H.,

Kobourov, S. and Qu, H., eds., Proceedings of *Fifth IEEE Pacific Visualization Symposium (PacificVis 2012)*, IEEE Computer Society Press, Los Alamitos, California, pp. 25–32 (presented at: "Fifth IEEE Pacific Visualization Symposium (PacificVis 2012)," Songdo, South Korea, February/March 2012).

[204] Streletz, G. J., Gebbie, G. A., Spero, H. J., Kreylos, O., Kellogg, L. H., and Hamann, B. (2012), Interpolating sparse scattered oceanographic data using flow information, poster presentation, abstract number NG31A-1576, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2012*, Eos Trans. AGU 93, Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2012," San Francisco, California, December 2012).

[203] Weidig, C., Csapo, A., Aurich, J. C., Hamann, B. and Kreylos, O. (2012), VircaNET and CogInfoCom: Novel challenges in future Internet-based augmented/virtual collaboration, in: Baranyi, P., ed., Proceedings of *Third IEEE International Conference on Cognitive Infocommunications (CogInfoCom2012)*, IEEE Computer Society Press, Los Alamitos, California, pp. 267–272 (presented at: "Third IEEE International Conference on Cognitive Infocommunications (CogInfoCom2012)," Kosice, Slovakia, December 2012).

[202] Westerteiger, R., Chen, F., Gerndt, A., Hamann, B. and Hagen, H. (2012), Remote GPU-accelerated online pre-processing of raster maps for terrain rendering, in: Geiger, C., Herder, J. and Vierjahn, T., eds., Proceedings of *Ninth Workshop on Virtual Reality and Augmented Reality of the GI Expert's Group (VRAR 2012)*, Shaker Verlag, Aachen, Germany, pp. 143–154 (presented at: "Ninth Workshop on Virtual Reality and Augmented Reality of the GI Expert's Group (VRAR 2012)," Düsseldorf, Germany, September 2012).

[201] Westerteiger, R., Gerndt, A., Hamann, B. and Hagen, H. (2012), Spatial analysis of terrain in virtual reality, in: de Haan, G., Hentschel, B., Keefe, D. and Kreylos, O., eds., Proceedings of *IEEE Virtual Reality 2012 Workshop Immersive Visualization Revisited – Challenges and Opportunities*, 4 pages (presented at: "IEEE Virtual Reality 2012 Workshop Immersive Visualization Revisited – Challenges and Opportunities," Costa Mesa, California, March 2012).

[200] Zawadzki, R. J., Jones, S. M., Kim, D. Y., Poyneer, L. A., Capps, A. G., Hamann, B., Olivier, S. S. and Werner, J. S. (2012), In-vivo imaging of inner retinal cellular morphology with adaptive optics – optical coherence tomography: Challenges and possible solutions, in: Manns, F., Söderberg, P. G. and Ho, A., eds., *Ophthalmic Technologies XXII*, Proc. SPIE Vol. 8209, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 82091G-1–82091G-6 (presented at: "Photonics West – Biomedical Optics 2012," Burlingame, California, January 2012).

[199] Aldrich, G. A., Kellogg, L. H. and Hamann, B. (2011), Crease surfaces for seismic wave data analysis and visualization, poster presentation, abstract number ED51B-0754, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2011*, Eos Trans. AGU 92, Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2011," San Francisco, California, December 2011).

[198] Aldrich, G. A., Pinskiy, D. V. and Hamann, B. (2011), Collision-driven volumetric deformtaion on the GPU, short paper, in: Avis, N. J. and Lefebvre, S., eds., Short Papers Proceedings of *Eurographics 2011*, Eurographics/Wiley-Blackwell, pp. 9–12 (presented at: "Eurographics 2011," Llandudno, Wales, United Kingdom, April 2011).

[197] Banesh, D., Oskin, M. E., Wang, X., Hamann, B. and Kellogg, L. H. (2011), Methods for analyzing the El Mayor-Cucapah earthquake rupture using LiDAR datasets, poster presentation, abstract number EP41A-0599, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2011*, Eos Trans. AGU 92, Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2011," San Francisco, California, December 2011).

[196] Capps, A. G., Zawadzki, R. J., Yang, Q., Arathorn, D. W., Vogel, C. R., Hamann, B. and Werner, J. S. (2011), Correction of eye-motion artifacts in AO-OCT data sets, in: Manns, F., Söderberg, P. G. and Ho, A., eds., *Ophthalmic Technologies XXI*, Proc. SPIE Vol. 7885, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 78850D-1–78850D-7 (presented at: "Photonics West – Biomedical Optics 2011," San Francisco, California, January 2011).

[195] Huang, M.-Y., Mackey, L., Keränen, S. V. E., Weber, G. H., Jordan, M. I., Knowles, D. W., Biggin, M. D. and Hamann, B. (2011), Visually relating gene expression and in vivo DNA binding data, in: Wu, F.-X., Zaki, M., Morishita, S., Pan, Y., Wong, S., Christianson, A. and Hu, X., eds., Proceedings of *IEEE International Conference on Bioinformatics and Biomedicine 2011 (IEEE BIBM 2011)*, IEEE Computer Society Press, Los Alamitos, California, pp. 586–589 (presented at: "IEEE International Conference on Bioinformatics and Biomedicine 2011 (IEEE BIBM 2011)," Atlanta, Georgia, November 2011).

[194] Kellogg, L. H., Bernardin, T. S., Billen, M. I., Cowgill, E. S., Crutchfield, J. P., Elliott, A. J., Hamann, B., Harwood, C. L., Kreylos, O. and Sumner, D. Y. (2011), KeckCAVES: Enabling interactive visual exploration in virtual reality for the geosciences, poster presentation, abstract no. 197729, in: *GSA Abstracts with Programs* 43(5), The Geological Society of America (GSA) (presented at: "2011 GSA Annual Meeting," Minneapolis, Minnesota, October 2011).

[193] Rosenbaum, R., Bottleson, J. O., Liu, Z. and Hamann, B. (2011), Involve me and I will understand! — Abstrcat data visualization in immersive environments, in: Bebis, G., Boyle, R., Parvin, B., Koracin, D., Wang, S., Kim, K., Benes, B., Moreland, K., Borst, C. W., DiVerdi, S. J., Chiang, Y.-J. and Jiang, M., eds., Proceedings of *Seventh International Symposium on Visual Computing (ISVC 11)*, Lecture Notes in Computer Science (LNCS) Series, Vol. 6938, Springer-Verlag, Heidelberg, Germany, pp. 530–540 (presented at: "Seventh International Symposium on Visual Computing (ISVC 11)," Las Vegas, Nevada, September 2011).

[192] Rosenbaum, R., Giménez, A., Schumann, H. and Hamann, B. (2011), A flexible, low-complexity device adaptation approach for data presentation, in: Wong, P. C., Park, J., Hao, M. C., Chen, C., Börner, K., Kao, D. L. and Roberts, J. C., eds., *Visualization and Data Analysis 2011*, Proc. SPIE Vol. 7868, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 78680F-1–78680F-12 (presented at: "Electronic Imaging 2011," San Francisco, California, January 2011).

[191] Tittmann, P. W., Shafii, S., Hartsough, B. R., Kreylos, O. and Hamann, B. (2011), Tree detection, delineation and measurement from LiDAR point clouds uisng RANSAC, in: Hirata, Y. et al., eds., Proceedings of *Eleventh International Conference on LiDAR Applications for Assessing Forest Ecosystems (SilviLaser 2011)*, pp. 1–13 (presented at: "Eleventh International Conference on LiDAR Applications for Assessing Forest Ecosystems (SilviLaser 2011)," University of Tasmania, Hobart, Australia, October 2011).

[190] Yang, X., Malak, R. C., Lauer, C., Weidig, C., Hagen, H., Hamann, B. and Aurich, J. C. (2011), Virtual reality enhanced manufacturing systems design, in: Chryssolouris, G. and Mourtzis, D., eds., Proceedings of *Seventh International Conference on Digital Enterprise Technology (DET 2011)*, ISBN 978-960-88104-2-6, Laboratory for Manufacturing Systems and Automation, Department of Mechanical Engineering and Aeronautics, University of Patras, Greece, pp. 125–133 (presented at: "Seventh International Conference on Digital Enterprise Technology (DET 2011)," Athens, Greece, September 2011).

[189] Burkhart, D., Hamann, B. and Umlauf, G. (2010), Adaptive tetrahedral subdivision for finite element analysis, short paper, in: Magnenat-Thalmann, N., Earnshaw, R. A., Sourin, A., Nakajima, M., Wolter, F.-E. and Wu, E., eds., *Computer Graphics International 2010 (CGI 2010)*, CGI 2010

Electronic Proceedings, ISBN 978-2-8399-0707-1 (presented at: "Computer Graphics International 2010 (CGI 2010)," Nanyang Technological University, Singapore, June 2010).

[188] Cowgill, E. S., Bernardin, T. S., Oskin, M. E., Bowles, C. J., Yikilmaz, M. B., Kreylos, O., Elliott, A. J., Bishop, S. M., Gold, R. D., Morelan, A., Bawden, G. W., Hamann, B. and Kellogg, L. H. (2010), Earthquake behavior of the Enriquillo fault zone, Haiti, revealed by interactive terrain visualization, poster presentation, abstract number U13A-0015, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2010*, Eos Trans. AGU 91, Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2010," San Francisco, California, December 2010).

[187] Giménez, A., Rosenbaum, R., Hlawitschka, M. and Hamann, B. (2010), Using R-trees for interactive visualization of large multidimensional datasets, in: Bebis, G., Boyle, R., Parvin, B., Koracin, D., Chung, R., Hammound, R., Hussain, M., Kar-Han, T., Crawfis, R. A., Thalman, D., Kao, D. L. and Avila, L., eds., Proceedings of *Sixth International Symposium on Visual Computing (ISVC 10)*, Lecture Notes in Computer Science (LNCS) Series, Vol. 6454, Springer-Verlag, Heidelberg, Germany, pp. 554–563 (presented at: "Sixth International Symposium on Visual Computing (ISVC 10)," Las Vegas, Nevada, November/December 2010).

[186] Huang, M.-Y., Weber, G. H., Li, X.-Y., Biggin, M. D. and Hamann, B. (2010), Quantitative visualization of ChIP-chip data by using linked views, in: di Bernardo, D., Chan, T. F., Chen, J., Chen, X., Chen, Y., Cheng, X., Cho, H. G., Cho, Y.-R., Couto, F., Davuluri, R. V., Gao, L., Guzzi, P. H., Hsiao, C. K., Hsu, H.-H., Huan, L. J., Huang, K., Huang, Y., Jiang, R., Klement, W., Li, G.-Z., Luo, B., Michalowski, M., Ott, J., Pan, Q., Park, T., Pattini, L., Potetz, B., Song, X., O'Sullivan, D., Sun, H., Tseng, V. S., Wang, Y., Wu, F. X., Xi, D., Yiu, S. M., Zhang, S., Zhao, Z. and Zheng, H., eds., Proceedings of *IEEE International Conference on Bioinformatics and Biomedicine 2010 (IEEE BIBM 2010) Workshops, Workshop on Integrative Data Analysis in Systems Biology (IDASB)*, IEEE Computer Society Press, Los Alamitos, California, pp. 195–200 (presented at: "IEEE International Conference on Bioinformatics and Biomedicine 2010 (IEEE BIBM 2010), Workshop on Integrative Data Analysis in Systems Biology (IDASB)," Hong Kong, P. R. China, December 2010).

[185] Rübel, O., Ahern, S., Bethel, E. W., Biggin, M. D., Childs, H. R., Cormier-Michel, E., DePace, A. H., Eisen, M. B., Fowlkes, C. C., Geddes, C. G. R., Hagen, H., Hamann, B., Huang, M.-Y., Keränen, S. V. E., Knowles, D. W., Luengo Hendriks, C. L., Malik, J., Meredith, J. S., Messmer, P., Prabhat, Ushizima, D. M., Weber, G. H. and Wu, K. (2010), Coupling visualization and data analysis for knowledge discovery from multi-dimensional scientific data, in: Sloot, P. M. A., van Albada, G. D., and Dongarra, J. J., eds., Proceedings of *Tenth International Conference on Computational Science 2010 (ICCS 2010)*, Procedia Computer Science 1(1), Elsevier, Amsterdam, The Netherlands, pp. 1751–1758 (presented at: Tenth International Conference on Computational Science 2010 (ICCS 2010)," Amsterdam, The Netherlands, May/June 2010).

[184] Schurade, R., Hlawitschka, M., Hamann, B., Scheuermann, G., Knösche, T. R. and Anwander, A. (2010), Visualizing white matter fiber tracts with optimally fitted curved dissection surfaces, in: Bartz, D., Botha, C. P., Hornegger, J. and Machiraju, R., Wiebel, A. and Preim, B., eds., Proceedings of *Second Eurographics Workshop on Visual Computing for Biology and Medicine (VCBM 2010)*, Eurographics Association, Aire-la-Ville, Switzerland, pp. 41–48 (presented at: "Second Eurographics Workshop on Visual Computing for Biology and Medicine (VCBM 2010)," Leipzig, Germany, July 2010).

[183] Vasudevan, R., Lobaton, E. J., Kurillo, G., Bajcsy, R., Bernardin, T. S., Hamann, B. and Nahrstedt, K. (2010), A methodology for remote virtual interaction in tele-immersive environments, in: Mayer-Patel, K., ed., Proceedings of *2010 ACM Multimedia Systems*, ACM Press, New York, New York,

pp. 281–291 (presented at: "2010 ACM Multimedia Systems," Scottsdale, Arizona, February 2010).

[182] Weber, G. H., Ahern, S., Bethel, E. W., Borovikov, S., Childs, H. R., Deines, E., Garth, C., Hagen, H., Hamann, B., Joy, K. I., Martin, D., Meredith, J. S., Prabhat, Pugmire, D., Rübel, O., Van Straalen, B. and Wu, K. (2010), Recent advances in VisIt: AMR streamlines and query-driven visualization, in: Pogorelov, N. V., Audit, E. and Zank, G. P., eds., Proceedings of *ASTRONUM 2009 – Fourth International Conference on Numerical Modeling of Space Plasma Flows*, ASP Conference Series Vol. 429, Astronomical Society of the Pacific (ASP), Orem, Utah, pp. 329–334 (presented at: "ASTRONUM 2009 – Fourth International Conference on Numerical Modeling of Space Plasma Flows, Chamonix, France, June/July 2009).

[181] Zawadzki, R. J., Rowe, T. S., Fuller, A. R., Hamann, B. and Werner, J. S. (2010), Towards building an anatomically correct solid eye model with volumetric representation of retinal morphology, in: Manns, F., Söderberg, P. G. and Ho, A., eds., *Ophthalmic Technologies XX*, Proc. SPIE Vol. 7550, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 75502F-1–75502F-7 (presented at: "Photonics West – Biomedical Optics 2010," San Francisco, California, January 2010).

[180] Bernardin, T. S., Kreylos, O., Hamann, B., Bowles, C. J., Gold, P. O., Cowgill, E. S., and Kellogg, L. H. (2009), Crusta: Visualizing high-resolution global data, poster presentation, abstract number IN33A-1023, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2009*, Eos Trans. AGU 90(52), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2009," San Francisco, California, December 2009).

[179] Fuller, A. R., Zawadzki, R. J., Hamann, B. and Werner, J. S. (2009), Comparison of real-time visualization of volumetric OCT data sets by CPU-slicing and GPU-ray casting methods, in: Manns, F., Söderberg, P. G. and Ho, A., eds., *Ophthalmic Technologies XIX*, Proc. SPIE Vol. 7163, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 716312-1–716312-12 (presented at: "Photonics West – Biomedical Optics 2009," San Jose, California, January 2009).

[178] Kazhdan, M., Amenta, N., Gu, S., Wiley, D. F. and Hamann, B. (2009), Symmetry restoration by stretching, in: Evans, W. S., ed., Proceedings of the *21st Annual Canadian Conference on Computational Geometry*, MITACS Inc., University of British Columbia, Vancouver, British Columbia, Canada, pp. 37–40 (presented at: "21st Annual Canadian Conference on Computational Geometry," Vancouver, British Columbia, Canada, August 2009).

[177] Keränen, S. V. E., DePace, A. H., Hammonds, A. S., Fisher, B., Rübel, O., Weber, G. H., Henriquez, C. N., Fowlkes, C. C., Luengo Hendriks, C. L., Simirenko, L., Bethel, E. W., Hagen, H., Hamann, B., Malik, J., Celniker, S. E., Knowles, D. W., Eisen, M. B. and Biggin, M. D. (2009), On computational analysis of quantitative, 3D spatial expression in Drosophila blastoderm, poster presentation, *Fifth Annual RECOMB Satellite on Systems Biology – Poster Compendium* (presented at: "Fifth Annual RECOMB Satellite on Systems Biology," Boston, Massachusetts, December 2009).

[176] Rosenbaum, R. and Hamann, B. (2009), Progressive presentation of large hierarchies using treemaps, in: Bebis, G., Boyle, R., Parvin, B., Koracin, D., Kuno, Y., Wang, J., Pajarola, R., Lindstrom, P., Hinkenjann, A., Encarnacao, M. L., Silva, C. T. and Coming, D. S., eds., Proceedings of *Fifth International Symposium on Visual Computing (ISVC 09)*, Part II, Lecture Notes in Computer Science (LNCS) Series, Vol. 5876, Springer-Verlag, Heidelberg, Germany, pp. 71–80, (presented at: "Fifth International Symposium on Visual Computing (ISVC 09)," Las Vegas, Nevada, November/December 2009).

[175] Schlemmer, M., Hotz, I., Hagen, H. and Hamann, B. (2009), Comparative visualization of two-dimensional flow data using moment invariants, in: Magnor, M., Rosenhahn, B. and Theisel, H., eds., Proceedings of *Fourteenth International Fall Workshop on Vision, Modeling, and Visualization*

2009 (VMV 2009), Otto-von-Guericke Universität, Magedeburg, Germany, pp. 255–263 (presented at: "Fourteenth International Fall Workshop on Vision, Modeling, and Visualization 2009 (VMV 2009)," Braunschweig, Germany, November 2009).

[174] Zawadzki, R. J., Evans, J. W., Choi, S. S., Fuller, A. R., Hamann, B. and Werner, J. S. (2009), Large field-of-view cellular resolution mapping of in vivo retinas by ultra-high resolution adaptive optics-optical coherence tomography (UHR-AO-OCT), poster presentation, E-abstract 1057, in: Abstract and Poster Proceedings of *2009 ARVO (The Association for Research in Vision and Ophthalmology) Annual Meeting*, 2009 E-abstract first author index published in Investigative Ophthalmology and Visual Science 50(5), ARVO, Rockville, Maryland (presented at: "2009 ARVO (The Association for Research in Vision and Ophthalmology) Annual Meeting," Fort Lauderdale, Florida, May 2009).

[173] Bernardin, T. S., Budge, B. C. and Hamann, B. (2008), Stacked-widget visualization of scheduling-based algorithms, in: Hundhausen, C. D. and Telea, A. C., eds., Proceedings of *Fourth ACM Symposium on Software Visualization 2008 (SOFTVIS 2008)*, ACM Press, New York, New York, pp. 165–174 (presented at: "Fourth ACM Symposium on Software Visualization 2008 (SOFTVIS 2008)," Herrsching, Germany, September 2008).

[172] Deller, M., Agne, S., Ebert, A., Dengel, A., Hagen, H., Klein, B., Bender, M., Bernardin, T. S. and Hamann, B. (2008), Managing a document-based information space, in: Bradshaw, J. M., Lieberman, H. A. and Staab, S., eds., Proceedings of *2008 International Conference on Intelligent User Interfaces (IUI 2008)*, ACM Press, New York, New York, pp. 119–128 (presented at: "International Conference on Intelligent User Interfaces (IUI 2008)," Maspalomas, Gran Canaria, Spain, January 2008).

[171] Keller, P., Kreylos, O., Hamann, B., Kellogg, L. H., Cowgill, E. S., Hering-Bertram, M. and Hagen, H. (2008), Extraction of features from high-resolution LiDaR point cloud data, poster presentation, abstract number G53B-0636, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2008*, Eos Trans. AGU 89(53), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2008," San Francisco, California, December 2008).

[170] Kellogg, L. H., Kreylos, O., Billen, M. I., Hamann, B., Jadamec, M. A., Rundle, J. B., Van Aalsburg, J. and Yikilmaz, M. B. (2008), Using interactive visualization to analyze solid earth data and geodynamics models, poster presentation, abstract number IN43A-1161, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2008*, Eos Trans. AGU 89(53), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2008," San Francisco, California, December 2008).

[169] Lehner, B., Umlauf, G. and Hamann, B. (2008), Video compression using data-dependent triangulations, winner of the "Outstanding Paper Award," in: Xiao, Y. and ten Thij, E. C. G., eds., Proceedings of *IADIS Multi-conference on Computer Science and Information Systems (MCCSIS) 2008 – International Conference on Computer Graphics and Visualization (CGV) 2008*, IADIS Press, IADIS (International Association for Development of the Information Society), Lisbon, Portugal, pp. 244–248 (presented at: "IADIS Multi-conference on Computer Science and Information Systems (MCCSIS) 2008 – International Conference on Computer Graphics and Visualization (CGV) 2008," Amsterdam, The Netherlands, July 2008).

[168] Rübel, O., Prabhat, Wu, K., Childs, H. R., Meredith, J. S., Geddes, C. G. R., Cormier-Michel, E., Ahern, S., Weber, G. H., Messmer, P., Hagen, H., Hamann, B. and Bethel, E. W. (2008), Application of high-performance visual analysis methods to laser wakefield particle acceleration data, poster presentation, in: Meyer, J. and Yoo, T. S., eds., *IEEE Visualization 2008 – Poster Compendium*, IEEE Computer Society Press, Los Alamitos, California, pp. 50–51 (presented at: "IEEE Visualization 2008 – Posters," Columbus, Ohio, October 2008).

[167] Rübel, O., Prabhat, Wu, K., Childs, H. R., Meredith, J. S., Geddes, C. G. R., Cormier-Michel, E., Ahern, S., Weber, G. H., Messmer, P., Hagen, H., Hamann, B. and Bethel, E. W. (2008), High-performance multivariate visual data exploration for extremely large data, in: Kerbyson, D. J. and Panda, D. K., eds., Proceedings of *Supercomputing 2008 (SC08)*, ACM/IEEE, ACM Press, New York, New York, 12 pages (presented at: "Supercomputing 2008 (SC08)," Austin, Texas, November 2008).

[166] Ushizima, D. M., Rübel, O., Prabhat, Weber, G. H., Bethel, E. W., Aragon, C. R., Geddes, C. G. R., Cormier-Michel, E., Hamann, B., Messmer, P. and Hagen, H. (2008), Automated analysis for detecting beams in laser wakefield simulations, in: Wani, M. A., Chen, X.-W., Casasent, D., Kurgan, L. A., Hu, X. T. and Hafeez, K., eds., Proceedings of *The Seventh International Conference on Machine Learning and Applications 2008 (ICMLA '08)*, IEEE Computer Society Press, Los Alamitos, California, pp. 382–387 (presented at: "The Seventh International Conference on Machine Learning and Applications 2008 (ICMLA '08)," San Diego, California, December 2008).

[165] Zawadzki, R. J., Fuller, A. R., Choi, S. S., Wiley, D. F., Hamann, B. and Werner, J. S. (2008), Improved representation of retinal data acquired with volumetric Fd-OCT: Co-registration, visualization and reconstruction of a large field of view, in: Manns, F., Söderberg, P. G., Ho, A., Stuck, B. E. and Belkin, M., eds., *Ophthalmic Technologies XVIII*, Proc. SPIE Vol. 6844, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 68440C-1–68440C-8 (presented at: "Photonics West – Biomedical Optics 2008," San Jose, California, January 2008).

[164] Forte, A. M., Cowgill, E. S., Bernardin, T. S., Kreylos, O. and Hamann, B. (2007), Focusing of 50-80% of total Arabia-Eurasia convergence since 5 Ma along the southern margin of the Greater Caucasus: Effect of strain localization along the margins of a rigid inclusion within a young orogen? poster presentation, abstract number T13H-07, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2007*, Eos Trans. AGU 88(52), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2007," San Francisco, California, December 2007).

[163] Fuller, A. R., Krishnan, H., Mahrous, K. M., Hamann, B. and Joy, K. I. (2007), Real-time procedural volumetric fire, in: Cohen, J. D., Turk, G. and Watson, B. A., eds., Proceedings of *ACM SIIGRAPH Symposium on Interactive 3D Graphics and Games (i3D) 2007*, ACM Press, New York, New York, pp. 175–180 (presented at: "ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (i3D) 2007," Seattle, Washington, April/May 2007).

[162] Gold, P. O., Gold, R. D., Cowgill, E. S., Kreylos, O. and Hamann, B. (2007), Efficient, off-grid LiDAR scanning of remote field sites, poster presentation, abstract number G51B-0435, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2007*, Eos Trans. AGU 88(52), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2007," San Francisco, California, December 2007).

[161] Gu, S., Poch, O., Hamann, B. and Koehl, P. (2007), The geometric representation of protein sequences, in: Hu, X., Mandoiu, I., Obradovic, Z. and Xia, Z., eds., Proceedings of *IEEE International Conference on Bioinformatics and Biomedicine 2007 (IEEE BIBM 2007)*, IEEE Computer Society Press, Los Alamitos, California, pp. 135–142 (presented at: "IEEE International Conference on Bioinformatics and Biomedicine 2007 (IEEE BIBM 2007)," Fremont, California, November 2007).

[160] Hlawitschka, M., Scheuermann, G., Anwander, A., Knösche, T. R., Tittgemeyer, M. and Hamann, B. (2007), Tensor lines in tensor fields of arbitrary order, in: Bebis, G., Boyle, R. D., Parvin, B., Koracin, D. R., Paragios, N., Syeda-Mahmood, T., Ju, T., Liu, Z., Coquillart, S., Cruz-Neira, C., Möller, T. and Malzbender, T.., eds., Proceedings of *Third International Symposium on Visual Computing (ISVC 07)*, Lecture Notes in Computer Science (LNCS) Series, Vol. 4841, Part I, Springer-Verlag, Heidelberg, Germany, pp. 341–350 (presented at: "Third International Symposium on Visual Computing (ISVC

07)," Stateline, Nevada, November 2007).

[159] Hlawitschka, M., Scheuermann, G. and Hamann, B. (2007), Interactive glyph placement for tensor fields: Glyph packing revisited, in: Bebis, G., Boyle, R. D., Parvin, B., Koracin, D. R., Paragios, N., Syeda-Mahmood, T., Ju, T., Liu, Z., Coquillart, S., Cruz-Neira, C., Möller, T. and Malzbender, T.., eds., Proceedings of *Third International Symposium on Visual Computing (ISVC 07)*, Lecture Notes in Computer Science (LNCS) Series, Vol. 4841, Part I, Springer-Verlag, Heidelberg, Germany, pp. 331–340 (presented at: "Third International Symposium on Visual Computing (ISVC 07)," Stateline, Nevada, November 2007).

[158] Lehner, B., Umlauf, G. and Hamann, B. (2007), Image compression using data-dependent triangulations, in: Bebis, G., Boyle, R. D., Parvin, B., Koracin, D. R., Paragios, N., Syeda-Mahmood, T., Ju, T., Liu, Z., Coquillart, S., Cruz-Neira, C., Möller, T. and Malzbender, T.., eds., Proceedings of *Third International Symposium on Visual Computing (ISVC 07)*, Lecture Notes in Computer Science (LNCS) Series, Vol. 4841, Part I, Springer-Verlag, Heidelberg, Germany, pp. 351–362 (presented at: "Third International Symposium on Visual Computing (ISVC 07)," Stateline, Nevada, November 2007).

[157] Luengo Hendriks, C. L., Fowlkes, C. C., Keränen, S. V. E., Simirenko, L., Weber, G. H., Rübel, O., Huang, M.-Y., DePace, A. H., Henriquez, C. N., Li, X.-Y., Chu, H. C., Kaszuba, D. W., Beaton, A., Celniker, S. E., Hamann, B., Eisen, M. B., Malik, J., Knowles, D. W. and Biggin, M. D. (2007), Virtual embryos as tools for 3D gene expression analyses, poster presentation, in: DiNardo, S., Gavis, E. R., Jongens, T. A. and Treisman, J. E., eds. Program and Abstracts Volume of *48th Annual Drosophila Research Conference*, The Genetics Society of America, Bethesda, Maryland, p. 202 (presented at: "48th Annual Drosophila Research Conference," Philadelphia, Pennsylvania, March 2007).

[156] Rübel, O., Weber, G. H., Huang, M.-Y., Bethel, E. W., Biggin, M. D., Fowlkes, C. C., Luengo Hendriks, C. L., Keränen, S. V. E., Eisen, M. B., Knowles, D. W., Malik, J., Hagen, H. and Hamann, B. (2007), Applications of visualization and data clustering to 3D gene expression data, poster presentation, in: Kindlmann, G. and Linsen, L., eds., *IEEE Visualization 2007 – Poster Compendium*, pp. 24–25 IEEE Computer Society Press, Los Alamitos, California (presented at: "IEEE Visualization 2007 – Posters," Sacramento, California, October/November 2007).

[155] Schlemmer, M., Hotz, I., Hamann, B., Morr, F. and Hagen, H. (2007), Priority streamlines: a context-based visualization of flow fields, in: Museth, K., Möller, T. and Ynnerman, A., eds., *Data Visualization 2007* (Proceedings of "EuroVis 2007"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 227–234 (presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2007)," Norrköping, Sweden, May 2007).

[154] Sreevalsan-Nair, J., Van Nieuwenhuyse, E. E., Hotz, I., Linsen, L., and Hamann, B. (2007), An interactive visual exploration tool for Northern California's water monitoring network, in: Erbacher, R. F., Roberts, J. C., Gröhn, M. T., Börner, K., eds., *Visualization and Data Analysis 2007*, Proc. SPIE Vol. 6495, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 649506-1–649506-12 (presented at: "Electronic Imaging 2007," San Jose, California, January/February 2007).

[153] Sreevalsan-Nair, J., Verhoeven, M., Woodruff, D. L., Hotz, I. and Hamann, B. (2007), Human-guided enhancement of a stochastic local search: Visualization and adjustment of 3D pheromone, in: Stützle, T., Birattari, M. and Hoos, H. H., eds., *Proceedings of Engineering Stochastic Local Search Algorithms (SLS) 2007*, Lecture Notes in Computer Science (LNCS) Series, Vol. 4638, Springer-Verlag, Heidelberg, Germany, pp. 182–186 (presented at: "Engineering Stochastic Local Search Algorithms (SLS) 2007," Brussels, Belgium, September 2007).

[152] Zawadzki, R. J., Fuller, A. R., Choi, S. S., Wiley, D. F., Hamann, B. and Werner, J. S. (2007), Correction of motion artifacts and scanning beam distortions in 3D ophthalmic optical coherence

tomography imaging, in: Manns, F., Söderberg, P. G., Ho, A., Stuck, B. E. and Belkin, M., eds., *Ophthalmic Technologies XVII*, Proc. SPIE Vol. 6426, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 642607-1–642607-11 (presented at: "Photonics West – Biomedical Optics 2007," San Jose, California, January 2007).

[151] Ahlborn, B. A., Kreylos, O., Hamann, B. and Staadt, O. G. (2006), A foveal inset for large display environments, poster presentation, in: Fröhlich, B., Bowman, D. A. and Iwata, H., eds., Proceedings of *IEEE Virtual Reality 2006*, IEEE Computer Society Press, Los Alamitos, California, pp. 281–282 (presented at: "IEEE Virtual Reality 2006," Alexandria, Virginia, March 2006).

[150] Bernardin, T. S., Cowgill, E. S., Gold, R. D., Hamann, B. Kreylos, O. and Schmitt, A. (2006), Interactive mapping on virtual terrain models using RIMS (Real-time Interactive Mapping System), poster presentation, abstract number IN33A-1331, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2006*, Eos Trans. AGU 87(52), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2006," San Francisco, California, December 2006).

[149] Crawford, C. W., Kreylos, O., Crivelli, S. N. and Hamann, B. (2006), Visualization of force fields in protein structure prediction, in: Erbacher, R. F., Roberts, J. C., Gröhn, M. T., Börner, K., eds., *Visualization and Data Analysis 2006*, Proc. SPIE Vol. 6060, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 606013-1–606013-9 (presented at: "Photonics West – Electronic Imaging 2006," San Jose, California, January 2006).

[148] Dillard, S. E., Natarajan, V., Weber, G. H., Pascucci, V. and Hamann, B. (2006), Tessellation of quadratic elements, in: Asano, T., ed., Proceedings of *The Seventeenth International Symposium on Algorithms and Computation (ISAAC 2006)*, Lecture Notes in Computer Science (LNCS) Series, Vol. 4288, Springer-Verlag, New York, New York, pp. 722–731 (presented at: "The Seventeenth International Symposium on Algorithms and Computation (ISAAC 2006)," Kalkota, India, December 2006).

[147] Fuller, A. R., Krishnan, H., Mahrous, K. M., Hamann, B. and Joy, K. I. (2006), Real-time procedural volumetric fire, poster presentation, in: Ren, P. and Phielip, M., eds., Proceedings of *ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (i3D) 2006 – Poster/Demo Compendium*, p. 8, ACM Press, New York, New York (presented at: "ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (i3D) 2006," Redwood City, California, March 2006).

[146] Keränen, S. V. E., Luengo Hendriks, C. L., Fowlkes, C. C., Weber, G. H., Rübel, O., Huang, M.-Y., Henriquez, C. N., Peng, H., Simirenko, L., Sudar, J. D., Hamann, B., Malik, J., Eisen, M. B., Biggin, M. D. and Knowles, D. W. (2006), A morphogenetic framework for analyzing gene expression in Drosophila melanogaster blastoderms, poster presentation, in: Bellen, H. J., Halder, G., Davis, R. L. and Mardon, G., eds., Program and Abstracts Volume of *47th Annual Drosophila Research Conference*, The Genetics Society of America, Bethesda, Maryland, p. 52 (presented at: "47th Annual Drosophila Research Conference," Houston, Texas, March/April 2006).

[145] Keränen, S. V. E., Luengo Hendriks, C. L., Fowlkes, C. C., Weber, G. H., Rübel, O., Huang, M.-Y., Simirenko, L., DePace, A. H., Henriquez, C. N., Peng, H., Sudar, J. D., Hamann, B., Malik, J., Eisen, M. B., Biggin, M. D. and Knowles, D. W. (2006), A morphogenetic framework for analyzing gene expression in Drosophila melanogaster blastoderms, poster presentation, in: Poster Abstract Proceedings of *Integrating Evolution, Development and Genomics 2006*, http://www.evodevo.org, p. 37 (presented at: "Integrating Evolution, Development, and Genomics 2006," University of California, Berkeley, California, May/June 2006).

[144] Kreylos, O., Bawden, G. W., Bernardin, T. S., Billen, M. I., Cowgill, E. S., Gold, R. D., Hamann, B., Jadamec, M. A., Kellogg, L. H., Staadt, O. G. and Sumner, D. Y. (2006), Enabling scientific workflows

in virtual reality, in: Hong Wong, K., Baciu, G. and Bao, H., eds., Proceedings of *ACM SIGGRAPH International Conference on Virtual Reality Continuum and Its Applications 2006 (VRCIA 2006)*, ACM Press, New York, New York, pp. 155–162 (presented at: "ACM SIGGRAPH International Conference on Virtual Reality Continuum and Its Applications 2006 (VRCIA 2006)," Hong Kong, P. R. China, June 2006).

[143] Kreylos, O., Billen, M. I., Kellogg, L. H., Hamann, B., Staadt, O. G., Sumner, D. Y. and Jadamec, M. A. (2006), Environment-independent 3D visualization software for geo-science applications, poster presentation, abstract number IN31A-1310, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2006*, Eos Trans. AGU 87(52), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2006," San Francisco, California, December 2006).

[142] Luengo Hendriks, C. L., Keränen, S. V. E., Fowlkes, C. C., Weber, G. H., Rübel, O., Huang, M.-Y., Peng, H., DePace, A. H., Simirenko, L., Hamann, B., Sudar, J. D., Malik, J., Eisen, M. B., Biggin, M. D. and Knowles, D. W. (2006), Quantitative imaging describes morphogenetic nuclear movements prior to gastrulation, poster presentation, in: Bellen, H. J., Halder, G., Davis, R. L. and Mardon, G., eds., Program and Abstracts Volume of *47th Annual Drosophila Research Conference*, The Genetics Society of America, Bethesda, Maryland (presented at: "47th Annual Drosophila Research Conference," Houston, Texas, March/April 2006).

[141] Park, S. W., Yu, H., Hotz, I., Kreylos, O., Linsen, L. and Hamann, B. (2006), Structure-accentuating dense flow visualization, in: Sousa Santos, B., Ertl, T. and Joy, K. I., eds., *Data Visualization 2006* (Proceedings of "EuroVis 2006"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 163–170 (presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2006)," Lisbon, Portugal, May 2006).

[140] Rübel, O., Weber, G. H., Keränen, S. V. E., Fowlkes, C. C., Luengo Hendriks, C. L., Simirenko, L., Shah, N. Y., Eisen, M. B., Biggin, M. D., Hagen, H., Sudar, J. D., Malik, J., Knowles, D. W. and Hamann, B. (2006), PointCloudXplore: Visual analysis of 3D gene expression data using physical views and parallel coordinates, in: Sousa Santos, B., Ertl, T. and Joy, K. I., eds., *Data Visualization 2006* (Proceedings of "EuroVis 2006"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 203–210 (presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2006)," Lisbon, Portugal, May 2006).

[139] Rueda-Velásquez, C. A., Gertz, M., Ludäscher, B. and Hamann, B. (2006), An extensible infrastructure for processing distributed geospatial data streams, in: Froeschl, K. A. and Grossmann, W., eds., Proceedings of *Eighteenth International Conference on Scientific and Statistical Database Management (SSDBM 2006)*, IEEE Computer Society Press, Los Alamitos, California, pp. 285–288 (presented at: "Eighteenth International Conference on Scientific and Statistical Database Management (SSDBM 2006)," Vienna, Austria, July 2006).

[138] Sreevalsan-Nair, J., Hamann, B. and Linsen, L. (2006), Using ray intersection for dual isosurfacing, in: Braz, J., Jorge, J. A. P., Dias, M. and Marcos, A., eds., Proceedings of *First International Conference on Computer Graphics Theory and Applications (GRAPP) 2006*, Institute for Systems and Technologies of Information, Control and Communication (INSTICC) Press, Setúbal, Portugal, pp. 34–42 (presented at: "First International Conference on Computer Graphics Theory and Applications (GRAPP) 2006," Setúbal, Portugal, February 2006).

[137] Staadt, O. G., Ahlborn, B. A., Kreylos, O. and Hamann, B. (2006), A foveal inset for large display environments, in: Hong Wong, K., Baciu, G. and Bao, H., eds., Proceedings of *ACM SIGGRAPH International Conference on Virtual Reality Continuum and Its Applications 2006 (VRCIA 2006)*, ACM Press, New York, New York, pp. 281–288 (presented at: "ACM SIGGRAPH International

Conference on Virtual Reality Continuum and Its Applications 2006 (VRCIA 2006)," Hong Kong, P. R. China, June 2006).

[136] Vivodtzev, F., Wiley, D. F., Linsen, L., Jones, J., Amenta, N., Hamann, B. and Joy, K. I. (2006), Automatic feature-based surface mapping for brain cortices, in: Erbacher, R. F., Roberts, J. C., Gröhn, M. T., Börner, K., eds., *Visualization and Data Analysis 2006*, Proc. SPIE Vol. 6060, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 60600V-1–60600V-12 (presented at: "Photonics West – Electronic Imaging 2006," San Jose, California, January 2006).

[135] Yamazaki, I., Natarajan, V., Bai, Z. and Hamann, B. (2006), Segmenting point sets, in: Belyaev, A. G., Suzuki, H. and Spagnuolo, M., eds., Proceedings of *International Conference on Shape Modeling and Applications 2006 (SMI '06)*, IEEE Computer Society Press, Los Alamitos, California, pp. 4–13 (presented at: "International Conference on Shape Modeling and Applications 2006 (SMI '06)," Matsushima, Japan, June 2006).

[134] Zawadzki, R. J., Fuller, A. R., Zhao, M., Wiley, D. F., Choi, S. S., Bower, B. A., Hamann, B., Izatt, J. A. and Werner, J. S. (2006), 3D OCT imaging in clinical settings: Toward quantitative measurements of retinal structures, in: Manns, F., Söderberg, P. G. and Ho, A., eds., *Ophthalmic Technologies XVI*, Proc. SPIE Vol. 6138, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 8–18 (presented at: "Photonics West – Biomedical Optics 2006," San Jose, California, January 2006).

[133] Ahlborn, B. A., Thompson, D. C., Kreylos, O., Hamann, B. and Staadt, O. G. (2005), A practical system for laser pointer interaction on large displays, in: Chrysanthou, Y. and Darken, R. P., eds., *ACM Symposium on Virtual Reality Software and Technology 2005 (VRST 2005)*, ACM Press, New York, New York, pp. 106–109 (presented at: "ACM Symposium on Virtual Reality Software and Technology 2005 (VRST 2005)," Monterey, California, November 2005).

[132] Bremer, P.-T., Pascucci, V. and Hamann, B. (2005), Maximizing adaptivity in hierarchical topological models, in: Belyaev, A. G., Pasko, A. A. and Spagnuolo, M., eds., Proceedings of *International Conference on Shape Modeling and Applications 2005 (SMI '05)*, IEEE Computer Society Press, Los Alamitos, California, pp. 298–307 (presented at: "International Conference on Shape Modeling and Applications 2005 (SMI '05)," Cambridge, Massachusetts, June 2005).

[131] Dillard, S. E., Weber, G. H., Carr, H., Pascucci, V. and Hamann, B. (2005), Topology-controlled volume rendering, in: Bhumiratana, B., ed., *Proceedings of the 2005 UC Davis Student Workshop on Computing*, TR CSE-2005-22, pp. 24–25 (presented at: "2005 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2005).

[130] Gyulassy, A. G., Natarajan, V., Pascucci, V., Bremer, P.-T. and Hamann, B. (2005), Topology-based simplification for feature extraction from 3D scalar fields, in: Silva, C. T., Gröller, E. and Rushmeier, H. E., eds., *IEEE Visualization 2005*, IEEE Computer Society Press, Los Alamitos, California, pp. 535–542 (presented at: "IEEE Visualization 2005," Minneapolis, Minnesota, October 2005).

[129] Hotz, I., Feng, Z. X., Hamann, B., Manaker, D. M., Conjeepuram, N. S., Kellogg, L. H. and Billen, M. I. (2005), Tensor field visualization in geomechanics applications, poster presentation, abstract number IN43B-0339, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2005*, Eos Trans. AGU 86(52), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2005," San Francisco, California, December 2005).

[128] Huerta, N., Murphy, M. A., Weber, G. H., Natarajan, V., Hamann, B. and Sumner, D. Y. (2005), Three-dimensional reconstruction of intricate archean microbial structures using neutron computed tomography and serial sectioning, poster presentation, abstract number IN43B-0331, in: Abstract

Proceedings of *American Geophysical Union (AGU) Fall Meeting 2005*, Eos Trans. AGU 86(52), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2005," San Francisco, California, December 2005).

[127] Kanodia, R. L., Linsen, L. and Hamann, B. (2005), Multiple transparent material-enriched isosurfaces, in: Skala, V., ed., Proceedings of *The Thirteenth International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2005 (WSCG 2005)*, ISBN 80-903100-7-9, UNION Agency - Science Press, Plzen, Czech Republic, pp. 23–30 (presented at: "The Thirteenth International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2005 (WSCG 2005)," Plzen, Czech Republic, January/February 2005).

[126] Kil, Y. J., Renzulli, P. A., Kreylos, O., Hamann, B., Monno, G. and Staadt, O. G. (2005), 3D warp brush: Interactive free-form modeling on the responsive workbench, poster presentation, in: Fröhlich, B., Julier, S. and Takemura, H., eds., Proceedings of *IEEE Virtual Reality 2005*, IEEE Computer Society Press, Los Alamitos, California, pp. 279–280 (presented at: "IEEE Virtual Reality 2005," Bonn, Germany, March 2005).

[125] Matyas, N. M, Linsen, L. and Hamann, B. (2005), Metasurfaces: Contouring with changing isovalue, in: Greiner, G., Hornegger, J., Niemann, H. and Stamminger, M., eds., Proceedings of *Tenth International Fall Workshop on Vision, Modeling, and Visualization 2005 (VMV 2005)* Akademische Verlagsgesellschaft Aka GmbH, Berlin, Germany, pp. 147–154 (presented at: "Tenth International Fall Workshop on Vision, Modeling, and Visualization 2005 (VMV 2005)," Erlangen, Germany, November 2005).

[124] Park, S. W., Budge, B. C., Linsen, L., Kreylos, O., Hamann, B. and Joy, K. I. (2005), Dense geometric flow visualization, in: Bhumiratana, B., ed., *Proceedings of the 2005 UC Davis Student Workshop on Computing*, TR CSE-2005-22, pp. 26–27 (presented at: "2005 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2005).

[123] Park, S. W., Budge, B. C., Linsen, L., Hamann, B. and Joy, K. I. (2005), Dense geometric flow visualization, in: Brodlie, K. W., Duke, D. J. and Joy, K. I., eds., *Data Visualization 2005* (Proceedings of "EuroVis 2005"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 21–28 (presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2005)," Leeds, United Kingdom, June 2005).

[122] Park, S. W., Linsen, L., Kreylos, O., Owens, J. D. and Hamann, B. (2005), A framework for real-time volume visualization of streaming scattered data, in: Greiner, G., Hornegger, J., Niemann, H. and Stamminger, M., eds., Proceedings of *Tenth International Fall Workshop on Vision, Modeling, and Visualization 2005 (VMV 2005)* Akademische Verlagsgesellschaft Aka GmbH, Berlin, Germany, pp. 225–232 (presented at: "Tenth International Fall Workshop on Vision, Modeling, and Visualization 2005 (VMV 2005)," Erlangen, Germany, November 2005).

[121] Schlemmer, M., Hotz, I., Natarajan, V., Hamann, B. and Hagen, H. (2005), Fast Clifford Fourier transformation for unstructured vector field data, in: Papadopoulos, P., Eiseman, P. R., Häuser, J., Soni, B. K. and Thompson, J. F., eds., Proceedings of *Ninth International Conference on Numerical Grid Generation in Computational Field Simulations*, International Society of Grid Generation, College of Engineering, San Jose State University, San Jose, California, pp. 101–110 (presented at: "Ninth International Conference on Numerical Grid Generation in Computational Field Simulations," San Jose, California, June 2005).

[120] Shah, N. Y., Teplitsky, M. V., Pennacchio, L. A., Hugenholtz, P., Hamann, B. and Dubchak, I. L. (2005), SNP-VISTA: An interactive SNPs visualization tool, poster presentation, in: Frazer, K. A., Hudson, T. J., Pääbo, S., and Wilson, R. K., eds., Proceedings of *The Biology of Genomes*, Cold Spring Harbor Laboratory Press, Woodbury, New York, p. 242 (presented at: "The Biology of

Genomes," Cold Spring Harbor, New York, May 2005).

[119] Weber, G. H., Luengo Hendriks, C. L., Dillard, S. E., Ju, D. Y., Rübel, O., Keränen, S. V. E., Sudar, J. D., and Hamann, B. (2005), Visualization tools for 3D gene expression data in Drosophila, in: Proceedings of the *Nanotechnology and Cancer Collaborative Conference*, co-organized by the University of California, Davis, and Lawrence Livermore National Laboratory, University of California, DVD-ROM conference proceedings, (presented at: "Nanotechnology and Cancer Collaborative Conference," Lodi, California, July 2005).

[118] Weber, G. H., Luengo Hendriks, C. L., Keränen, S. V. E., Dillard, S. E., Ju, D. Y., Sudar, J. D. and Hamann, B. (2005), Visualization for validation and improvement of three-dimensional segmentation algorithms, in: Brodlie, K. W., Duke, D. J. and Joy, K. I., eds., *Data Visualization 2005* (Proceedings of "EuroVis 2005"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 93–100 (presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2005)," Leeds, United Kingdom, June 2005).

[117] Weber, G. H., Luengo Hendriks, C. L., Keränen, S. V. E., Dillard, S. E., Sudar, J. D. and Hamann, B. (2005), Visualization tools for three-dimensional gene expression data in Drosophila, poster presentation (374B), in: Aurora, K., Warrior, R. and Laski, F. A., eds., Program and Abstracts Volume of *46th Annual Drosophila Research Conference*, The Genetics Society of America, Bethesda, Maryland, p. 213 (presented at: "46th Annual Drosophila Research Conference," San Diego, California, March/April 2005).

[116] Wiley, D. F., Amenta, N., Alcantara, D. A., Ghosh, D., Kil, Y. J., Delson, E., Harcourt-Smith, W., Rohlf, F. J., St. John, K. and Hamann, B. (2005), Evolutionary morphing, in: Silva, C. T., Gröller, E. and Rushmeier, H. E., eds., *IEEE Visualization 2005*, IEEE Computer Society Press, Los Alamitos, California, pp. 431–438 (presented at: "IEEE Visualization 2005," Minneapolis, Minnesota, October 2005).

[115] Yamazaki, I., Natarajan, V., Bai, Z. and Hamann, B. (2005), Segmentation of point sets, in: Bhumiratana, B., ed., *Proceedings of the 2005 UC Davis Student Workshop on Computing*, TR CSE-2005-22, pp. 20–21 (presented at: "2005 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2005).

[114] Fang, D. C., Weber, G. H., Childs, H. R., Brugger, E. S., Hamann, B. and Joy, K. I. (2004), Extracting geometrically continuous isosurfaces from adaptive mesh refinement data, Proceedings of *2004 Hawaii International Conference on Computer Sciences*, DVD-ROM conference proceedings, ISSN 1545-6722, pp. 216–224 (presented at: "2004 Hawaii International Conference on Computer Sciences," Oahu, Hawaii, January 2004).

[113] Feng, Z. X., Hotz, I., Hamann, B. and Joy, K. I. (2004), Texture animation for tensor field visualization, in: Wassermann, G., ed., *Proceedings of the 2004 UC Davis Student Workshop on Computing*, TR CSE-2004-30, pp. 6–7 (presented at: "2004 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2004).

[112] Gyulassy, A. G., Bremer, P.-T., Pascucci, V. and Hamann, B. (2004), Hierarchical Morse-Smale complex in 3D, in: Wassermann, G., ed., *Proceedings of the 2004 UC Davis Student Workshop on Computing*, TR CSE-2004-30, pp. 4–5 (presented at: "2004 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2004).

[111] Hotz, I., Feng, Z. X., Hagen, H., Hamann, B., Joy, K. I. and Jeremic, B. (2004), Physically based methods for tensor field visualization, in: Rushmeier, H. E., Turk, G. and van Wijk, J. J., eds., *IEEE Visualization 2004*, IEEE Computer Society Press, Los Alamitos, California, pp. 123–130 (presented at: "IEEE Visualization 2004," Austin, Texas, October 2004).

[110] Hotz, I., Feng, Z. X., Hamann, B., Joy, K. I., Manaker, D. M., Billen, M. I. and Kellogg, L. H.

(2004), Tensor field visualization in geomechanics applications, poster presentation, abstract number SF13A-0709, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2004*, Eos Trans. AGU 85(47), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2004," San Francisco, California, December 2004).

[109] Klein, B. M., Chronister, L. U., Hamann, B. and Läuchli, A. E. (2004), Promoting interdisciplinary research: Experiences at the University of California, Davis, poster presentation, Abstract Proceedings of *Convocation on Facilitating Interdisciplinary Research*, Committee on Science, Engineering, and Public Policy, The National Academies, Washington, D.C., pp. 13–14 (presented at: "Convocation on Facilitating Interdisciplinary Research," The National Academies, Washington, D.C., January 2004).

[108] Kreylos, O., Rustad, J. R. and Hamann, B. (2004), Interactive modeling of molecular structures, poster presentation, abstract number SF13A-0708, in: Abstract Proceedings of *American Geophysical Union (AGU) Fall Meeting 2004*, Eos Trans. AGU 85(47), Fall Meeting Suppl., AGU Meetings Department, Washington, D.C. (presented at: "American Geophysical Union Fall Meeting 2004," San Francisco, California, December 2004).

[107] Linsen, L., Fuller, A. R., Kreylos, O., Scorzelli, G., Vivodtzev, F., Yau, P. C. B., Hamann, B., Joy, K. I., Olshausen, B. A. and Jones, E. G. (2004), Visual exploration of high-resolution neuroscientific data, poster presentation, Poster Abstracts Proceedings of *Tenth Annual Human Brain Project Conference – A Decade of Neuroscience Informatics: Looking ahead*, National Institutes of Health, Bethesda, Maryland, p. 103 (presented at: *Tenth Annual Human Brain Project Conference – A Decade of Neuroscience Informatics: Looking ahead*, National Institutes of Health, Bethesda, Maryland, April 2004).

[106] Park, S. W., Budge, B. C., Linsen, L., Hamann, B. and Joy, K. I. (2004), Multi-dimensional transfer functions for interactive 3D flow visualization, in: Cohen-Or, D., Ko, H.-S., Terzopoulos, D. and Warren, J., eds., *Twelfth Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2004*, IEEE Computer Society Press, Los Alamitos, California, pp. 177–185 (presented at: "Twelfth Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2004," Seoul, South Korea, October 2004).

[105] Shah, N. Y., Poliakov, A. V., Ryaboy, D. V., Teplitsky, M. V., Hamann, B., Rubin, E. M. and Dubchak, I. L. (2004), VISTA tools for interactive visualization and analysis of multiple alignments of data sequences and whole genomes, poster presentation, in: Hudson, T. J., Pääbo, S., Rogers, J. and Rubin, E. M., eds., Proceedings of *The Biology of Genomes*, Cold Spring Harbor Laboratory Press, Woodbury, New York (presented at: "The Biology of Genomes," Cold Spring Harbor, New York, May 2004).

[104] Wiley, D. F., Childs, H. R., Hamann, B. and Joy, K. I. (2004), Ray casting curved-quadratic elements, in: Deussen, O., Hansen, C. D., Keim, D. A. and Saupe, D., eds., *Data Visualization 2004* (Proceedings of "VisSym '04"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 201–209 (presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '04)," Konstanz, Germany, May 2004).

[103] Wilson, D. W., Boulanger, R. W., Feng, X., Hamann, B., Jeremic, B., Kutter, B. L., Ma, K.-L., Santamarina, J. C., Sprott, K. S., Velinsky, S. A., Weber, G. H. and Yoo, S. J. B. (2004), The NEES geotechnical centrifuge at UC Davis, paper no. 2497, in: Heidebrecht, A., ed., Proceedings of *Thirteenth World Conference on Earthquake Engineering – Using the Network for Earthquake Engineering Simulation (NEES) Collaboratory to Advance Earthquake Engineering*, DVD proceedings, ISBN ISBN 0-9685376-1-8, Canadian Association for Earthquake Engineering, Ottawa, Ontario, Canada (presented at: Thirteenth World Conference on Earthquake Engineering, Vancouver, British Columbia, Canada, August 2004).

[102] Bennett, J. C., Mahrous, K. M., Hamann, B. and Joy, K. I. (2003), A segmentation approach to scientific visualization, in: Joy, K. I. and Szirmay-Kalos, L., eds., Proceedings of *Spring Conference on Computer Graphics (SCCG) 2003*, Comenius University, Bratislava, Slovak Republic, pp. 11–20 (invited paper presented at: "Spring Conference on Computer Graphics (SCCG) 2003," Budmerice, Slovak Republic, April 2003).

[101] Bremer, P.-T., Edelsbrunner, H., Hamann, B. and Pascucci, V. (2003), A multi-resolution data structure for two-dimensional Morse functions, in: Turk, G., van Wijk, J. J. and Moorhead, R. J., eds., *IEEE Visualization 2003*, IEEE Computer Society Press, Los Alamitos, California, pp. 139–146 (presented at: "IEEE Visualization 2003," Seattle, Washington, October 2003).

[100] Bremer, P.-T., Edelsbrunner, H., Hamann, B. and Pascucci, V. (2003), A multi-resolution data structure for two-dimensional Morse functions, in: Copsey, D., ed., *Proceedings of the 2003 UC Davis Student Workshop on Computing*, TR CSE-2003-24, pp. 22–23 (presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003).

[99] Chen, J.-L., Bai, Z., Hamann, B. and Ligocki, T. J. (2003), A normalized-cut algorithm for hierarchical vector field data segmentation, in: Erbacher, R. F., Chen, P. C., Roberts, J. C., Gröhn, M. T. and Börner, K., eds., *Visualization and Data Analysis 2003*, Proc. SPIE Vol. 5009, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 79–90 (presented at: "Photonics West – Electronic Imaging 2003," Santa Clara, California, January 2003).

[98] Chen, J.-L., Bai, Z., Hamann, B. and Ligocki, T. J. (2003), Vector field segmentation with normalized cut, in: Copsey, D., ed., *Proceedings of the 2003 UC Davis Student Workshop on Computing*, TR CSE-2003-24, pp. 24–25 (presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003).

[97] Co, C. S., Hamann, B. and Joy, K. I. (2003), Iso-splatting: A point-based alternative to isosurface visualization, in: Rokne, J., Klein, R. and Wang, W., eds., *Eleventh Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2003*, IEEE Computer Society Press, Los Alamitos, California, pp. 325–334 (presented at: "Eleventh Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2003," Canmore, Alberta, Canada, October 2003).

[96] Co, C. S., Heckel, B., Hagen, H., Hamann, B. and Joy, K. I. (2003), Hierarchical clustering for unstructured volumetric scalar fields, in: Turk, G., van Wijk, J. J. and Moorhead, R. J., eds., *IEEE Visualization 2003*, IEEE Computer Society Press, Los Alamitos, California, pp. 325–332 (presented at: "IEEE Visualization 2003," Seattle, Washington, October 2003).

[95] Fang, D. C., Gray, J. T., Hamann, B. and Joy, K. I. (2003), Real-time view-dependent extraction of isosurfaces from adaptively refined octrees and tetrahedral meshes, in: Erbacher, R. F., Chen, P. C., Roberts, J. C., Gröhn, M. T. and Börner, K., eds., *Visualization and Data Analysis 2003*, Proc. SPIE Vol. 5009, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 103–114 (presented at: "Photonics West – Electronic Imaging 2003," Santa Clara, California, January 2003).

[94] Gray, J. T., Linsen, L., Hamann, B. and Joy, K. I. (2003), Adaptive multi-valued volume data visualization using data-dependent error metrics, in: Hamza, M. H., ed., Proceedings of *Third IASTED International Conference on Visualization, Imaging, and Image Processing (VIIP) 2003*, ACTA Press, Calgary, Alberta, Canada, pp. 920–925 (presented at: "Third IASTED International Conference on Visualization, Imaging, and Image Processing (VIIP) 2003," Benalmádena, Spain, September 2003).

[93] Klein, E. L., Staadt, O. G. and Hamann, B. (2003), Exploration of three-dimensional vector field data using sound, in: Copsey, D., ed., *Proceedings of the 2003 UC Davis Student Workshop on Computing*, TR CSE-2003-24, pp. 8–9 (presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003).

[92] Kreylos, O., Max, N. L., Hamann, B., Crivelli, S. N. and Bethel, E. W. (2003), Interactive protein manipulation, winner of the "Best Application Award," in: Turk, G., van Wijk, J. J. and Moorhead, R. J., eds., *IEEE Visualization 2003*, IEEE Computer Society Press, Los Alamitos, California, pp. 581–588 (presented at: "IEEE Visualization 2003," Seattle, Washington, October 2003).

[91] Linsen, L., Hamann, B. and Joy, K. I. (2003), Wavelets for adaptively refined $\sqrt[3]{2}$-subdivision meshes, in: Hamza, M. H., ed., Proceedings of *Sixth IASTED International Conference on Computer Graphics and Imaging (CGIM) 2003*, ACTA Press, Calgary, Alberta, Canada, pp. 159–164 (presented at: "Sixth IASTED International Conference on Computer Graphics and Imaging (CGIM) 2003," Oahu, Hawaii, August 2003).

[90] Mahrous, K. M., Bennett, J. C., Hamann, B. and Joy, K. I. (2003), Improving topological segmentation of three-dimensional vector fields, in: Bonneau, G.-P., Hahmann, S. and Hansen, C. D., eds., *Data Visualisation 2003* (Proceedings of "VisSym '03"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 203–212 (presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '03)," Grenoble, France, May 2003).

[89] Nuber, C., Bruckschen, R. W., Hamann, B. and Joy, K. I. (2003), Interactive visualization of very large datasets using an out-of-core point-based approach, in: Banicescu, I., ed., Proceedings of *High Performance Computing Symposium 2003 (HPC 2003)*, The Society for Modeling and Simulation International, San Diego, California, pp. 187–194 (presented at: "High Performance Computing Symposium 2003 (HPC 2003)," Orlando, Florida, March/April 2003).

[88] Nuber, C., Bruckschen, R. W., Hamann, B. and Joy, K. I. (2003), Interactive visualization of very large medical datasets using point-based rendering, in: Galloway, R. L., ed., *Medical Imaging 2003 – Visualization, Image-guided Procedures, and Display (MI01)*, Proc. SPIE Vol. 5029, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 27–36 (presented at: "Medical Imaging 2003 – Visualization, Image-guided Procedures, and Display (MI01)," San Diego, California, February 2003).

[87] Nuber, C., LaMar, E. C., Hamann, B. and Joy, K. I. (2003), Approximating time-varying multiresolution data using error-based temporal-spatial reuse, in: Erbacher, R. F., Chen, P. C., Roberts, J. C., Gröhn, M. T. and Börner, K., eds., *Visualization and Data Analysis 2003*, Proc. SPIE Vol. 5009, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 68–78 (presented at: "Photonics West – Electronic Imaging 2003," Santa Clara, California, January 2003).

[86] Nuber, C., LaMar, E. C., Pascucci, V., Hamann, B. and Joy, K. I. (2003), Using graphs for fast error-term approximation of time-varying data sets, in: Bonneau, G.-P., Hahmann, S. and Hansen, C. D., eds., *Data Visualisation 2003* (Proceedings of "VisSym '03"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 9–18 (presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '03)," Grenoble, France, May 2003).

[85] Pascucci, V., Laney, D. E., Frank, R. J., Scorzelli, G., Linsen, L., Hamann, B. and Gygi, F. (2003), Real-time monitoring of large scientific simulations, in: Haddad, H. and Papadopoulos, G. A., eds., *Proceedings of the Eighteenth Annual ACM Symposium on Applied Computing (SAC 2003)*, ACM Press, New York, New York, pp. 194–198 (presented at: "Eigtheenth Annual ACM Symposium on Applied Computing (SAC 2003)," Melbourne, Florida, March 2003).

[84] Shah, N. Y., Couronne, O., Pennacchio, L. A., Brudno, M., Batzoglou, S., Bethel, E. W., Rubin, E. M., Hamann, B. and Dubchak, I. L. (2003), Interactive visualization of multiple aligned DNA sequences, in: Copsey, D., ed., *Proceedings of the 2003 UC Davis Student Workshop on Computing*, TR CSE-2003-24, pp. 10–11 (presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003).

[83] Shah, N. Y., Filkov, V., Hamann, B. and Joy, K. I. (2003), GeneBox: Interactive visualization of

microarray data sets, in: Valafar, F. and Valafar, H., eds., Proceedings of *The 2003 International Conference on Mathematics and Engineering Techniques in Medicine and Biological Sciences (METMBS '03)*, Computer Science Research, Education, and Applications Press (CSREA), Athens, Georgia, pp. 10–16 (presented at: "The 2003 International Conference on Mathematics and Engineering Techniques in Medicine and Biological Sciences," Las Vegas, Nevada, June 2003).

[82] Sreevalsan-Nair, J., Co, C. S., Van Nieuwenhuyse, E. E., Linsen, L. and Hamann, B. (2003), Visualization of water resource data, in: Copsey, D., ed., *Proceedings of the 2003 UC Davis Student Workshop on Computing*, TR CSE-2003-24, pp. 28–29 (presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003).

[81] Staadt, O. G., Walker, J. E., Nuber, C. and Hamann, B. (2003), A survey and performance analysis of software platforms for interactive cluster-based multi-screen rendering, in: Deisinger, J. and Kunz, A., eds., Proceedings of *Ninth Eurographics Workshop on Virtual Environments*, ACM Press, New York, New York, pp. 261–270 (presented at: "Ninth Eurographics Workshop on Virtual Environments," Zurich, Switzerland, May 2003).

[80] Szudziejka, V., Kreylos, O. and Hamann, B. (2003), Visualization of environmental data generated by wireless sensor networks, in: Copsey, D., ed., *Proceedings of the 2003 UC Davis Student Workshop on Computing*, TR CSE-2003-24, pp. 40–41 (presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003).

[79] Vivodtzev, F., Linsen, L., Bonneau, G.-P., Hamann, B., Joy, K. I. and Olshausen, B. A. (2003), Hierarchical isosurface segmentation based on discrete curvature, in: Bonneau, G.-P., Hahmann, S. and Hansen, C. D., eds., *Data Visualisation 2003* (Proceedings of "VisSym '03"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 249–258 (presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '03)," Grenoble, France, May 2003).

[78] Weber, G. H., Öhler, M., Kreylos, O., Shalf, J. M., Bethel, E. W., Hamann, B. and Scheuermann, G. (2003), Parallel cell projection rendering of adaptive mesh refinement data, in: Koning, A., Machiraju, R. and Silva, C. T., eds., *IEEE 2003 Symposium on Parallel and Large-data Visualization and Graphics (PVG 2003)*, IEEE Computer Society Press, Los Alamitos, California, pp. 51–60 (presented at: "IEEE 2003 Symposium on Parallel and Large-data Visualization and Graphics (PVG 2003)," Seattle, Washington, October 2003).

[77] Weber, G. H., Scheuermann, G. and Hamann, B. (2003), Detecting critical regions in scalar fields, in: Bonneau, G.-P., Hahmann, S. and Hansen, C. D., eds., *Data Visualisation 2003* (Proceedings of "VisSym '03"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 85–94 (presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '03)," Grenoble, France, May 2003).

[76] Weber, G. H., Schneider, M., Wilson, D. W., Hagen, H., Hamann, B. and Kutter, B. L. (2003), Visualization of experimental earthquake data, in: Erbacher, R. F., Chen, P. C., Roberts, J. C., Gröhn, M. T. and Börner, K., eds., *Visualization and Data Analysis 2003*, Proc. SPIE Vol. 5009, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 268–276 (presented at: "Photonics West – Electronic Imaging 2003," Santa Clara, California, January 2003).

[75] Wiley, D. F., Childs, H. R., Gregorski, B. F., Hamann, B. and Joy, K. I. (2003), Contouring curved quadratic elements, in: Bonneau, G.-P., Hahmann, S. and Hansen, C. D., eds., *Data Visualisation 2003* (Proceedings of "VisSym '03"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 167–176 (presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '03)," Grenoble, France, May 2003).

[74] Bremer, P.-T., Porumbescu, S. D., Küster, F., Hamann, B., Joy, K. I. and Ma, K.-L. (2002), Virtual clay modeling using adaptive distance fields, in: Arabnia, H. R., He, X., Hintz, T., Kovalerchuk, B., Mun, Y., Sarfraz, M., Schwing, J. and Zhu, Q., eds., Proceedings of *The 2002 International Conference*

on Imaging Science, Systems, and Technology (CISST 2002), Volume 2, Computer Science Research, Education, and Applications Press (CSREA), Athens, Georgia, pp. 627–632 (presented at: "The 2002 International Conference on Imaging Science, Systems, and Technology," Las Vegas, Nevada, June 2002).

[73] Kreylos, O., Hamann, B., Max, N. L., Crivelli, S. N. and Bethel, E. W. (2002), Interactive protein manipulation, in: Nuckolls, G., ed., *Proceedings of the 2002 UC Davis Student Workshop on Computing*, TR CSE-2002-28 (presented at: "2002 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2002).

[72] Kreylos, O., Tesdall, A. M., Hamann, B., Hunter, J. K. and Joy, K. I. (2002), Interactive visualization and steering of CFD simulations, in: Ebert, D. S., Brunet, P. and Navazo, I., eds., *Data Visualisation 2002* (Proceedings of "VisSym '02"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 25–34 (presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '02)," Barcelona, Spain, May 2002).

[71] Linsen, L., Pascucci, V., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2002), Hierarchical representation of time-varying volume data with $\sqrt[4]{2}$ subdivision and quadrilinear B-spline wavelets, in: Coquillart, S., Shum, H.-Y. and Hu, S.-M., eds., *Tenth Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2002*, IEEE Computer Society Press, Los Alamitos, California, pp. 346–355 (presented at: "Tenth Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2002," Beijing, P. R. China, October 2002).

[70] Shah, N. Y., St. Clair, D. A., Dodsworth, C., Hamann, B. and Joy, K. I. (2002), GeneBox: Visualizing gene expression data resulting from microarray experiments, in: Nuckolls, G., ed., *Proceedings of the 2002 UC Davis Student Workshop on Computing*, TR CSE-2002-28 (presented at: "2002 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2002).

[69] Takanashi, I., Lum, E. B., Ma, K.-L., Meyer, J., Hamann, B. and Olson, A. J. (2002), Segmentation and 3D visualization of high-resolution human brain cryosections, in: Erbacher, R. F., Chen, P. C., Gröhn, M. T., Roberts, J. C. and Wittenbrink, C. M., eds., *Visualization and Data Analysis 2002*, Proc. SPIE Vol. 4665, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 55–61 (presented at: "Photonics West – Electronic Imaging 2002," San Jose, California, January 2002).

[68] Weber, G. H., Scheuermann, G., Hagen, H. and Hamann, B. (2002), Exploring scalar fields using critical isovalues, in: Gross, M., Joy, K. I. and Moorhead, R. J., eds., *IEEE Visualization 2002*, IEEE Computer Society Press, Los Alamitos, California, pp. 171–178 (presented at: "IEEE Visualization 2002," Boston, Massachusetts, October/November 2002).

[67] Wiley, D. F., Childs, H. R., Hamann, B., Joy, K. I. and Max, N. L. (2002), Best quadratic spline approximation for hierarchical visualization, in: Ebert, D. S., Brunet, P. and Navazo, I., eds., *Data Visualisation 2002* (Proceedings of "VisSym '02"), Eurographics Association, Aire-la-Ville, Switzerland, pp. 133–140 (presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '02)," Barcelona, Spain, May 2002).

[66] Wiley, D. F., Childs, H. R., Hamann, B., Joy, K. I. and Max, N. L. (2002), Using quadratic simplicial elements for hierarchical approximation and visualization, in: Erbacher, R. F., Chen, P. C., Gröhn, M. T., Roberts, J. C. and Wittenbrink, C. M., eds., *Visualization and Data Analysis 2002*, Proc. SPIE Vol. 4665, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 32–43 (presented at: "Photonics West – Electronic Imaging 2002," San Jose, California, January 2002).

[65] Bertram, M., Laney, D. E., Duchaineau, M. A., Hansen, C. D., Hamann, B. and Joy, K. I. (2001), Wavelet representation of contour sets, in: Ertl, T., Joy, K. I. and Varshney, A., eds., *IEEE Visu-*

alization 2001, IEEE Computer Society Press, Los Alamitos, California, pp. 303–310 (presented at: "IEEE Visualization 2001," San Diego, California, October 2001).

[64] Bremer, P.-T., Kreylos, O. and Hamann, B. (2001), A data-dependent gradient quantization scheme for the acceleration of volume rendering, in: Erbacher, R. F., Chen, P. C., Roberts, J. C., Wittenbrink, C. M. and Gröhn, M. T., eds., *Visual Data Exploration and Analysis VIII*, Proc. SPIE Vol. 4302, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 69–79 (presentated at: "Photonics West – Electronic Imaging 2001," San Jose, California, January 2001).

[63] Bremer, P.-T., Porumbescu, S. D., Küster, F., Hamann, B., Joy, K. I. and Ma, K.-L. (2001), Virtual clay modeling using adaptive distance fields, in: Keen, D., ed., *Proceedings of the 2001 UC Davis Student Workshop on Computing*, TR CSE-2001-7 (presented at: "2001 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2001).

[62] Bruckschen, R. W., Küster, F., Hamann, B. and Joy, K. I. (2001), Real-time out-of-core visualization of particle traces, in: Breen, D. E., Heirich, A. and Koning, A., eds., *IEEE 2001 Symposium on Parallel and Large-data Visualization and Graphics (PVG 2001)*, IEEE Computer Society Press, Los Alamitos, California, pp. 45–50 (presented at: "IEEE 2001 Symposium on Parallel and Large-data Visualization and Graphics (PVG 2001)," San Diego, California, October 2001).

[61] Duchaineau, M. A., Bertram, M., Porumbescu, S. D., Hamann, B. and Joy, K. I. (2001), Interactive display of surfaces using subdivision surfaces and wavelets, in: Kunii, T. L. ed., Proceedings of *Spring Conference on Computer Graphics (SCCG) 2001*, Comenius University, Bratislava, Slovak Republic, pp. 22–34 (invited paper presented at: "Spring Conference on Computer Graphics (SCCG) 2001," Budmerice, Slovak Republic, April 2001).

[60] Gregorski, B. F., Küster, F., Hamann, B. and Joy, K. I. (2001), Mesh painting on subdivision surfaces in virtual reality environments, in: Keen, D., ed., *Proceedings of the 2001 UC Davis Student Workshop on Computing*, TR CSE-2001-7 (presented at: "2001 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2001).

[59] Küster, F., Bruckschen, R. W., Hamann, B. and Joy, K. I. (2001), Visualization of particle traces in virtual environments, in: Shaw, C. D. and Wang, W., eds., *ACM Symposium on Virtual Reality Software and Technology 2001 (VRST 2001)*, ACM Press, New York, New York, pp. 151–157 (presented at: "ACM Symposium on Virtual Reality Software and Technology 2001 (VRST 2001)," Banff, Alberta, Canada, November 2001).

[58] Küster, F., Hamann, B. and Joy, K. I. (2001), VirtualExplorer: A plugin-based virtual reality framework, in: Woods, A. J., Bolas, M. T., Merrit, J. O. and Benton, S. A., eds., *Stereoscopic Displays and Virtual Reality Systems VIII*, Proc. SPIE Vol. 4297, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 436–442 (presentated at: "Photonics West – Electronic Imaging 2001," San Jose, California, January 2001).

[57] LaMar, E. C., Hamann, B. and Joy, K. I. (2001), A magnification lens for interactive volume visualization, in: Suzuki, H., Kobbelt, L. P. and Rockwood, A. P., eds., *Ninth Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2001*, IEEE Computer Society Press, Los Alamitos, California, pp. 223–232 (presented at: "Ninth Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2001," Tokyo, Japan, October 2001).

[56] Pinskiy, D. V., Brugger, E. S., Ahern, S. and Hamann, B. (2001), Constructing isosurfaces in a localized fashion using an underlying octree data structure, in: Erbacher, R. F., Chen, P. C., Roberts, J. C., Wittenbrink, C. M. and Gröhn, M. T., eds., *Visual Data Exploration and Analysis VIII*, Proc. SPIE Vol. 4302, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 88–98 (presentated at: "Photonics West – Electronic Imaging 2001," San Jose, California, January 2001).

[55] Pinskiy, D. V., Brugger, E. S., Childs, H. R. and Hamann, B. (2001), An octree-based multiresolution approach supporting interactive rendering of very large volume data sets, in: Arabnia, H. R., Erbacher, R. F., He, X., Knight, C., Kovalerchuk, B., Lee, M. M.-O., Mun, Y., Sarfraz, M., Schwing, J. and Tabrizi, M. H. N., eds., Proceedings of *The 2001 International Conference on Imaging Science, Systems, and Technology (CISST 2001)*, Volume 1, Computer Science Research, Education, and Applications Press (CSREA), Athens, Georgia, pp. 16–22 (presented at: "The 2001 International Conference on Imaging Science, Systems, and Technology," Las Vegas, Nevada, June 2001).

[54] Scheuermann, G., Bobach, T., Hagen H., Mahrous, K. M., Hamann, B., Joy, K. I. and Kollmann, W. (2001), A tetrahedra-based stream surface algorithm, in: Ertl, T., Joy, K. I. and Varshney, A., eds., *IEEE Visualization 2001*, IEEE Computer Society Press, Los Alamitos, California, pp. 151–158 (presented at: "IEEE Visualization 2001," San Diego, California, October 2001).

[53] Scheuermann, G., Frey, J., Hagen, H., Hamann, B., Jeremić, B. and Joy, K. I. (2001), Visualization of seismic soils structure interaction simulations, in: Hamza, M. H., ed., Proceedings of *IASTED International Conference on Visualization, Imaging, and Image Processing (VIIP) 2001*, ACTA Press, Calgary, Alberta, Canada, pp. 78–83 (presented at: "IASTED International Conference on Visualization, Imaging, and Image Processing (VIIP) 2001," Marbella, Spain, September 2001).

[52] Weber, G. H., Hagen, H., Hamann, B., Joy, K. J., Ligocki, T. J., Ma, K.-L. and Shalf, J. M. (2001), Visualization of adaptive mesh refinement data, in: Erbacher, R. F., Chen, P. C., Roberts, J. C., Wittenbrink, C. M. and Gröhn, M. T., eds., *Visual Data Exploration and Analysis VIII*, Proc. SPIE Vol. 4302, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 121–132 (presentated at: "Photonics West – Electronic Imaging 2001," San Jose, California, January 2001).

[51] Weber, G. H., Kreylos, O., Ligocki, T. J., Shalf, J. M., Hagen, H., Hamann, B. and Joy, K. I. (2001), Extraction of crack-free isosurfaces from adaptive mesh refinement data, in: Ebert, D. S., Favre, J. M. and Peikert, R., eds., *Data Visualization 2001* (Proceedings of "VisSym '01"), Springer-Verlag, Vienna, Austria, pp. 25–34 (presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '01)," Ascona, Switzerland, May 2001).

[50] Weber, G. H., Kreylos, O., Ligocki, T. J., Shalf, J. M., Hagen, H., Hamann, B., Joy, K. I. and Ma, K.-L. (2001), High-quality volume rendering of adaptive mesh refinement data, in: Ertl, T., Girod, B., Greiner, G., Niemann, H. and Seidel, H.-P., eds., *Vision, Modeling, and Visualization 2001*, IOS Press, Amsterdam, The Netherlands, pp. 121–128 (presented at: "Sixth International Fall Workshop on Vision, Modeling, and Visualization 2001," Stuttgart, Germany, November 2001).

[49] Bertram, M., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2000), Bicubic subdivision-surface wavelets for large-scale isosurface representation and visualization, in: Ertl, T., Hamann, B. and Varshney, A., eds., *IEEE Visualization 2000*, IEEE Computer Society Press, Los Alamitos, California, pp. 389–396 (presented at: "IEEE Visualization 2000," Salt Lake City, Utah, October 2000).

[48] Bertram, M., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2000), Wavelets on planar tessellations, in: Arabnia, H. R., Coudoux, F.-X., Mun, Y., Power, G. P., Sarfraz, M. and Zhu, Q., eds., Proceedings of *The 2000 International Conference on Imaging Science, Systems, and Technology (CISST 2000)*, Computer Science Research, Education, and Applications Press (CSREA), Athens, Georgia, pp. 619–625 (presented at: "The 2000 International Conference on Imaging Science, Systems, and Technology," Las Vegas, Nevada, June 2000).

[47] Bonnell, K. S., Schikore, D. R., Joy, K. I., Duchaineau, M. A. and Hamann, B. (2000), Constructing material interfaces from data sets with volume-fraction information, in: Ertl, T., Hamann, B. and Varshney, A., eds., *IEEE Visualization 2000*, IEEE Computer Society Press, Los Alamitos, California, pp. 367–372 (presented at: "IEEE Visualization 2000," Salt Lake City, Utah, October 2000).

[46] Bremer, P.-T., Kreylos, O., Hamann, B. and Wolter, F.-E. (2000), Simplification of closed triangulated surfaces, in: Haungs, M. L., ed., *Proceedings of the 2000 UC Davis Student Workshop on Computing*, TR CSE-2000-9 (presented at: "2000 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2000).

[45] Gregorski, B. F., Hamann, B. and Joy, K. I. (2000), Approximating material interfaces during data simplification, in: Haungs, M. L., ed., *Proceedings of the 2000 UC Davis Student Workshop on Computing*, TR CSE-2000-9 (presented at: "2000 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2000).

[44] Gregorski, B. F., Hamann, B. and Joy, K. I. (2000), Reconstruction of B-spline surfaces from scattered data points, in: Magnenat-Thalmann, N. and Thalmann, D., eds., Proceedings of *Computer Graphics International 2000 (CGI 2000)*, IEEE Computer Society Press, Los Alamitos, California, pp. 163–170 (presented at: "Computer Graphics International 2000 (CGI 2000)," Geneva, Switzerland, June 2000).

[43] Kreylos, O., Hamann, B., Ligocki, T. J. and Bethel, E. W. (2000), Interactive exploration of scientific data using virtual reality methods, in: Haungs, M. L., ed., *Proceedings of the 2000 UC Davis Student Workshop on Computing*, TR CSE-2000-9 (presented at: "2000 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2000).

[42] Kreylos, O., Ma, K.-L. and Hamann, B. (2000), A multi-resolution interactive previewer for volumetric data on arbitrary meshes, in: Outhyoung, M. and Shih, Z.-C., eds., Proceedings of *2000 International Computer Symposium – Workshop on Computer Graphics and Virtual Reality*, Department of Computer Science and Information Engineering, National Chung Cheng University, Chiayi, Taiwan, R. O. C., pp. 74–81 (presented at: "2000 International Computer Symposium – Workshop on Computer Graphics and Virtual Reality," National Chung Cheng University, Chiayi, Taiwan, R. O. C., December 2000).

[41] Küster, F., Duchaineau, M. A., Hamann, B., Joy, K. I. and Ma, K.-L. (2000), The DesignersWorkbench: Towards real-time immersive modeling, in: Merritt, J. O., Benton, S. A., Woods, A. J. and Bolas, M. T., eds., *Stereoscopic Displays and Virtual Reality Systems VII*, Proc. SPIE Vol. 3957, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 464–472 (presented at: "Photonics West – Electronic Imaging 2000," San Jose, California, January 2000).

[40] Küster, F., Duchaineau, M. A., Hamann, B., Joy, K. I., and Uva, A. E. (2000), 3DIVS: 3-dimensional immersive virtual sculpting, in: Ebert, D. S. and Shaw, C. D., eds., *Workshop on New Paradigms in Information Visualization and Manipulation (NPIV '99)*, ACM Press, New York, New York, pp. 92–95 (presented at: "Eigth ACM International Conference on Information and Knowledge Management (CIKM '99)," Kansas City, Missouri, November 1999).

[39] Küster, F., Hamann, B. and Joy, K. I. (2000), Interactive two-handed terrain and set design in immersive environments, in: Sato, M. and Hung, Y.-P., eds. and program co-chairs, Proceedings of *The Tenth International Conference on Artificial Reality and Tele-existence (ICAT 2000)*, pp. 31–35 (presented at: "The Tenth International Conference on Artificial Reality and Tele-existence (ICAT 2000)," National Taiwan University, Taipei, Taiwan, R. O. C., October 2000).

[38] Küster, F., Hamann, B. and Joy, K. I. (2000), Interactive two-handed virtual design, in: Haungs, M. L., ed., *Proceedings of the 2000 UC Davis Student Workshop on Computing*, TR CSE-2000-9 (presented at: "2000 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2000).

[37] LaMar, E. C., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2000), Multiresolution techniques for interactive texture-based rendering of arbitrarily oriented cutting planes, in: de Leeuw, W. C., and van Liere, R., eds., *Data Visualization 2000* (Proceedings of "VisSym '00"), Springer-Verlag,

Vienna, Austria, pp. 105–114 (presented at: "Joint Eurographics and IEEE TCVG Symposium on Visualization (VisSym '00)," Amsterdam, The Netherlands, May 2000).

[36] LaMar, E. C., Hamann, B. and Joy, K. I. (2000), Multiresolution techniques for interactive texture-based volume visualization, in: Erbacher, R. F., Chen, P. C., Roberts, J. C. and Wittenbrink, C. M., eds., *Visual Data Exploration and Analysis VII*, Proc. SPIE Vol. 3960, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 365–374 (presented at: "Photonics West – Electronic Imaging 2000," San Jose, California, January 2000).

[35] Moritz, E., Küster, F., Hamann, B., Joy, K. I. and Hagen, H. (2000), Towards immersive clay modeling: Interactive modeling with octrees, in: Merritt, J. O., Benton, S. A., Woods, A. J. and Bolas, M. T., eds., *Stereoscopic Displays and Virtual Reality Systems VII*, Proc. SPIE Vol. 3957, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 414–422 (presented at: "Photonics West – Electronic Imaging 2000," San Jose, California, January 2000).

[34] Pinskiy, D. V., Ahern, S., Brugger, E. S. and Hamann, B. (2000), Multiresolution cutting-plane visualization based on an octree, in: Haungs, M. L., ed., *Proceedings of the 2000 UC Davis Student Workshop on Computing*, TR CSE-2000-9 (presented at: "2000 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2000).

[33] Schussman, S. E., Bertram, M., Hamann, B. and Joy, K. I. (2000), Hierarchical data representations based on planar Voronoi diagrams, in: de Leeuw, W. C., and van Liere, R., eds., *Data Visualization 2000* (Proceedings of "VisSym '00"), Springer-Verlag, Vienna, Austria, pp. 63–72 (presented at: "Joint Eurographics and IEEE TCVG Symposium on Visualization (VisSym '00)," Amsterdam, The Netherlands, May 2000).

[32] Takanashi, I., Lum, E. B., Meyer, J., Ma, K.-L., Hamann, B. and Olson, A. J. (2000), Segmentation and volume rendering of human brain cryosections, in: Uselton, S. P., Gaither, K. P. and Hagen, H., eds., *IEEE Visualization 2000 — Work in Progress*, IEEE Computer Society Press, Los Alamitos, California (presented at: "IEEE Visualization 2000," Salt Lake City, Utah, October 2000).

[31] Barnes, J. C., Hamann, B. and Joy, K. I. (1999), An edge-preserving, data-dependent triangulation scheme for hierarchical rendering, in: Hagen, H., Nielson, G. M. and Post, F. H., eds., Proceedings of *Scientific Visualization – Dagstuhl '97*, second printing, IEEE Computer Society Press, Los Alamitos, California, pp. 1–10 (invited presentation at: "Third Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, June 1997).

[30] Bertram, M., Hamann, B. and Joy, K. I. (1999), Progressive triangulations for scattered data, in: Oskin, M. H., ed., *Proceedings of the 1999 UC Davis Student Workshop on Computing*, TR CSE-99-9, paper 4-2 (presented at: "1999 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1999).

[29] Gregorski, B. F., Hamann, B. and Joy, K. I. (1999), Reconstruction of surfaces from scattered points, in: Oskin, M. H., ed., *Proceedings of the 1999 UC Davis Student Workshop on Computing*, TR CSE-99-9, paper 4-1 (presented at: "1999 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1999).

[28] Hamann, B., Kreylos, O., Monno, G. and Uva, A. E. (1999), Optimal linear spline approximation of digitized models, in: Banissi, E., Khosrowshahi, F., Sarfraz, M., Tatham, E. and Ursyn, A., eds., Proceedings of *"1999 IEEE International Conference on Information Visualization (IV '99) – Computer Aided Geometric Design Symposium,"* IEEE Computer Society Press, Los Alamitos, California, pp. 244–249 (presented at: "1999 IEEE International Conference on Information Visualization '99," London, United Kingdom, July 1999).

[27] Heckel, B., Uva, A. E. and Hamann, B. (1999), Cluster-based generation of hierarchical surface models, in: Hagen, H., Nielson, G. M. and Post, F. H., eds., Proceedings of *Scientific Visualization* –

Dagstuhl '97, second printing, IEEE Computer Society Press, Los Alamitos, California, pp. 113–122.

[26] Heckel, B., Weber, G. H., Hamann, B. and Joy, K. I. (1999), Construction of vector field hierarchies, in: Ebert, D. S., Gross, M. and Hamann, B., eds., *IEEE Visualization '99*, IEEE Computer Society Press, Los Alamitos, California, pp. 19–25 (presented at: "IEEE Visualization '99," San Francisco, California, October 1999).

[25] Jankun-Kelly, T. J., Hamann, B., Joy, K. I. and Uselton, S. P. (1999) Towards corner matching for 2D and 3D, in: Oskin, M. H., ed., *Proceedings of the 1999 UC Davis Student Workshop on Computing*, TR CSE-99-9, paper 4-4 (presented at: "1999 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1999).

[24] Kreylos, O. and Hamann, B. (1999), On simulated annealing and the construction of linear spline approximations for scattered data, in: Gröller, E., Löffelmann, H. and Ribarsky, W., eds., *Data Visualization '99* (Proceedings of "VisSym '99"), Springer-Verlag, Vienna, Austria, pp. 189–198 (presented at: "Eurographics-IEEE TCCG Symposium on Visualization (VisSym '99)," Vienna, Austria, May 1999).

[23] Küster, F. and Hamann, B. (1999), The designer workbench project – Semi-immersive interactive modeling, in: Oskin, M. H., ed., *Proceedings of the 1999 UC Davis Student Workshop on Computing*, TR CSE-99-9, paper 4-3 (presented at: "1999 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1999).

[22] Küster, F., Uva, A. E., Hamann, B. and Monno, G. (1999), 3DIVS: 3-dimensional immersive virtual sketching, in: Lindemann, U., Birkhofer, H., Meerkamm, H. and Vajna, S., eds., Proceedings of *12th International Conference on Engineering Design (ICED '99)*," Vol. 3, pp. 1407–1412 (presented at: "12th International Conference on Engineering Design (ICED '99)," Munich, Germany, August 1999).

[21] LaMar, E. C., Hamann, B. and Joy, K. I. (1999), Multiresolution techniques for interactive texture-based volume visualization, in: Ebert, D. S., Gross, M. and Hamann, B., eds., *IEEE Visualization '99*, IEEE Computer Society Press, Los Alamitos, California, pp. 355–361 (presented at: "IEEE Visualization '99," San Francisco, California, October 1999).

[20] Liverani, A., Küster, F. and Hamann, B. (1999), Towards interactive finite element analysis of shell structures in virtual reality, in: Banissi, E., Khosrowshahi, F., Sarfraz, M., Tatham, E. and Ursyn, A., eds., Proceedings of *"1999 IEEE International Conference on Information Visualization (IV '99) – Augmented and Virtual Reality Symposium,"* IEEE Computer Society Press, Los Alamitos, California, pp. 340–346 (presented at: "1999 IEEE International Conference on Information Visualization '99," London, United Kingdom, July 1999).

[19] Schussman, S. E., Bertram, M., Hamann, B. and Joy, K. I. (1999), Hierarchical data representations based on planar Voronoi diagrams, in: Oskin, M. H., ed., *Proceedings of the 1999 UC Davis Student Workshop on Computing*, TR CSE-99-9, paper 4-5 (presented at: "1999 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1999).

[18] Uva, A. E., Monno, G. and Hamann, B. (1999), A new method for the repair of CAD data with discontinuities, in: Caputo, F., Lanzotti, A. and Leiceaga, X., eds., Proceedings of *"Atti del II Seminario Italo-Español – Progettazione e Fattibilitá dei Prodotti Industriali (Diseño y Fabricabilidad de los Productos Industriales),"* ISBN 88-900081-3-X, pp. 59–75 (presented at: "Convegno Italo-Spagnolo – Progettazione e Fattibilitá dei Prodotti Industriali" [Design and Feasibility of Industrial Products], Naples, Italy, June 1998).

[17] Weber, G. H., Heckel, B., Hamann, B. and Joy, K. I. (1999), Procedural generation of triangulation-based visualizations, in: Varshney, A., Wittenbrink, C. M. and Hagen, H., eds., *IEEE Visualization '99 – Late Breaking Hot Topics*, IEEE Computer Society Press, Los Alamitos, California, pp. 57–60 (presented at: "IEEE Visualization '99," San Francisco, California, October 1999).

[16] Wynn, C. W., Barnes, J. C., Hamann, B. and Miller, M. C. (1999), Multiresolution and adaptive rendering techniques for structured, curvilinear data, in: Hagen, H., Nielson, G. M. and Post, F. H., eds., Proceedings of *Scientific Visualization – Dagstuhl '97*, second printing, IEEE Computer Society Press, Los Alamitos, California, pp. 342–351 (invited presentation at: "Third Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, June 1997).

[15] Heckel, B. and Hamann, B. (1998), ObVis: A generic framework for information visualization, in: Ebert, D. S. and Shaw, C. D., eds., *Workshop on New Paradigms in Information Visualization and Manipulation (NPIV '98)*, ACM Press, New York, New York, pp. 84–87 (presented at: "Seventh ACM International Conference on Information and Knowledge Management (CIKM '98)," Bethesda, Maryland, November 1998).

[14] Heckel, B., Uva, A. E. and Hamann, B. (1998), Clustering-based generation of hierarchical surface models, in: Wittenbrink, C. M. and Varshney, A., eds., *IEEE Visualization '98 – Late Breaking Hot Topics*, IEEE Computer Society Press, Los Alamitos, California, pp. 41–44 (presented at: "IEEE Visualization '98," Research Triangle Park, North Carolina, October 1998).

[13] Heckel, B. and Hamann, B. (1998), Visualization of cluster hierarchies, in: Erbacher, R. F. and Pang, A., eds., *Visual Data Exploration and Analysis V*, Proc. SPIE Vol. 3298, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 162–171 (presented at: "Photonics West – Electronic Imaging '98," San Jose, California, January 1998).

[12] Trotts, I. J., Hamann, B., Joy, K. I. and Wiley, D. F. (1998), Simplification of tetrahedral meshes, in: Ebert, D. S., Hagen, H. and Rushmeier, H. E., eds., *IEEE Visualization '98*, IEEE Computer Society Press, Los Alamitos, California, pp. 287–295 (presented at: "IEEE Visualization '98," Research Triangle Park, North Carolina, October 1998).

[11] Trotts, I. J. and Hamann, B. (1998), Texture planes: Real-time volume rendering using hardware texture mapping and alpha blending, in: Black, J. R., ed., *Proceedings of the 1998 UC Davis Student Workshop on Computing*, TR CSE-98-9, pp. 16-1–16-2 (presented at: "1998 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1998).

[10] Cox, M. B., Crawfis, R. A., Hamann, B., Hanson, C. and Miller, M. C. (1997), Terascale visualization: Approaches, pitfalls and issues, panel presentation (receiving "Best Panel" award), Hunter, C. L. and Crawfis, R. A., chairs, in: Yagel, R. and Hagen, H., eds., *IEEE Visualization '97*, IEEE Computer Society Press, Los Alamitos, California, pp. 507–509 (presented at: "IEEE Visualization '97," Phoenix, Arizona, October 1997).

[9] Heckel, B. and Hamann, B. (1997), EmVis – A visual e-mail analysis tool, in: Ebert, D. S. and Nicholas, C. K., eds., *Workshop on New Paradigms in Information Visualization and Manipulation (NPIV '97)*, ACM Press, New York, New York, pp. 36–38 (presented at: "Sixth ACM International Conference on Information and Knowledge Management (CIKM '97)," Las Vegas, Nevada, November 1997).

[8] Gieng, T. S., Hamann, B., Joy, K. I., Schussman, G. L. and Trotts, I. J. (1997), Smooth hierarchical surface triangulations, in: Yagel, R. and Hagen, H., eds., *IEEE Visualization '97*, IEEE Computer Society Press, Los Alamitos, California, pp. 379–386 (presented at: "IEEE Visualization '97," Phoenix, Arizona, October 1997).

[7] Banks, D. C., Hamann, B., Tsai, P.-Y., Moorhead, R. J. and Barlow, J. H. (1996), Data reduction and interpolation for visualizing 3D soil-quality data, in: Nielson, G. M. and Yagel, R., eds., *IEEE Visualization '96*, IEEE Computer Society Press, Los Alamitos, California, pp. 421–424 (presented at: "IEEE Visualization '96," San Francisco, California, October/November 1996).

[6] Forgang, A. B., Hamann, B. and Cerco, C. F. (1996), Visualization of water quality data for the Chesapeake Bay, in: Nielson, G. M. and Yagel, R., eds., *IEEE Visualization '96*, IEEE Computer

Society Press, Los Alamitos, California, pp. 417–420 (presented at: "IEEE Visualization '96," San Francisco, California, October/November 1996).

[5] Tsai, P.-Y. and Hamann, B. (1996), Decomposing trimmed surfaces using the Voronoi tessellation, in: Soni, B. K., Thompson, J. F., Häuser, J. and Eiseman, P., eds., *Fifth International Conference on Numerical Grid Generation in Computational Field Simulations*, Mississippi State University-NSF Engineering Research Center for Computational Field Simulation, College of Engineering, Mississippi State University, Mississippi State, Mississippi, pp. 313–322 (presented at: "Fifth International Conference on Numerical Grid Generation in Computational Fluid Dynamics and Related Fields," Mississippi State University, Mississippi State, Mississippi, April 1996).

[4] Moorhead, R. J., Hamann, B., Everitt, C., Jones, S. C., McAllister, J. and Barlow, J. H. (1994), Oceanographic visualization interactive research tool (OVIRT), in: Moorhead, R. J., Silver, D. E. and Uselton, S. P., eds., *Visual Data Exploration and Analysis*, Proc. SPIE Vol. 2178, SPIE – The International Society for Optical Engineering, Bellingham, Washington, pp. 24–30 (presented at: "Visual Data Exploration and Analysis," San Jose, California, February 1994).

[3] Soni, B. K. and Hamann, B. (1993), Computational geometry tools in grid generation, in: Wang, S. S. Y., ed., *Advances in Hydro-science & -engineering*, Vol. I, Part B, Proceedings of the First International Conference on Hydro-science & -engineering, pp. 2004–2009 (invited presentation at: "First International Conference on Hydro-science & -engineering," Washington, D.C., June 1993).

[2] Nielson, G. M. and Hamann, B. (1991), The asymptotic decider: Resolving the ambiguity in marching cubes, in: Nielson, G. M. and Rosenblum, L. J., eds., *IEEE Visualization '91*, IEEE Computer Society Press, Los Alamitos, California, pp. 83–91 (presented at: "IEEE Visualization '91," San Diego, California, October 1991).

[1] Nielson, G. M. and Hamann, B. (1990), Techniques for the interactive visualization of volumetric data, in: Kaufman A. E., ed., *IEEE Visualization '90*, IEEE Computer Society Press, Los Alamitos, California, pp. 45–50 (presented at: "IEEE Visualization '90," San Francisco, California, October 1990).

Veröffentlichungen in Magazinen und technische Berichte

[12] Hamann, B. (2025), Applied Geometry and Mathematics for Processing and Analyzing Image Data - Extraction, Characterization and Recognition of Materials and Objects for Classification, notebook, Davis and Sacramento, California, 1777 pages (https://web.cs.ucdavis.edu/∼hamann/pubs.shtml).

[11] Völker, M. and Hamann, B. (2013), Real-time rendering of cut diamonds, Technical Report TR CSE-2013-77, pp. 1–8, Department of Computer Science, University of California, Davis, California.

[10] Vančo, M., Hamann, B., Kreylos, O., Billen, M. I. and Jadamec, M. A. (2011), Distance field computation for geological slab surface data sets, Technical Report TR CSE-2011-5, pp. 1–18, Department of Computer Science, University of California, Davis, California.

[9] Bethel, E. W., Rübel, O., Weber, G. H., Hamann, B. and Hagen, H. (2007), Visualization and analysis of 3D gene expression data, Technical Report TR LBNL-63658, Lawrence Berkeley National Laboratory, Berkeley, California (http://www.osti.gov/bridge/).

[8] Billen, M. I., Kreylos, O., Hamann, B., Jadamec, M. A., Kellogg, L. H., Staadt, O. G. and Sumner, D. Y. (2006), A geoscientist's perspective on immersive 3D data visualization, KeckCAVES Technical Report TR06-02, Department of Geology, University of California, Davis, California.

[7] Billen, M. I., Kreylos, O., Kellogg, L. H., Hamann, B., Staadt, O. G., Sumner, D. Y. and Jadamec, M. A. (2006), Study of 3D visualization software for geo-science applications, KeckCAVES Technical Report TR06-01, Department of Geology, University of California, Davis, California.

[6] Dillard, S. E., Natarajan, V., Weber, G. H., Pascucci, V. and Hamann, B. (2006), Tessellation of quadratic elements, Technical Report TR CSE-2006-21, pp. 1–14, Department of Computer Science, University of California, Davis, California.

[5] Hamann, B. (2006), On curved simplicial elements and best quadratic spline approximation for hierarchical data representation, Technical Report TR CSE-2006-12, pp. 1–26, Department of Computer Science, University of California, Davis, California.

[4] Kellogg, L. H., Bawden, G. W., Bernardin, T. S., Billen, M. I., Cowgill, E. S., Hamann, B., Jadamec, M. A., Kreylos, O., Staadt, O. G. and Sumner, D. Y. (2006), Interactive visualization to advance earthquake simulation, KeckCAVES Technical Report TR06-04, Department of Geology, University of California, Davis, California.

[3] Kreylos, O., Weber, G. H., Bethel, E. W., Shalf, J. M., Hamann, B. and Joy, K. I. (2002), Remote interactive direct volume rendering of AMR data, Technical Report TR LBNL-49954, Lawrence Berkeley National Laboratory, Berkeley, CA (http://www.osti.gov/bridge/product.biblio.jsp?osti_id=799586).

[2] Olson, A. J., Pailthorpe, B. A., Toga, A. W., Wunsch, C. I., Genetti, J. D., Nadeau, D. R., Sanner, M. F., Bajaj, C., Bordes, N., De Castro, A. G., Charles, R. D., Moreland, J. L., Omelchenko, A., Shamir, A., Park, S., Zhang, X., Hamann, B., Takanashi, I., Thompson, P. M., Baden, S. B., Stammer, D., Saltz, J. H. and Meyer, J. (2000), Scalable visualization toolkits for brains to bays, ENVISION 16(4), ISSN 1521-5334, http://www.npaci.edu/enVision, National Partnership for Computational Infrastructure (NPACI) and San Diego Supercomputer Center (SDSC), San Diego, California, pp. 8–9.

[1] Hamann, B. and Tsai, P.-Y. (1994), Tessellation algorithms for the representation of trimmed surfaces, abstract and presentation, Technical Report TR MSU-960923, Department of Computer Science, College of Engineering, Mississippi State University, pp. 259–290 (presented at: "Third Workshop on Proximity Graphs," Dearholt, D. W. and Lipman, M. J., organizers, Mississippi State University, Mississippi State, Mississippi, December 1994).

Software-Dokumentation

[2] Forgang, A. B., Hamann, B. and Cerco, C. F. (1996), Water Quality Data Site Characterization Interactive Research Toolkit, User's Manual, Version 1.0, U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi, September 1996 (available at http://graphics.cs.ucdavis.edu/people/forgang/scirt_manual.html).

[1] Barlow, J. H., Hamann, B. and Moorhead, R. J. (1995), Site Characterization Interactive Research Toolkit, User's Manual, Version 3.0, U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi, December 1995.

Angemeldete Erfindungen, Lizenzen, Patente, etc.

[2] Shah, N. Y., Couronne, O., Dubchak, I. L., Klock, B. D., Hamann, B. and Brudno, M. (2003), Phylo-VISTA (interactive visualization tool for multiple DNA sequence alignments), software disclosure and abstract form filed, Patent Department, Lawrence Berkeley National Laboratory, University of Califonia, Berkeley.

[1] Shah, N. Y. and Hamann, B. (2003), Phylo-VISTA (interactive visualization tool for multiple DNA sequence alignments), disclosure and record of invention form filed, Technology Transfer Center, University of Califonia, Davis.

---

[558] Linares, O. A. C., Belizario, I. V., Batah, S. S., Hamann, B., Fabro, A. T., Azevedo-Marques, P. M. and Traina, A. J. M. (2024), RadPleura: A radiomics-based framework for lung pleura classification in histology images from interstitial lung diseases, presented at: "21st IEEE International Symposium on Biomedical Imaging (ISBI 2024)," Athens, Greece, May 2024.

[557] Claus, F., Hagen, H. and Hamann, B. (2021), Calculating stress-free shapes of sheet metal parts measured with over-constrained fixtures, presented at: "NAFEMS World Congress 2021 (NWC 21)," Salzburg, Austria, October 2021.

[556] Claus, F., Hamann, B. and Hagen, H. (2021), Calculating stress-free shapes of sheet metal parts measured with over-constrained fixtures, invited presentation at: "Fourteenth General Meeting, International Research Training Group (IRTG): Physical modelling for Virtual Manufacturing Systems and Processes," Kaiserslautern, Germany, September 2021.

[555] Rüdiger, P., Claus, F., Hamann, B., Hagen, H. and Leitte, H. (2021), Combining visual analytics and machine learning for reverse engineering in assembly quality control, presented at: "Electronic Imaging 2021 – Visualization and Data Analysis 2021," San Francisco, California, January 2021.

[554] Banesh, D., Lo, L.-T., Kilian, P., Guo, F. and Hamann, B. (2020), Topological analysis of magnetic reconnection in kinetic plasma simulations, short paper, presented at: "IEEE Scientific Visualization 2020 (SciVis 2020), Short Papers," Salt Lake City, Utah, October 2020.

[553] Claus, F., Hagen, H., Leonhardt, V., Leitte, H. and Hamann, B. (2020), Interactive quality inspection of measured deviations in sheet assemblies, presented at: "Third Conference on Physical Modeling for Virtual Manufacturing Systems and Processes 2020 (iPMVM 2020)," Dagstuhl, Germany, November 2020.

[552] Dutra da Silva, R., Pedrini, H. and Hamann, B. (2020), The discrete Morse complex of images: Algorithms, modeling and applications, presented at: "Third Conference on Physical Modeling for Virtual Manufacturing Systems and Processes 2020 (iPMVM 2020)," Dagstuhl, Germany, November 2020.

[551] Linares, O. A. C., Vargas, A. R. S., Faical, B. S., Hamann, B., Fabro, A. T. and Traina, A. J. M. (2020), Efficient segmentation of cell nuclei in histopathological images, presented at: "33rd IEEE International Symposium on Computer-based Medical Systems (CBMS 2020)," Rochester, Minnesota, July 2020.

[550] Naranjo Valero, C. X., Srinavasan, S. K., Ebert, A. and Hamann, B. (2020), Enhanced freehand interaction by combining vision and EMG-based systems in mixed reality environments, presented at: "The 2020 World Congress in Computer Science, Computer Engineering and Applied Computing (CSCE 20), The Seventeenth International Conference on Modeling, Simulation and Visualization (MSV 20)," Las Vegas, Nevada, July 2020.

[549] Vargas, A. R. S., Rollmann, K., Almeida, F., Davolio, A., Hamann, B., Schiozer, D. J. and Rocha, A. (2020), Leveraging phylogenetic trees to assess variability of reservoir models, abstract-based presentation, presented at: "2020 Society of Petroleum Engineers (SPE) Virtual Latin American and Caribbean Petroleum Engineering Conference," July 2020.

[548] Weber, P., Rupprecht, F., Wiesen, S., Hamann, B. and Ebert, A. (2020), Assessing cognitive load via pupillometry, presented at: "The 2020 World Congress in Computer Science, Computer Engineering and Applied Computing (CSCE 20), The Fourth International Conference on Applied

Cognitive Computing (ACC 20)," Las Vegas, Nevada, July 2020.

[547] Linares, O. A. C., Faical, B. S., Barbosa, P., Hamann, B., Fabro, A. T. and Traina, A. J. M. (2019), How to automatically identify regions of interest in high-resolution images of lung biopsy for interstitial fibrosis diagnosis, presented at: "32nd IEEE International Symposium on Computer-based Medical Systems (CBMS 2019)," Cordoba, Spain, June 2019.

[546] Rupprecht, F.-A., Naranjo Valero, C. X., Olakumni, J., Ebert, A. and Hamann, B. (2019), When bigger is simply better after all: Natural and multi-modal interaction with large displays using a smartwatch, presented at: "The Twelfth International Conference on Advances in Human-Computer Interactions (ACHI 2019)," Athens, Greece, February 2019.

[545] Banesh, D., Wendelberger, J. R., Petersen, M. R., Ahrens, J. P. and Hamann, B. (2018), Change point detection for ocean eddy analysis, poster presentation, presented at: "Conference on Data Analysis 2018 (CoDA 2018)," Santa Fe, New Mexico, March 2018.

[544] Banesh, D., Wendelberger, J. R., Petersen, M. R., Ahrens, J. P. and Hamann, B. (2018), Change point detection for ocean eddy analysis, presented at: "Eurographics Workshop on Visualisation in Environmental Sciences 2018 (EnvirVis 2018)," Brno, Czech Republic, June 2018.

[543] Gillmann, C., Wischgoll, T., Hamann, B. and Ahrens, J. P.. (2018), Modeling and visualization of uncertainty-aware geometry using multi-variate normal distributions, presented at: "Eleventh IEEE Pacific Visualization Symposium (PacificVis 2018), Visualization Notes," Kobe, Japan, April 2018.

[542] Gospodnetic, P., Mosbach, D., Rauhut, M., Schladitz, K., Hamann, B. and Hagen, H. (2018), Model based inspection planning for complex surfaces, abstract-based presentation, presented at: "Young Researchers Symposium 2018," University of Kaiserslautern, Kaiserslautern, Germany, June 2018.

[541] Post, T. M., Gillmann, C., Wischgoll, T., Hamann, B. and Hagen, H. (2018), Visual analytics of cascaded bottlenecks in planar flow networks, presented at: "Leipzig Symposium on Visualization in Applications (LEVIA 2018)," Leipzig, Germany, October 2018.

[540] Pulido, J., Lukic, Z., Thorman, P., Zheng, C., Ahrens, J. P. and Hamann, B. (2018), Data reduction using lossy compression for cosmology and astrophysics workflows, presented at: "XXX IUPAP Conference on Computational Physics 2018 (CCP 2018)," Davis, California, July 2018.

[539] Rupprecht, F.-A., Heck, B., Hamann, B. and Ebert, A. (2018), Signal-processing transformation from smartwatch to arm movement gestures, presented at: "Ninth International Conference on Applied Human Factors and Ergonomics and the Affiliated Conferences (AHFE 2018)," Orlando, Florida, July 2018.

[538] Banesh, D., Schoonover, J., Ahrens, J. P. and Hamann, B. (2017), Extracting, visualizing and tracking mesoscale ocean eddies in two-dimensional image sequences using contours and moments, presented at: "Eurographics Workshop on Visualisation in Environmental Sciences 2017 (EnvirVis 2017)," Barcelona, Spain, June 2017.

[537] Fütterling, V., Lojewski, C., Pfreundt, F.-J., Hamann, B. and Ebert, A. (2017), Accelerated single ray tracing for wide vector units, presented at: "High-performance Graphics 2017 (HPG '17)," Los Angeles, California, July 2017.

[536] Gebbie, G. A., Greenwood, B., Chalk, T., Peterson, C. D., Lisiecki, L. E., Kellogg, L. H., Hamann, B., Kreylos, O. and Spero, H. J. (2017), Transforming 2D physical oceanography into 3D and 4D, presented at: "Ocean Outlook 2017 (OO17)," Bergen, Norway, April 2017.

[535] Gillmann, C., Post, T. M., Kirsch, B., Wischgoll, T., Hartig, J., Hamann, B., Hagen, H. and Aurich, J. C. (2017), An industrial vision system to analyze the wear of cutting tools, presented at: "First Conference on Physical Modeling for Virtual Manufacturing Systems and Processes," Speyer, Germany, June 2017.

[534] Gillmann, C., Wischgoll, T., Hamann, B., Hernandez, J. T. and Hagen, H. (2017), Uncertainty-aware

geometry extraction of image data, invited presentation at: "Geometric Modelling, Interoperability and New Challenges," Dagstuhl, Germany, May/June 2017.

[533] Giménez, A., Gamblin, G. T., Bhatele, A., Wood, C., Shoga, K., Marathe, A., Bremer, P.-T., Hamann, B. and Schulz, M. (2017), ScrubJay: Deriving knowledge from the disarray of HPC performance data, presented at: "Supercomputing 2017 (SC17)," Denver, Colorado, November 2017.

[532] Lisiecki, L. E., Peterson, C. D., Gebbie, G. A., Spero, H. J., Kellogg, L. H., Hamann, B., Kreylos, O., Streletz, G. J., Kronenberger, M., Chalk, T., Greenwood, B., Stern, J., Lawrence, C., Jones, A. and Khider, D. (2017), Reconstructing carbon isotope changes in space and time since the last glacial maximum, presented at: "Gordon Research Conference on Chemical Oceanography," Colby-Sawyer College, New London, New Hampshire, July 2017.

[531] Lukasczyk, L., Aldrich, G. A., Steptoe, M., Favelier, G., Gueunet, C., Tierny, J., Maciejewski, R., Hamann, B. and Leitte, H. (2017), Viscous fingering: A topological visual analytic approach, presented at: "First Conference on Physical Modeling for Virtual Manufacturing Systems and Processes," Speyer, Germany, June 2017.

[530] Mosbach, D., Schladitz, K., Hamann, B. and Hagen, H. (2017), Computing B-spline surfaces from volume data using a local construction approach, presented at: "12th European Congress for Stereology and Image Analysis 2017," University of Kaiserslautern and Fraunhofer Institute for Industrial Mathematics (ITWM), Kaiserslautern, Germany, September 2017.

[529] Post, T. M., Hamann, B., Hagen, H. and Aurich, J. C. (2017), Ensemble visualization of bottlenecks in planar flow networks, presented at: "First Conference on Physical Modeling for Virtual Manufacturing Systems and Processes," Speyer, Germany, June 2017.

[528] Post, T. M., Wischgoll, T., Hamann, B. and Hagen, H. (2017), A high-dimensional data quality metric using Pareto optimality, poster presentation, presented at: "Joint Eurographics-IEEE VGTC Conference on Visualization (EuroVis 2017)," Barcelona, Spain, June 2017.

[527] Rupprecht, F.-A., Ebert, A., Schneider, A. and Hamann, B. (2017), Virtual reality meets smartwatch: intuitive, natural, and multi-modal interaction, poster presentation, presented at: "Computer-Human Interaction 2017 (CHI 2017), Late-Breaking Work," Denver, Colorado, May 2017.

[526] Vargas, A. R. S., Vani, B. C., Shimabukuro, M. H., Monico, J. F. G., Ferreira de Oliveira, M. C. and Hamann, B. (2017), Visual analytics of time-varying multivariate ionospheric scintillation data, presented at: "XXX SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI 2017)," Niteroi, Brazil, October 2017.

[525] Zhang, X., Hamann, B., Pan, X. and Zhang, C. (2017), Superpixel-based image inpainting with simple user guidance, presented at: "24th IEEE International Conference on Image Processing (ICIP 2017)," Beijing, P. R. China, September 2017.

[524] Aldrich, G. A., Lukasczyk, J., Steptoe, M., Maciejewski, R., Leitte, H. and Hamann, B. (2016), Viscous fingers: A topological visual analytic approach, poster presentation, presented at: "IEEE Visualization 2016 – Scientific Visualization Contest," Baltimore, Maryland, October 2016.

[523] Banesh, D., Ahrens, J. P. and Hamann, B. (2016), Analyzing large data using in-situ visualization and computer vision techniques, poster presentation, presented at: "2016 Salishan Conference on High Speed Computing," Gleneden Beach, Oregon, April 2016.

[522] Borges, V. R. P., Silva, T. G., Hamann, B., Vieira, A. A. H. and Ferreira de Oliveira, M. C. (2016), An automatic methodology for morphology-based taxonomical classification of Selenastraceae green microalgae, poster presentation, (presented at: "XVI Congresso Brasileiro de Ficologia," Universidade Federal do Piaui, Teresina, Parnaiba campus, Brazil, June 2016).

[521] Murugesan, S., Bouchard, K. E., Chang, E. F., Dougherty, M., Hamann, B. and Weber, G. H. (2016), Hierarchical spatio-temporal visual analysis of cluster evolution in electrocorticography data,

winner of the only "Best Paper Award," presented at: "BrainKDD: The Third International Workshop on Data Mining and Visualization for Brain Science," held in conjunction with "The Seventh ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB 2016)," Seattle, Washington, October 2016.

[520] Post, T. M., Wischgoll, T., Bryant, A. R., Hamann, B., Müller, P. and Hagen, H. (2016), Visually guided flow tracking in software-defined networking, presented at: "IEEE Symposium on Visualization for Cybersecurity 2016 (VizSec 2016)," Baltimore, Maryland, October 2016.

[519] Pulido, J., Livescu, D., Burns, R., Canada, C. V., Ahrens, J. P. and Hamann, B. (2016), Remote visual analysis on large turbulence databases at multiple scales, poster presentation, presented at: "2016 Salishan Conference on High Speed Computing," Gleneden Beach, Oregon, April 2016.

[518] Rupprecht, F.-A., Hamann, B., Weidig, C., Aurich, J. C. and Ebert, A. (2016), IN2CO – A visualization framework for intuitive collaboration, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2016), Short Papers," Groningen, The Netherlands, June 2016.

[517] Borges, V. R. P., Hamann, B., Silva, T. G., Vieira, A. A. H. and Ferreira de Oliveira, M. C. (2015), A highly accurate level set approach for segmenting green microalgae images, presented at: "XXVIII SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI 2015)," Salvador, Brazil, August 2015.

[516] Capps, A. G., Ammons, S. M., Werner, J. S. and Hamann, B. (2015), Extraction of blood vessels from retinal phase-variance optical coherence tomography images, poster presentation, presented at: "Eigth Postdoctoral Program Poster Symposium," Lawrence Livermore Postdoc Association (LLPA) and the Institutional Postdoc Program Board (IPPB), Lawrence Livermore National Laboratory, Livermore, California, June 2015.

[515] Capps, A. G., Ammons, S. M., Werner, J. S. and Hamann, B. (2015), Extraction of blood vessels from retinal phase-variance optical coherence tomography images, poster presentation, presented at: "The 19th Annual Signal and Image Sciences Workshop," Center for Advanced Signal and Image Sciences (CASIS), Lawrence Livermore National Laboratory, Livermore, California, May 2015.

[514] Isaacs, K. E., Bhatele, A., Lifflander, J., Böhme, D., Gamblin, G. T., Schulz, M., Hamann, B. and Bremer, P.-T. (2015), Recovering logical structure from Charm++ event traces, presented at: "Supercomputing 2015 (SC15)," Austin, Texas, November 2015.

[513] Kronenberger, M., Weber, C., Gebbie, G. A., Kreylos, O., Kellogg, L. H., Lisiecki, L. E., Peterson, C. D., Spero, H. J., Hamann, B. and Hagen, H. (2015), A novel distance measure for ocean reconstruction from sparse observations demonstrated on the Atlantic, short paper and poster presentation, presented at: "IEEE Scientific Visualization 2015 (SciVis 2015) – Visualization in Practice," Chicago, Illinois, October 2015.

[512] Livescu, D., Pulido, J., Burns, R., Canada, C. V., Ahrens, J. P. and Hamann, B. (2015), Remote visualization and scale analysis of large turbulence datasets, invited talk, presented at: "American Geophysical Union Fall Meeting 2015," San Francisco, California, December 2015.

[511] Peterson, C. D., Lisiecki, L. E., Gebbie, G. A., Hamann, B., Kellogg, L. H., Kreylos, O., Kronenberger, M., Spero, H. J., Streletz, G. J. and Weber, C. (2015), 3D movies for teaching seafloor bathymetry, plate tectonics, and ocean circulation in large undergraduate classes, presented at: "American Geophysical Union Fall Meeting 2015," San Francisco, California, December 2015.

[510] Rüdiger, P., Weber, C., Matsui, H., Heien, E., Kellogg, L. H., Hamann, B. and Hagen, H. (2015), Prefiltering of turbulent vector fields in the geodynamo, short paper and poster presentation, presented at: "IEEE Scientific Visualization 2015 (SciVis 2015) – Visualization in Practice," Chicago, Illinois, October 2015.

[509] Umlauf, G., Friedrich, M. and Hamann, B. (2015), A parallel hash-map for level-of-detail-aware

depth-map fusion, presented at: "2015 SIAM Conference on Geometric and Physical Modeling" ("2015 SIAM Conference on Geometric Design and 2015 ACM Symposium on Solid and Physical Modeling (GD/SPM15)"), Salt Lake City, Utah, October 2015.

[508] Aldrich, G. A., Giménez, A., Oskin, M. E., Strelitz, R. A., Woodring, J. L., Kellogg, L. H. and Hamann, B. (2014), Curvature-based crease surfaces for wave visualization, invited presentation, Computer Graphics and HCI Group, Department of Computer Science, University of Kaiserslautern, Kaiserslautern, Germany, October 2014.

[507] Aldrich, G. A., Giménez, A., Oskin, M. E., Strelitz, R. A., Woodring, J. L., Kellogg, L. H. and Hamann, B. (2014), Curvature-based crease surfaces for wave visualization, presented at: "Nineteenth International Fall Workshop on Vision, Modeling, and Visualization 2014 (VMV 2014)," Darmstadt, Germany, October 2014.

[506] Capps, A. G., Ammons, S. M., Werner, J. S. and Hamann, B. (2014), Tracing blood vessels in 3D pvOCT images of the living human retina, poster presentation, presented at: "First UC Davis – Lawrence Livermore National Laboratory Collaboration Meeting in Biomedical Engineering," Department of Biomedical Engineering, University of California, Davis, California, October 2014.

[505] Capps, A. G., Ammons, S. M., Werner, J. S. and Hamann, B. (2014), Tracing blood vessels in 3D pvOCT images of the living human retina, poster presentation, presented at: "Seventh Postdoctoral Program Poster Symposium," Lawrence Livermore Postdoc Association (LLPA) and the Institutional Postdoc Program Board (IPPB), Lawrence Livermore National Laboratory, Livermore, California, July 2014.

[504] Capps, A. G., Zawadzki, R. J., Hamann, B. and Werner, J. S. (2014), SLO Triage: a software tool for rapid assessment of scanning laser ophthalmoscope data sets, poster presentation, presented at: "Biomedical Computation at Stanford – 14th Annual Symposium (BCATS 2014)," Stanford University, Stanford, California, January 2014.

[503] Denker, K., Hamann, B. and Umlauf, G. (2014), On-line CAD reconstruction with accumulated means of local geometric properties, presented at: "Eighth International Conference on Curves and Surfaces," Paris, France, June 2014.

[502] Giménez, A., Gamblin, G. T., Rountree, B., Bhatele, A., Jusufi, I., Bremer, P.-T. and Hamann, B. (2014), Dissecting on-node memory access performance: a semantic approach, presented at: "Supercomputing 2014 (SC14)," New Orleans, Louisiana, November 2014.

[501] Hamann, B. (2014), Mathematical, visual and interactive methods for the processing and analysis of scientific data, invited presentation, Information Science and Technology Seminar Speaker Series and Data Science at Scale Summer School Speaker Series, Joint Los Alamos National Laboratory and UC Davis Institute of Next-generation Visualization and Analysis (INGVA), Los Alamos National Laboratory, Los Alamos, New Mexico, July 2014.

[500] Hamann, B. (2014), Selected efforts in visualization, approximation, geometric modeling and virtual reality, presented at: International Research Training Group (IRTG) kick-off meeting ("Physical Modeling for Virtual Manufacturing Systems and Processes"), University of California, Davis, October 2014.

[499] Isaacs, K. E., Bremer, P.-T., Jusufi, I., Gamblin, G. T., Bhatele, A., Schulz, M. W. J. and Hamann, B. (2014), Combing the communication hairball: Visualizing parallel execution traces using logical time, presented at: "IEEE Information Visualization Conference 2014 (InfoVis 2014)," Paris, France, November 2014.

[498] Isaacs, K. E., Gamblin, G. T., Bhatele, A., Bremer, P.-T., Schulz, M. W. J. and Hamann, B. (2014), Extracting logical structure and identifying stragglers in parallel execution traces, poster presentation, presented at: "Nineteenth ACM SIGPLAN Symposium on Principles and Practice of

Parallel Programming (PPoPP 2014)," Orlando, Florida, February 2014.

[497] Isaacs, K. E., Giménez, A., Jusufi, I., Gamblin, G. T., Bhatele, A., Schulz, M. W. J. Hamann, B. and Bremer, P.-T. (2014), State of the art of performance visualization, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2014), State-of-the-Art Reports (STARS)" Swansea, United Kingdom, June 2014.

[496] McCarthy, C. M., Isaacs, K. E., Bhatele, A., Bremer, P.-T. and Hamann, B. (2014), Visualizing the five-dimensional torus network of the IBM Blue Gene/Q, presented at: "First Workshop on Visual Performance Analysis (VPA)," New Orleans, Louisiana, November 2014.

[495] Pulido, J., Dutra da Silva, R., Sumner, D. Y., Pedrini, H. and Hamann, B. (2014), Constructing point clouds from underwater stereo movies, presented at: "Tenth International Symposium on Visual Computing (ISVC 14)," Las Vegas, Nevada, December 2014.

[494] Streletz, G. J., Kronenberger, M., Weber, C., Gebbie, G. A., Hagen, H., Hamann, B., Kreylos, O., Kellogg, L. H., Garth, C. and Spero, H. J. (2014), A comparison of methods for ocean reconstruction from sparse observations, poster presentation, presented at: "American Geophysical Union Fall Meeting 2014," San Francisco, California, December 2014.

[493] Aldrich, G. A., Gable, C. W., Painter, S. L., Makedonska, N., Hamann, B. and Woodring, J. L. (2013), Visualization and hierarchical analysis of flow in discrete fracture network models, poster presentation, presented at: "American Geophysical Union Fall Meeting 2013," San Francisco, California, December 2013.

[492] Banesh, D., Oskin, M. E., Mu, A. Y., Vu, C. N., Westerteiger, R., Krishnan, A., Hamann, B., Glennie, C. L., Hinojosa-Corona, A. and Borsa, A. A. (2013), Intercomparison of registration techniques and interactive 3D visualization of differential LiDAR from the 2010 El Mayor-Cucapah earthquake, poster presentation, presented at: "American Geophysical Union Fall Meeting 2013," San Francisco, California, December 2013.

[491] Bauer, J., Ebert, A., Kreylos, O. and Hamann, B. (2013), Generalized eyes-free interaction for use with large displays, presented at: "Workshop on Prototyping to Support the Interaction Designing in Mobile Application Development (PID-MAD 2013)," Munich, Germany, August 2013.

[490] Bauer, J., Ebert, A., Kreylos, O. and Hamann, B. (2013), Marking menus for eyes-free interaction using smart phones and tablets, presented at: "International Conference on Availability, Reliability and Security in Information Systems and HCI (ARES 2013) – International Cross-Domain Conference and Workshop (CD-ARES 2013), Regensburg, Germany, September 2013.

[489] Beketayev, K., Yeliussizov, D., Morozov, D., Weber, G. H. and Hamann, B. (2013), Measuring the distance between merge trees, presented at: "Topological Methods in Data Analysis and Visualization (TopoInVis 2013)," Davis, California, March 2013.

[488] Capps, A. G., Zawadzki, R. J., Werner, J. S. and Hamann, B. (2013), Combined volume registration and visualization, presented at: "Third International Workshop on Visualization in Medicine and Life Sciences 2013," Leipzig, Germany, June 2013.

[487] Denker, K., Hagel, D., Raible, J., Umlauf, G. and Hamann, B. (2013), On-line reconstruction of CAD geometry, presented at: "Three-dimensional Vision (3DV 2013)," Seattle, Washington, June/July 2013.

[486] Engel, D., Hummel, M., Höpel, F., Bein, K. J., Wexler, A. S., Garth, C., Hamann, B. and Hagen, H. (2013), Towards high-dimensional data analysis in air quality research, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2013)," Leipzig, Germany, June 2013.

[485] Gebbie, G. A., Spero, H. J., Hamann, B., Kellogg, L. H., Kreylos, O., Streletz, G. J., Lisiecki, L. E. and Peterson, C. D. (2013), The water-mass geometry of the glacial Atlantic in three dimensions,

poster presentation, presented at: "Eleventh International Conference on Paleoceanography (ICP 11)," Barcelona, Spain, September 2013.

[484] Giménez, A., Gamblin, G. T., Schulz, M. W. J., Bremer, P.-T., Bhatele, A. and Hamann, B. (2013), Dissecting memory access – A semantic approach, poster presentation, presented at: "Lawrence Livermore National Laboratory 2013 Student Poster Symposium," Strategic Human Resources Management and The Institutional Education Committee, Lawrence Livermore National Laboratory, Livermore, California, August 2013.

[483] Hamann, B. (2013), Selected efforts in geometric modeling, interactive data visualization and virtual reality at UC Davis, presented at: International Research Training Group (IRTG) Site Review ("Physical Modeling for Virtual Manufacturing Systems and Processes"), Kaiserslautern, Germany, February 2013.

[482] Isaacs, K. E., Bremer, P.-T., Schulz, M. W. J., Bhatele, A., Gamblin, G. T., and Hamann, B. (2013), Visualizing the behavior of large-scale parallel applications, poster presentation, presented at: "Lawrence Livermore National Laboratory 2013 Student Poster Symposium," Strategic Human Resources Management and The Institutional Education Committee, Lawrence Livermore National Laboratory, Livermore, California, August 2013.

[481] Peterson, C. D., Gebbie, G. A., Gerndt, A., Hagen, H., Hamann, B., Kellogg, L. H., Kreylos, O., Lisiecki, L. E., Spero, H. J., Streletz, G. J. and Westerteiger, R. (2013), 3D visualization of past ocean circulation, poster presentation, presented at: "Eleventh International Conference on Paleoceanography (ICP 11)," Barcelona, Spain, September 2013.

[480] Shafii, S., Obermaier, H., Hamann, B. and Joy, K. I. (2013), Topological features in glyph-based corotation visualization, presented at: "Topological Methods in Data Analysis and Visualization (TopoInVis 2013)," Davis, California, March 2013.

[479] Shafii, S., Obermaier, H., Kolář, V., Hlawitschka, M., Garth, C., Hamann, B. and Joy, K. I. (2013), Illustrative rendering of vortex cores, (presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2013)," Leipzig, Germany, June 2013.

[478] Shafii, S., Obermaier, H., Linn, R. R., Koo, E., Hlawitschka, M., Garth, C., Hamann, B. and Joy, K. I. (2013), Visualization and analysis of vortex-turbine intersections in wind farms, presented at: "IEEE Visualization 2013," Atlanta, Georgia, October 2013.

[477] Streletz, G. J., Gebbie, G. A., Hamann, B., Kreylos, O., Kellogg, L. H., and Spero, H. J. (2013), Flow-based ocean reconstructions from sparse observations, poster presentation, presented at: "American Geophysical Union Fall Meeting 2013," San Francisco, California, December 2013.

[476] Westerteiger, R., Streletz, G. J., Kreylos, O., Gebbie, G. A., Spero, H. J., Kellogg, L. H., Gerndt, A., Hamann, B. and Hagen, H. (2013), Exploration of time-dependent paleoceanographic flow data in virtual reality, presented at: "GeoViz Hamburg 2013," Hamburg, Germany, March 2013.

[475] Aldrich, G. A., Giménez, A., Kellogg, L. H. and Hamann, B. (2012), Crease surfaces for seismic wave data analysis and visualization, poster presentation (Visualization Showcase), presented at: "Extreme Science and Engineering Discovery Environment 2012 (XSEDE12)," Chicago, Illinois, July 2012.

[474] Banesh, D., Oskin, M. E., Wang, X., Kreylos, O. and Hamann, B. (2012), Various visualization techniques for exploring the El Mayor-Cucapah rupture using LiDAR, poster presentation, presented at: "2012 Southern California Earthquake Center Annual Meeting," Palm Springs, California, September 2012.

[473] Beketayev, K., Weber, G. H., Morozov, D., Abzhanov, A. and Hamann, B. (2012), Geometry-preserving topological landscapes, presented at: "Workshop at SIGGRAPH ASIA (WASA) 2012, Visualization Track," held in conjunction with "ACM SIGGRAPH ASIA 2012," Singapore, November 2012.

[472] Bhatele, A., Gamblin, G. T., Isaacs, K. E., Gunney, B. T. N., Schulz, M. W. J., Bremer, P.-T. and Hamann, B. (2012), Novel views of performance data to analyze large-scale adaptive applications, presented at: "Supercomputing 2012 (SC12)," Salt Lake City, Utah, November 2012.

[471] Bhatele, A., Gamblin, G. T., Langer, S. H., Bremer, P.-T., Draeger, E. W., Hamann, B., Isaacs, K. E., Landge, A. G., Levine, J. A., Pascucci, V., Schulz, M. W. J. and Still, C. H. (2012), Mapping applications with collectives over sub-communicators on torus networks, presented at: "Supercomputing 2012 (SC12)," Salt Lake City, Utah, November 2012.

[470] Demir, D., Beketayev, K., Weber, G. H., Bremer, P.-T., Pascucci, V., and Hamann, B. (2012), Topology exploration with hierarchical landscapes, presented at: "Workshop at SIGGRAPH ASIA (WASA) 2012, Visualization Track," held in conjunction with "ACM SIGGRAPH ASIA 2012," Singapore, November 2012.

[469] Engel, D., Greff, K., Garth, C., Bein, K. J., Wexler, A. S., Hamann, B. and Hagen, H. (2012), Visual steering and verification of mass spectrometry data factorization in air quality research, presented at: "IEEE Visualization 2012," Seattle, Washington, October 2012.

[468] Galambos, P., Weidig, C., Baranyi, P., Aurich, J. C., Hamann, B. and Kreylos, O. (2012), VirCA NET: A case study for collaboration in shared virtual space, presented at: "Third IEEE International Conference on Cognitive Infocommunications (CogInfoCom2012)," Kosice, Slovakia, December 2012.

[467] Galambos, P., Weidig, C., Zentay, P., Csapo, A., Baranyi, P., Aurich, J. C., Hamann, B. and Kreylos, O. (2012), VirCA NET: A collaborative use case scenario on factory layout planning, presented at: "Third IEEE International Conference on Cognitive Infocommunications (CogInfoCom2012)," Kosice, Slovakia, December 2012.

[466] Gold, P. O., Giménez, A., Hamann, B., Kellogg, L. H., Kreylos, O., McQuinn, S., Oskin, M. E., Schladow, S. G. and Segale, H. M. (2012), Interactive 3D visualization and virtual exploration of the Lake Tahoe Basin, presented at: "Environmental Restoration in a Changing Climate" (Tahoe Science Conference), Incline Village, Nevada, May 2012.

[465] Hamann, B. (2012), Experiences and viewpoints: Interdisciplinary research and graduate training in a time of increasing need for collaborative education and scholarship, invited presentation, Naval Postgraduate School, Monterey, California, June 2012.

[464] Hoyer, A. B., Giménez, A., Hamann, B., Rueda, F. J. and Schladow, S. G. (2012), Simulating and visualizing the expansion of the invasive Asian Clam in Lake Tahoe, presented at: "Environmental Restoration in a Changing Climate" (Tahoe Science Conference), Incline Village, Nevada, May 2012.

[463] Isaacs, K. E., Landge, A. G., Bhatele, A., Levine, J. A., Gamblin, G. T., Bremer, P.-T., Schulz, M. W. J., Pascucci, V. and Hamann, B. (2012), Visualizing the communication of large-scale applications, poster presentation, presented at: "Lawrence Livermore National Laboratory 2012 Student Poster Symposium," Strategic Human Resources Management and The Institutional Education Committee, Lawrence Livermore National Laboratory, Livermore, California, August 2012.

[462] Isaacs, K. E., Landge, A. G., Gamblin, G. T., Bremer, P.-T., Pascucci, V. and Hamann, B. (2012), Exploring performance data with Boxfish, electronic poster presentation, presented at: "Supercomputing 2012 (SC12)," Salt Lake City, Utah, November 2012.

[461] Menck, N., Yang, X., Weidig, C., Winkes, P., Lauer, C., Hagen, H., Hamann, B. and Aurich, J. C. (2012), Collaborative factory planning in virtual reality, presented at: "45th CIRP Conference on Manufacturing Systems (45th CIRP CMS 2012)," Athens, Greece, May 2012.

[460] Mouradian, J. A. V., Hamann, B. and Rosenbaum, R. (2012), A general approach for similarity-based linear projections using a genetic algorithm, presented at: "Electronic Imaging 2012," Burlingame, California, January 2012.

[459] Narayan, A., Sreevalsan-Nair, J., Gaither, K. P. and Hamann, B. (2012), Isosurface extraction from

hybrid unstructured grids containing pentahedral elements, presented at: "International Conference on Information Visualization Theory and Applications 2012 (IVAPP 2012)," Rome, Italy, February 2012.

[458] Oskin, M. E., Kreylos, O., Banesh, D., Hamann, B., Gold, P. O., Elliott, A. J., Hinojosa-Corona, A. and Kellogg, L. H. (2012), Three-dimensional LiDAR point-cloud visualization and analysis of coseismic deformation using LidarViewer, invited presentation at: "American Geophysical Union Fall Meeting 2012," San Francisco, California, December 2012.

[457] Rosenbaum, R., Engel, D., Mouradian, J. A. V., Hagen, H. and Hamann, B. (2012), Interpretation, interaction and scalability for structural decomposition trees, presented at: "International Conference on Information Visualization Theory and Applications 2012 (IVAPP 2012)," Rome, Italy, February 2012.

[456] Rosenbaum, R. and Hamann, B. (2012), Evaluation of progressive treemaps to convey tree and node properties, presented at: "Electronic Imaging 2012," Burlingame, California, January 2012.

[455] Rosenbaum, R. and Hamann, B. (2012), Raster image adaptation for mobile devices using profiles, presented at: "Electronic Imaging 2012," Burlingame, California, January 2012.

[454] Rosenbaum, R., Zhi, J. and Hamann, B. (2012), Progressive parallel coordinates, presented at: "Fifth IEEE Pacific Visualization Symposium (PacificVis 2012)," Songdo, South Korea, February/ March 2012.

[453] Streletz, G. J., Gebbie, G. A., Spero, H. J., Kreylos, O., Kellogg, L. H., and Hamann, B. (2012), Interpolating sparse scattered oceanographic data using flow information, poster presentation, presented at: "American Geophysical Union Fall Meeting 2012," San Francisco, California, December 2012.

[452] Sumner, D. Y., Crutchfield, J. P., Dumit, J., Hamann, B., Kellogg, L. H., Kreylos, O., Mackey, T. J. and Stevens, E. W. (2012), Collaborative visual interpretation of lage datasets, presented at: "Astrobiology Science Conference 2012," Atlanta, Georgia, April 2012.

[451] Weidig, C., Csapo, A., Aurich, J. C., Hamann, B. and Kreylos, O. (2012), VircaNET and CogInfoCom: Novel challenges in future Internet-based augmented/virtual collaboration, presented at: "Third IEEE International Conference on Cognitive Infocommunications (CogInfoCom2012)," Kosice, Slovakia, December 2012.

[450] Westerteiger, R., Compton, T., Bernardin, T. S., Cowgill, E. S., Gwinner, K., Hamann, B., Gerndt, A. and Hagen, H. (2012), Interactive retro-deformation of terrain for reconstructing 3D fault displacements, presented at: "IEEE Visualization 2012," Seattle, Washington, October 2012.

[449] Westerteiger, R., Chen, F., Gerndt, A., Hamann, B. and Hagen, H. (2012), Remote GPU-accelerated online pre-processing of raster maps for terrain rendering, presented at: "Ninth Workshop on Virtual Reality and Augmented Reality of the GI Expert's Group (VRAR 2012)," Düsseldorf, Germany, September 2012.

[448] Westerteiger, R., Gerndt, A., Hamann, B. and Hagen, H. (2012), Spatial analysis of terrain in virtual reality, presented at: "IEEE Virtual Reality 2012 Workshop Immersive Visualization Revisited – Challenges and Opportunities," Costa Mesa, California, March 2012.

[447] Williams, S. J., Petersen, M. R., Hecht, M. W., Maltrud, M. E., Ahrens, J. P., Patchett, J. M. and Hamann, B. (2012), Interface exchange as an indicator for eddy heat transport, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2012)," Vienna, Austria, June 2012.

[446] Aldrich, G. A., Kellogg, L. H. and Hamann, B. (2011), Crease surfaces for seismic wave data analysis and visualization, poster presentation, presented at: "American Geophysical Union Fall Meeting 2011," San Francisco, California, December 2011.

[445] Aldrich, G. A., Pinskiy, D. V. and Hamann, B. (2011), Collision-driven volumetric deformtaion on the GPU, short paper, presented at: "Eurographics 2011," Llandudno, Wales, United Kingdom, April 2011.

[444] Banesh, D., Oskin, M. E., Wang, X., Hamann, B. and Kellogg, L. H. (2011), Methods for analyzing the El Mayor-Cucapah earthquake rupture using LiDAR datasets, poster presentation, presented at: "American Geophysical Union Fall Meeting 2011," San Francisco, California, December 2011.

[443] Banesh, D., Oskin, M. E., Wang, X., Hamann, B. and Kellogg, L. H. (2011), Methods for analyzing the El Mayor-Cucapah earthquake rupture using LiDAR datasets, poster presentation, presented at: "2011 Southern California Earthquake Center Annual Meeting," Palm Springs, California, September 2011.

[442] Beketayev, K., Weber, G. H., Bremer, P.-T., Hlawitschka, M., Hamann, B. and Haranczyk, M. (2011), Topology-based visualization of transformation pathways in complex chemical systems using metro maps, poster presentation, presented at: "241st American Chemical Society (ACS) Meeting and Exposition," Anaheim, California, March 2011.

[441] Beketayev, K., Weber, G. H., Haranczyk, M., Bremer, P.-T., Hlawitschka, M. and Hamann, B. (2011), Topology-based visualization of transformation pathways in complex chemical systems, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2011)," Bergen, Norway, May/June 2011.

[440] Burkhart, D., Hamann, B. and Umlauf, G. (2011), Adaptive and feature-preserving subdivision for high-quality tetrahedral meshes, presented at: "Eurographics 2011," Llandudno, Wales, United Kingdom, April 2011.

[439] Burkhart, D., Hamann, B. and Umlauf, G. (2011), A subdivision method for high-quality tetrahedral meshes supporting isogeometric modeling and simulation, presentation at: "2011 SIAM Conference on Geometric and Physical Modeling" ("2011 SIAM Conference on Geometric Design and 2011 ACM Symposium on Solid and Physical Modeling (GD/SPM11)"), Orlando, Florida, October 2011.

[438] Capps, A. G., Zawadzki, R. J., Yang, Q., Arathorn, D. W., Vogel, C. R., Hamann, B. and Werner, J. S. (2011), Correction of eye-motion artifacts in AO-OCT data sets, presented at: "Photonics West – Biomedical Optics 2011," San Francisco, California, January 2011.

[437] Engel, D., Hüttenberger, L. and Hamann, B. (2011), A survey of dimension reduction methods for high-dimensional data analysis and visualization, invited presentation at: "Fifth Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, June 2011.

[436] Engel, D., Rosenbaum, R., Hamann, B. and Hagen, H. (2011), Structural decomposition trees, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2011)," Bergen, Norway, May/June 2011.

[435] Hamann, B. (2011), Perspective from the Office of Research: Research and research training in an age of increasing interdisciplinary and collaborative team science and scholarship, presented at: "Pharmacology and Toxicology Graduate Group Faculty Retreat," University of California, Davis, June 2011.

[434] Hlawitschka, M. W., Chen, F., Hagen, H., Bart, H.-J. and Hamann, B. (2011), CFD simulation of liquid-liquid extraction columns and visualization of Eulerian datasets, invited presentation at: "Fifth Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, June 2011.

[433] Huang, M.-Y., Mackey, L., Keränen, S. V. E., Weber, G. H., Jordan, M. I., Knowles, D. W., Biggin,

M. D. and Hamann, B. (2011), Visually relating gene expression and in vivo DNA binding data, presented at: "IEEE International Conference on Bioinformatics and Biomedicine 2011 (IEEE BIBM 2011)," Atlanta, Georgia, November 2011.

[432] Kellogg, L. H., Bernardin, T. S., Billen, M. I., Cowgill, E. S., Crutchfield, J. P., Elliott, A. J., Hamann, B., Harwood, C. L., Kreylos, O. and Sumner, D. Y. (2011), KeckCAVES: Enabling interactive visual exploration in virtual reality for the geosciences, poster presentation, presented at: "2011 GSA Annual Meeting," The Geological Society of America (GSA), Minneapolis, Minnesota, October 2011.

[431] Rosenbaum, R., Bottleson, J. O., Liu, Z. and Hamann, B. (2011), Involve me and I will understand! — Abstract data visualization in immersive environments, presented at: "Seventh International Symposium on Visual Computing (ISVC 11)," Las Vegas, Nevada, September 2011.

[430] Rosenbaum, R., Giménez, A., Schumann, H. and Hamann, B. (2011), A flexible, low-complexity device adaptation approach for data presentation, presented at: "Electronic Imaging 2011," San Francisco, California, January 2011.

[429] Tittmann, P. W., Shafii, S., Hartsough, B. R., Kreylos, O. and Hamann, B. (2011), Tree detection, delineation and measurement from LiDAR point clouds uisng RANSAC, presented at: "Eleventh International Conference on LiDAR Applications for Assessing Forest Ecosystems (SilviLaser 2011)," University of Tasmania, Hobart, Australia, October 2011.

[428] Westerteiger, R., Gerndt, A., Hagen, H. and Hamann, B. (2011), Spherical terrain rendering using the hierarchical HEALPix grid, invited presentation at: "Fifth Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, June 2011.

[427] Williams, S. J., Hecht, M. W., Petersen, M. R., Strelitz, R. A., Maltrud, M. E., Ahrens, J. P., Hlawitschka, M. and Hamann, B. (2011), Visualization and analysis of eddies in a global ocean simulation, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2011)," Bergen, Norway, May/June 2011.

[426] Williams, S. J., Petersen, M. R., Bremer, P.-T., Hecht, M. W., Pascucci, V., Ahrens, J. P., Hlawitschka, M. and Hamann, B. (2011), Adaptive extraction and quantification of geophysical vortices, presented at: "IEEE Visualization 2011," Providence, Rhode Island, October 2011.

[425] Yang, X., Hamann, B. and Aurich, J. C. (2011), Virtual reality supported visualization and evaluation of noise levels in manufacturing environments, invited presentation at: "Fifth Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, June 2011.

[424] Yang, X., Malak, R. C., Lauer, C., Weidig, C., Hagen, H., Hamann, B. and Aurich, J. C. (2011), Virtual reality enhanced manufacturing systems design, presented at: "Seventh International Conference on Digital Enterprise Technology (DET 2011)," Athens, Greece, September 2011.

[423] Aldrich, G. A., Pinskiy, D. V. and Hamann, B. (2010), Collision-based volumetric deformation on the GPU, presented at: "GPU Technology Conference 2011 (GTC 2010)," San Jose, California, September 2010.

[422] Bernardin, T. S., Cowgill, E. S., Kreylos, O., Hamann, B. and Kellogg, L. H. (2010), Crusta: A new virtual globe enabling remote geologic mapping, presented at: "2010 GSA Annual Meeting," The Geological Society of America (GSA), Denver, Colorado, October/November 2010.

[421] Bernardin, T. S., Gold, P. O., Elliott, A. J., Oskin, M. H., Cowgill, E. S., Kreylos, O., Hamann, B. and Kellogg, L. H. (2010), Mapping the El Mayor-Cucapah earthquake rupture using Crusta, a new virtual globe for remote field studies, presentated at: "American Geophysical Union Fall Meeting

2010," San Francisco, California, December 2010.

[420] Burkhart, D., Hamann, B. and Umlauf, G. (2010), Adaptive tetrahedral subdivision for finite element analysis, short paper, presented at: "Computer Graphics International 2010 (CGI 2010)," Nanyang Technological University, Singapore, June 2010.

[419] Burkhart, D., Hamann, B. and Umlauf, G. (2010), A survey on volumetric subdivision for finite element analysis, invited presentation at: "Fourth Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," University of California, Davis, Bodega Marine Laboratory (BML), Bodega Bay, California, March 2010.

[418] Burkhart, D., Hamann, B. and Umlauf, G. (2010), Iso-geometric finite element analysis based on Catmull-Clark subdivision solids, presented at: "Eurographics Symposium on Geometry Processing 2010 (SGP 2010)," Lyon, France, July 2010.

[417] Chen, F., Hamann, B., Obermaier, H. and Hagen, H. (2010), Topology analysis of time-dependent multi-fluid data using the Reeb graph, presented at: "Foundations of Topological Analysis Workshop 2010," Salt Lake City, Utah, October 2010.

[416] Cowgill, E. S., Bernardin, T. S., Oskin, M. E., Bowles, C. J., Yikilmaz, M. B., Kreylos, O., Elliott, A. J., Bishop, S. M., Gold, R. D., Morelan, A., Bawden, G. W., Hamann, B. and Kellogg, L. H. (2010), Earthquake behavior of the Enriquillo fault zone, Haiti, revealed by interactive terrain visualization, poster presentation, presented at: "American Geophysical Union Fall Meeting 2010," San Francisco, California, December 2010.

[415] Fowlkes, C. C., Luengo Hendriks, C. L., Keränen, S. V. E., Aswani, A. J., Weber, G. H., Rübel, O., Huang, M.-Y., DePace, A. H., Simirenko, L., Hamann, B., Eisen, M. B., Tomlin, C., Malik, J., Knowles, D. W. and Biggin, M. D. (2010), A 3D cellular resolution gene expression atlas for Drosophila embryogenesis, presented at: "Turning Images to Knowledge: Large-scale 3D Image Annotation, Management, and Visualization," Howard Hughes Medical Institute, Janelia Farm, Chevy Chase, Maryland, May 2010.

[414] Giménez, A., Rosenbaum, R., Hlawitschka, M. and Hamann, B. (2010), Using R-trees for interactive visualization of large multidimensional datasets, presented at: "Sixth International Symposium on Visual Computing (ISVC 10)," Las Vegas, Nevada, November/December 2010.

[413] Hamann, B. (2010), Data processing, analysis and visualization: a survey of selected research efforts, presented at: "Workshop on Collaboration between The Cyprus Institute and the University of California, Davis," The Cyprus Institute, Nicosia, Cyprus, December 2010.

[412] Hamann, B. (2010), Research at UC Davis, presented at: "Phase-II Kick-off Workshop of the International Research Training Group 'Visualization of Large Data Sets with Applications in Geospatial Planning, Modeling and Engineering'," University of California, Davis, Bodega Marine Laboratory (BML), Bodega Bay, California, March 2010.

[411] Huang, M.-Y., Weber, G. H., Li, X.-Y., Biggin, M. D. and Hamann, B. (2010), Quantitative visualization of ChIP-chip data by using linked views, presented at: "IEEE International Conference on Bioinformatics and Biomedicine 2010 (IEEE BIBM 2010), Workshop on Integrative Data Analysis in Systems Biology (IDASB)," Hong Kong, P. R. China, December 2010.

[410] Hummel, M., Garth, C., Hamann, B., Hagen, H. and Joy, K. I. (2010), IRIS: Illustrative rendering of integral surfaces, presented at: "IEEE Visualization 2010," Salt Lake City, Utah, October 2010.

[409] Rübel, O., Ahern, S., Bethel, E. W., Biggin, M. D., Childs, H. R., Cormier-Michel, E., DePace, A. H., Eisen, M. B., Fowlkes, C. C., Geddes, C. G. R., Hagen, H., Hamann, B., Huang, M.-Y., Keränen, S. V. E., Knowles, D. W., Luengo Hendriks, C. L., Malik, J., Meredith, J. S., Messmer, P., Prabhat, Ushizima, D. M., Weber, G. H. and Wu, K. (2010), A framework for knowledge discovery from

multivariate scientific data, Coupling visualization and data analysis for knowledge discovery from multi-dimensional scientific data, presented at: Tenth International Conference on Computational Science 2010 (ICCS 2010)," Amsterdam, The Netherlands, May/June 2010.

[408] Schurade, R., Hlawitschka, M., Hamann, B., Scheuermann, G., Knösche, T. R. and Anwander, A. (2010), Visualizing white matter fiber tracts with optimally fitted curved dissection surfaces, presented at: "Second Eurographics Workshop on Visual Computing for Biology and Medicine (VCBM 2010)," Leipzig, Germany, July 2010.

[407] Vasudevan, R., Lobaton, E. J., Kurillo, G., Bajcsy, R., Bernardin, T. S. and Hamann, B. (2010), A methodology for remote virtual interaction in tele-immersive environments, presented at: "2010 ACM Multimedia Systems," Scottsdale, Arizona, February 2010.

[406] Williams, S. J., Hlawitschka, M., Dillard, S. E., Thoma, D. and Hamann, B. (2010), Multi-region Delaunay complex segmentation, presented at: "Foundations of Topological Analysis Workshop 2010," Salt Lake City, Utah, October 2010.

[405] Zawadzki, R. J., Rowe, T. S., Fuller, A. R., Hamann, B. and Werner, J. S. (2010), Progress report on building an anatomically correct solid eye model with volumetric representation of retinal morphology, presented at: "2010 ARVO/ISIE (The Association for Research in Vision and Ophthalmology/International Society for Imaging in the Eye) Meeting," Fort Lauderdale, Florida, May 2010.

[404] Zawadzki, R. J., Rowe, T. S., Fuller, A. R., Hamann, B. and Werner, J. S. (2010), Towards building an anatomically correct solid eye model with volumetric representation of retinal morphology, presented at: "Photonics West – Biomedical Optics 2010," San Francisco, California, January 2010.

[403] Augsdörfer, U., Burkhart, D., Hamann, B., Mergheim, J. and Umlauf, G. (2009), Optimizing tetrahedral subdivision for FE applications, presented at: "Workshop on Subdivision and Refinability," Certoso di Pontignano, Università degli Studi di Siena, Italy, October 2009.

[402] Bernardin, T. S., Kreylos, O., Hamann, B., Bowles, C. J., Gold, P. O., Cowgill, E. S., and Kellogg, L. H. (2009), Crusta: Visualizing high-resolution global data, poster presentation, presented at: "American Geophysical Union Fall Meeting 2009," San Francisco, California, December 2009.

[401] Bethel, E. W., Johnson, C., Ahern, S., Bell, J. B., Bremer, P.-T., Childs, H. R., Cormier-Michel, E., Day, M., Deines, E., Fogal, T., Garth, C., Geddes, C. G. R., Hagen, H., Hamann, B., Hansen, C. D., Jacobsen, J. S., Joy, K. I., Krüger, J., Meredith, J. S., Messmer, P., Ostrouchov, G., Pascucci, V., Potter, K., Prabhat, Pugmire, D., Rübel, O., Sanderson, A., Silva, C. T., Ushizima, D. M., Weber, G. H., Whitlock, B. and Wu, K. (2009), Occam's razor and petascale visual data analysis, presented at: "Scientific Discovery through Advanced Computing (SciDAC) 2009," San Diego, California, June 2009.

[400] Bowles, C. J., Kreylos, O., Cowgill, E. S., Prentice, C., Kellogg, L. H. and Hamann, B. (2009) Identifying Pleistocene marine terraces along the northern California coast with new LiDAR visualization tools, poster presentation, presented at: "Sixth Annual Northern California Earthquake Hazards Workshop," U.S. Geological Survey (USGS), Menlo Park, California, January 2009.

[399] Burkhart, D., Hamann, B. and Umlauf, G. (2009), An adaptive tetrahedral subdivision scheme for finite element simulations, presented at: "2009 SIAM/ACM Joint Conference on Geometric and Physical Modeling," San Francisco, California, October 2009.

[398] Burkhart, D., Hamann, B. and Umlauf, G. (2009), Non-uniform tetrahedral subdivision, presented at: "2009 SIAM/ACM Joint Conference on Geometric and Physical Modeling," San Francisco, California, October 2009.

[397] Dillard, S. E., Thoma, D. and Hamann, B. (2009), Reconstructing cell complexes from cross-sections, presented at: "Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and

Applications (TopoInVis 2009)," Salt Lake City, Utah, February 2009.

[396] Eichelbaum, S., Hlawitschka, M., Hamann, B. and Scheuermann, G. (2009), Fabric-like visualization of tensor field data on arbitrary surfaces in image space, invited presentation at: "New Developments in the Visualization and Processing of Tensor Fields," Dagstuhl, Germany, July 2009.

[395] Eichelbaum, S., Hlawitschka, M., Hamann, B. and Scheuermann, G. (2009), Image space tensor field visualization for second-order diffusion tensor data, presented at: "Second International Workshop on Visualization in Medicine and Life Sciences," Bremerhaven, Germany, July 2009.

[394] Fuller, A. R., Zawadzki, R. J., Hamann, B. and Werner, J. S. (2009), Comparison of real-time visualization of volumetric OCT data sets by CPU-slicing and GPU-ray casting methods, presented at: "Photonics West – Biomedical Optics 2009," San Jose, California, January 2009.

[393] Gyulassy, A. G., Bremer, P.-T., Hamann, B. and Pascucci, V. (2009), Practical considerations in Morse-Smale complex computation, presented at: "Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications (TopoInVis 2009)," Salt Lake City, Utah, February 2009.

[392] Hagen, H. and Hamann, B. (2009), International Research Training Group 1131: Visualization of large and unstructured datasets – Applications in geospatial planning, modeling and engineering, presented at: "International Research Training Group (IRTG) Review," German Research Foundation (DFG), Bonn, Germany, March 2009.

[391] Hlawitschka, M., Anwander, A., Schurade, R., Knösche, T. R., Eichelbaum, S., Tittgemeyer, M., Carmichael, O. T., Scheuermann, G., Weber, G. H. and Hamann, B. (2009), Advanced techniques for visualizing diffusion data, presented at: "Second International Workshop on Visualization in Medicine and Life Sciences," Bremerhaven, Germany, July 2009.

[390] Hlawitschka, M., Hijazi, Y., Knoll, A. M., Anwander, A. and Hamann, B. (2010), Advanced techniques for visualizing diffusion data, presented at: "Second International Workshop on Visualization in Medicine and Life Sciences," Bremerhaven, Germany, July 2009.

[389] Kazhdan, M., Amenta, N., Gu, S., Wiley, D. F. and Hamann, B. (2009), Symmetry restoration by stretching, presented at: "21st Annual Canadian Conference on Computational Geometry," Vancouver, British Columbia, Canada, August 2009.

[388] Keller, P., Kreylos, O., Vančo, M., Hering-Bertram, M., Cowgill, E. S., Kellogg, L. H., Hamann, B. and Hagen, H. (2009), Extracting and visualizing structural features in environmental point cloud LiDaR data sets, presented at: "Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications (TopoInVis 2009)," Salt Lake City, Utah, February 2009.

[387] Keränen, S. V. E., DePace, A. H., Hammonds, A. S., Fisher, B., Rübel., O., Weber, G. H., Henriquez, C. N., Fowlkes, C. C., Luengo Hendriks, C. L., Simirenko, L., Bethel, E. W., Hagen, H., Hamann, B., Malik, J., Celniker, S. E., Knowles, D. W., Eisen, M. B. and Biggin, M. D. (2009), On computational analysis of quantitative, 3D spatial expression in Drosophila blastoderm, poster presentation, presented at: "Fifth Annual RECOMB Satellite on Systems Biology," Boston, Massachusetts, December 2009.

[386] Rosenbaum, R. and Hamann, B. (2009), Progressive presentation of large hierarchies using treemaps, presented at: "Fifth International Symposium on Visual Computing (ISVC 09)," Las Vegas, Nevada, November/December 2009.

[385] Rübel, O., Prabhat, Weber, G. H., Ushizima, D. M., Wu, K., Geddes, C. G. R., Cormier-Michel, E., Childs, H. R., Meredith, J. S., Ahern, S., Messmer, P., Hamann, B., Hagen, H. and Bethel, E. W. (2009), Analysis of particle beams in laser wakefield particle acceleration data, presented at: "2009 VACET All-hands Meeting," Scientific Computing Institute (SCI Institute), University of Utah, Salt Lake City, Utah, February 2009.

[384] Rübel, O., Weber, G. H., Huang, M.-Y., Biggin, M. D., Fowlkes, C. C., Luengo Hendriks, C. L., Keränen, S. V. E., Eisen, M. B., Knowles, D. W., Malik, J., Bethel, E. W., Hagen, H. and Hamann, B. (2009), Linking data analysis and visualization for the analysis of 3D gene expression data, presented at: "Second International Workshop on Visualization in Medicine and Life Sciences," Bremerhaven, Germany, July 2009.

[383] Schlemmer, M., Hotz, I., Hagen, H. and Hamann, B. (2009), Comparative visualization of two-dimensional flow data using moment invariants, presented at: "Fourteenth International Fall Workshop on Vision, Modeling, and Visualization 2009 (VMV 2009)," Braunschweig, Germany, November 2009.

[382] Sreevalsan-Nair, J., Auer, C., Hamann, B. and Hotz, I. (2009), Eigenvector-based interpolation and segmentation of 2D tensor fields, presented at: "Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications (TopoInVis 2009)," Salt Lake City, Utah, February 2009.

[381] Shafii, S., Hamann, B., Hutchinson, R. A., Kreylos, O. and Viers, J. H. (2009), Tree detection and delineation of the Cosumnes River Preserve, presented at: "Tenth International Conference on GeoComputation," University of New South Wales, Sydney, Australia, November/December 2009.

[380] Weber, G. H., Ahern, S., Bethel, E. W., Borovikov, S., Childs, H. R., Deines, E., Garth, C., Hagen, H., Hamann, B., Joy, K. I., Martin, D., Meredith, J. S., Prabhat, Pugmire, D., Rübel, O., Van Straalen, B. and Wu, K. (2010), Recent advances in VisIt: AMR streamlines and query-driven visualization, presented at: "ASTRONUM 2009 – Fourth International Conference on Numerical Modeling of Space Plasma Flows, Chamonix, France, June/July 2009.

[379] Wu, K., Ahern, S., Bethel, E. W., Chen, J. H., Childs, H. R., Cormier-Michel, E., Geddes, C. G. R., Gu, J., Hagen, H., Hamann, B., Koegler, W., Lauret, J., Meredith, J. S., Messmer, P., Otoo, E., Perevoztchikov, V., Poskanzer, A., Prabhat, Rübel, O., Shoshani, A., Sim, A., Stockinger, K., Weber, G. H. and Zhang, W.-M. (2009), FastBit: Interactively searching massive data, presented at: "Scientific Discovery through Advanced Computing (SciDAC) 2009," San Diego, California, June 2009.

[378] Zawadzki, R. J., Evans, J. W., Choi, S. S., Fuller, A. R., Hamann, B. and Werner, J. S. (2009), Large field-of-view cellular resolution mapping of in vivo retinas by ultra-high resolution adaptive optics-optical coherence tomography (UHR-AO-OCT), poster presentation, presented at: "2009 ARVO (The Association for Research in Vision and Ophthalmology) Annual Meeting," Fort Lauderdale, Florida, May 2009.

[377] Bernardin, T. S., Budge, B. C. and Hamann, B. (2008), Stacked-widget visualization of scheduling-based algorithms, presented at: "Fourth ACM Symposium on Software Visualization 2008 (SOFTVIS 2008)," Herrsching, Germany, September 2008).

[376] Bernardin, T. S., Budge, B. C. and Hamann, B. (2008), Visualization of parallel algorithm, multi-thread system behavior for scheduling, invited presentation at: "Third Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, September/October 2008.

[375] Burkhart, D., Umlauf, G. and Hamann, B. (2008), Subdivision schemes for volumetric finite elements, invited presentation at: "Third Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, September/October 2008.

[374] Deller, M., Agne, S., Ebert, A., Dengel, A., Hagen, H., Klein, B., Bender, M., Bernardin, T. S. and Hamann, B. (2008), Managing a document-based information space, presented at: "International

Conference on Intelligent User Interfaces (IUI 2008)," Maspalomas, Gran Canaria, Spain, January 2008.

[373] Dillard, S. E., Bingert, J. F., Thoma, D. and Hamann, B. (2008), Construction of simplified three-dimensional grain boundary surfaces from serial section micrographs, presented at: "2008 TMS (The Minerals, Metals and Materials Society) Annual Meeting and Exhibition," New Orleans, Louisiana, March 2008.

[372] Fuller, A. R., Zawadzki, R. J., Hamann, B. and Werner, J. S. (2008), Real-time interactive software for analysis of 3D OCT retinal data, presented at: "2008 ARVO (The Association for Research in Vision and Ophthalmology) Annual Meeting," Fort Lauderdale, Florida, April/May 2008.

[371] Gyulassy, A. G., Bremer, P.-T., Hamann, B. and Pascucci, V. (2008), A practical approach to Morse-Smale complex computation: Scalability and generality, winner of the "IEEE SciVis Test of Time Award 2008" (awarded in 2022), presented at: "IEEE Visualization 2008," Columbus, Ohio, October 2008.

[370] Hamann, B. (2008), Bridging cultures and disciplines: International and interdisciplinary doctoral student training preparing tomorrow's leaders, presentation at: International Research Training Group (IRTG) Site Review ("Visualization of large and unstructured data sets—Applications in geospatial planning, modeling, and engineering"), Kaiserslautern, Germany, September 2008.

[369] Hamann, B. (2008), Visual analysis and exploration of scientific data, invited presentation (distinguished lecture), Joint Los Alamos National Laboratory and UC Davis Materials Design Institute, Los Alamos National Laboratory, Los Alamos, New Mexico, August 2008.

[368] Keller, P., Hering-Bertram, M., Kreylos, O., Vančo, M., Cowgill, E. S., Kellogg, L. H., Hagen, H. and Hamann, B. (2008), Extracting and visualizing structural features in environmental point cloud LiDaR data sets, invited presentation at: "Third Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, September/October 2008.

[367] Keller, P., Kreylos, O., Hamann, B., Kellogg, L. H., Cowgill, E. S., Hering-Bertram, M. and Hagen, H. (2008), Extraction of features from high-resolution LiDaR point cloud data, poster presentation, presented at: "American Geophysical Union Fall Meeting 2008," San Francisco, California, December 2008.

[366] Kellogg, L. H., Billen, M. I., Hamann, B., Kreylos, O., Rundle, J. B., Van Aalsburg, J., Yikilmaz, M. B., and the KeckCAVES Group (2008), Interactive virtual reality methods for generating and visualizing earthquake simulations, presented at: "Sixth APEC Cooperation for Earthquake Simulation (ACES) International Workshop," Cairns, Australia, May 2008.

[365] Kellogg, L. H., Kreylos, O., Bernardin, T. S., Billen, M. I., Cowgill, E. S., Hamann, B., Jadamec, M. A., Sumner, D. Y., Van Aalsburg, J., and Yikilmaz, M. B. (2008), Interactive visualization to advance earthquake simulation, presented at: "2008 Association of Pacific Rim Universities (APRU) Research Symposium on Multi-Hazards Around the Pacific Rim," Davis, California, August 2008.

[364] Kellogg, L. H., Kreylos, O., Billen, M. I., Hamann, B., Jadamec, M. A., Rundle, J. B., Van Aalsburg, J. and Yikilmaz, M. B. (2008), Using interactive visualization to analyze solid earth data and geodynamics models, poster presentation, presented at: "American Geophysical Union Fall Meeting 2008," San Francisco, California, December 2008.

[363] Lehner, B., Umlauf, G. and Hamann, B. (2008), Video compression using data-dependent triangulations, winner of the "Outstanding Paper Award," presented at: "IADIS Multi-conference on Computer Science and Information Systems (MCCSIS) 2008 – International Conference on Computer Graphics and Visualization (CGV) 2008," Amsterdam, The Netherlands, July 2008.

[362] Luengo Hendriks, C. L., Keränen, S. V. E., Arbelaez, P., Weber, G. H., Fowlkes, C. C., Henriquez,

C. N., Kaszuba, D. W., Hamann, B., Malik, J., Biggin, D. W. and Knowles, D. W. (2008), A morphology and gene expression atlas of Drosophila embryogenesis, presented at: "49th Annual Drosophila Research Conference," San Diego, California, April 2008.

[361] Rübel, O., Prabhat, Wu, K., Childs, H. R., Meredith, J. S., Geddes, C. G. R., Cormier-Michel, E., Ahern, S., Weber, G. H., Messmer, P., Hagen, H., Hamann, B. and Bethel, E. W. (2008), Application of high-performance visual analysis methods to laser wakefield particle acceleration data, poster presentation, presented at: "IEEE Visualization 2008 – Posters," Columbus, Ohio, October 2008.

[360] Rübel, O., Prabhat, Wu, K., Childs, H. R., Meredith, J. S., Geddes, C. G. R., Cormier-Michel, E., Ahern, S., Weber, G. H., Messmer, P., Hagen, H., Hamann, B. and Bethel, E. W. (2008), High-performance multivariate visual data exploration for extremely large data, presented at: "Supercomputing 2008 (SC08)," Austin, Texas, November 2008.

[359] Rübel, O., Prabhat, Wu, K., Childs, H. R., Meredith, J. S., Geddes, C. G. R., Cormier-Michel, E., Ahern, S., Weber, G. H., Messmer, P., Hagen, H., Hamann, B. and Bethel, E. W. (2008), Visualization and analysis of multidimensional data, invited presentation at: "Third Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, September/October 2008.

[358] Ushizima, D. M., Rübel, O., Prabhat, Weber, G. H., Bethel, E. W., Aragon, C. R., Geddes, C. G. R., Cormier-Michel, E., Hamann, B., Messmer, P. and Hagen, H. (2008), Automated analysis for detecting beams in laser wakefield simulations, presented at: "The Seventh International Conference on Machine Learning and Applications 2008 (ICMLA '08)," San Diego, California, December 2008.

[357] Zawadzki, R. J., Fuller, A. R., Choi, S. S., Wiley, D. F., Hamann, B. and Werner, J. S. (2008), Improved representation of retinal data acquired with volumetric Fd-OCT: Co-registration, visualization and reconstruction of a large field of view, presented at: "Photonics West – Biomedical Optics 2008," San Jose, California, January 2008.

[356] Dillard, S. E., Bingert, J. F., Thoma, D. and Hamann, B. (2007), Construction of simplified boundary surfaces from serial-sectioned metal micrographs, presented at: "IEEE Visualization 2007," Sacramento, California, October/November 2007.

[355] Dillard, S. E., Slankard, T. W., Bingert, J. F., Hamann, B. and Thoma, D. (2007), Three-dimensional visualization and analysis of polycrystal structure, poster presentation, presented at: "Dedication of the National Security Education Center (NSEC)," Los Alamos National Laboratory, Los Alamos, New Mexico, August 2007.

[354] Dillard, S. E., Slankard, T. W., Hamann, B. and Bingert, J. F. (2007), Automatically identifying tantalum grain structures, poster presentation, presented at: "2007 TMS (The Minerals, Metals and Materials Society) Annual Meeting and Exhibition," Orlando, Florida, February/March 2007.

[353] Forte, A. M., Cowgill, E. S., Bernardin, T. S., Kreylos, O. and Hamann, B. (2007), Focusing of 50-80% of total Arabia-Eurasia convergence since 5 Ma along the southern margin of the Greater Caucasus: Effect of strain localization along the margins of a rigid inclusion within a young orogen? poster presentation, presented at: "American Geophysical Union Fall Meeting 2007," San Francisco, California, December 2007.

[352] Fowlkes, C. C., Luengo Hendriks, C. L., Keränen, S. V. E., DePace, A. H., Weber, G. H., Rübel, O., Huang, M.-Y., Chatoor, S., Simirenko, L., Henriquez, C. N., Beaton, A., Weiszmann, R., Celniker, S. E., Hamann, B., Eisen, M. B., Knowles, D. W., Biggin, M. D. and Malik, J. (2007), Building a quantitative spatio-temporal atlas of gene expression in the Drosophila blastoderm, presented at: "The Eighth International Conference on Systems Biology (ICSB 2007)," Long Beach, California, October 2007.

[351] Fuller, A. R., Krishnan, H., Mahrous, K. M., Hamann, B. and Joy, K. I. (2007), Real-time procedural volumetric fire, presented at: "ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (i3D) 2007," Seattle, Washington, April/May 2007.

[350] Fuller, A. R., Zawadzki, R. J., Choi, S. S., Wiley, D. F., Werner, J. S. and Hamann, B. (2007), An approach to interactive segmentation of three-dimensional retinal image data, work-in-progress seminar presentation, Applied Physics and Biophysics (AP) Division, Lawrence Livermore National Laboratory, Livermore, California, November 2007.

[349] Fuller, A. R., Zawadzki, R. J., Choi, S. S., Wiley, D. F., Werner, J. S. and Hamann, B. (2007), Recent advances with segmenting three-dimensional retinal image data, presented at: "14th Annual Signal and Imaging Sciences Conference," Lawrence Livermore National Laboratory, Livermore, California, November 2007.

[348] Fuller, A. R., Zawadzki, R. J., Choi, S. S., Wiley, D. F., Werner, J. S. and Hamann, B. (2007), Segmentation of three-dimensional retinal image data, presented at: "IEEE Visualization 2007," Sacramento, California, October/November 2007.

[347] Gold, P. O., Gold, R. D., Cowgill, E. S., Kreylos, O. and Hamann, B. (2007), Efficient, off-grid LiDAR scanning of remote field sites, poster presentation, presented at: "American Geophysical Union Fall Meeting 2007," San Francisco, California, December 2007.

[346] Gu, S., Poch, O., Hamann, B. and Koehl, P. (2007), The geometric representation of protein sequences, presented at: "IEEE International Conference on Bioinformatics and Biomedicine 2007 (IEEE BIBM 2007)," Fremont, California, November 2007.

[345] Gyulassy, A. G., Duchaineau, M. A., Natarajan, V., Pascucci, V., Bringa, E. M., Higginbotham, A. and Hamann, B. (2007), Topologically clean distance fields, presented at: "IEEE Visualization 2007," Sacramento, California, October/November 2007.

[344] Gyulassy, A. G., Natarajan, V., Pascucci, V. and Hamann, B. (2007), Efficient computation of Morse-Smale complexes for three-dimensional scalar functions, presented at: "IEEE Visualization 2007," Sacramento, California, October/November 2007.

[343] Hamann, B. (2007), A survey of projects done in collaboration with UC Davis, invited presentation at: "Second Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, September 2007.

[342] Hamann, B. (2007), Multidisciplinary and interdisciplinary research and graduate training and education, invited presentation, University of Nevada, Las Vegas, May 2007.

[341] Hamann, B. (2007), The increasing importance of data sciences and research computing at UC Davis, invited presentation, External Research Advisory Board meeting, University of California, Davis, California, November 2007.

[340] Hlawitschka, M., Scheuermann, G., Anwander, A., Knösche, T. R., Tittgemeyer, M. and Hamann, B. (2007), Tensor lines in tensor fields of arbitrary order, presented at: "Third International Symposium on Visual Computing (ISVC 07)," Stateline, Nevada, November 2007.

[339] Hlawitschka, M., Scheuermann, G. and Hamann, B. (2007), Interactive glyph placement for tensor fields: Glyph packing revisited, presented at: "Third International Symposium on Visual Computing (ISVC 07)," Stateline, Nevada, November 2007.

[338] Hlawitschka, M., Weber, G. H., Anwander, A., Carmichael, O. T., Hamann, B. and Scheuermann, G. (2007), Interactive volume rendering of diffusion tensor data, invited presentation at: "Visualization and Processing of Tensor Fields," Dagstuhl, Germany, January 2007.

[337] Hotz, I., Feng, Z. X., Hamann, B. and Joy, K. I. (2007), Anisotropic noise samples for tensor visualization, invited presentation at: "Visualization and Processing of Tensor Fields," Dagstuhl,

Germany, January 2007.

[336] Kellogg, L. H., Bawden, G. W., Billen, M. I., Cowgill, E. S., Hamann, B., Jadamec, M. A. and Kreylos, O. (2007) Immersive virtual reality for interaction and visualization of 3D geophysical data, poster presentation, presented at: "EarthScope National Meeting," Monterey, California, March 2007.

[335] Kellogg, L. H., Jadamec, M. A., Billen, M. I., Kreylos, O. and Hamann, B. (2007), Interactive visualization of geophysical data and simulations, presented at: "The Seismological Society of America 2007 Annual Meeting," Waikoloa, Hawaii, April 2007.

[334] Keränen, S. V. E., Luengo Hendriks, C. L., Fowlkes, C. C., Simirenko, L., Weber, G. H., Rübel, O., Huang, M.-Y., DePace, A. H., Henriquez, C. N., Li, X.-Y., Chu, H. C., Kaszuba, D. W., Beaton, A., Celniker, S. E., Hamann, B., Eisen, M. B., Malik, J., Knowles, D. W. and Biggin, M. D. (2007), Virtual embryos as tools for 3D gene expression analyses, poster presentation, presented at: "Fifteenth Annual International Conference on Intelligent Systems for Molecular Biology (ISMB) and Sixth European Conference on Compuational Biology (ECCB)," Vienna, Austria, July 2007.

[333] Keränen, S. V. E., Luengo Hendriks, C. L., Fowlkes, C. C., Simirenko, L., Weber, G. H., Rübel, O., Huang, M.-Y., DePace, A. H., Henriquez, C. N., Li, X.-Y., Chu, H. C., Kaszuba, D. W., Beaton, A., Celniker, S. E., Hamann, B., Eisen, M. B., Malik, J., Knowles, D. W. and Biggin, M. D. (2007), Virtual embryos as tools for 3D gene expression analyses, poster presentation, presented at: "Computational Cell Biology," Cold Spring Harbor, New York, March 2007.

[332] Knowles, D. W., Luengo Hendriks, C. L., Keränen, S. V. E., Fowlkes, C. C., DePace, A. H., Weber, G. H., Rübel, O., Huang, M.-Y., Hamann, B., Eisen, M. B., Malik, J. and Biggin, M. D. (2007), Berkeley Drosophila transcription network project: morphology and gene expression atlas, presented at: "Genome Informatics," Cold Spring Harbor, New York, November 2007.

[331] Kreylos, O., Bawden, G. W., Billen, M. I., Cowgill, E. S., Hamann, B., Jadamec, M. A., Kellogg, L. H., Staadt, O. G. and Sumner, D. Y. (2007), Interactive immersive visualization of geoscience data, software demonstration, presented at: "Geoinformatics 2007 – Data to Knowledge," San Diego, California, May 2007.

[330] Lehner, B., Umlauf, G. and Hamann, B. (2007), Generalized swap operations on tetrahedral meshes, presented at: "Tenth SIAM Conference on Geometric Design and Computing," San Antonio, Texas, November 2007.

[329] Lehner, B., Umlauf, G. and Hamann, B. (2007), Image compression using data-dependent triangulations, presented at: "Third International Symposium on Visual Computing (ISVC 07)," Stateline, Nevada, November 2007.

[328] Lehner, B., Umlauf, G. and Hamann, B. (2007), Survey of techniques for data-dependent triangulations, invited presentation at: "Second Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, September 2007.

[327] Luengo Hendriks, C. L., Fowlkes, C. C., Keränen, S. V. E., Simirenko, L., Weber, G. H., Rübel, O., Huang, M.-Y., DePace, A. H., Henriquez, C. N., Li, X.-Y., Chu, H. C., Kaszuba, D. W., Beaton, A., Celniker, S. E., Hamann, B., Eisen, M. B., Malik, J., Knowles, D. W. and Biggin, M. D. (2007), Virtual embryos as tools for 3D gene expression analyses, poster presentation, presented at: "48th Annual Drosophila Research Conference," Philadelphia, Pennsylvania, March 2007.

[326] Luengo Hendriks, C. L., Keränen, S. V. E., Fowlkes, C. C., Simirenko, L., Weber, G. H., DePace, A. H., Henriquez, C. N., Kaszuba, D. W., Hamann, B., Eisen, M. B., Malik, J., Sudar, J. D., Biggin, M. D. and Knowles, D. W. (2007), 3D morphology and gene expression in the Drosophila blastoderm at cellular resolution I: data acquisition pipeline, Drosophila Image Award finalist entry (poster) at: "48th Annual Drosophila Research Conference," Philadelphia, Pennsylvania, March 2007.

[325] Luengo Hendriks, C. L., Keränen, S. V. E., Fowlkes, C. C., Simirenko, L., Weber, G. H., DePace, A. H., Henriquez, C. N., Kaszuba, D. W., Hamann, B., Eisen, M. B., Malik, J., Sudar, J. D., Biggin, M. D. and Knowles, D. W. (2007), Three-dimensional morphology and gene expression in the Drosophila blastoderm at cellular resolution I: data acquisition pipeline, and Keränen, S. V. E., Fowlkes, C. C, Luengo Hendriks, C. L., Sudar, J. D., Knowles, D. W., Malik, J. and Biggin, M. D. (2007), Three-dimensional morphology and gene expression in the Drosophila blastoderm at cellular resolution II: dynamics, presented at: "Fifteenth Annual International Conference on Intelligent Systems for Molecular Biology (ISMB) and Sixth European Conference on Compuational Biology (ECCB)," Vienna, Austria, July 2007.

[324] Rübel, O., Weber, G. H., Huang, M.-Y., Bethel, E. W., Biggin, M. D., Fowlkes, C. C., Luengo Hendriks, C. L., Keränen, S. V. E., Eisen, M. B., Knowles, D. W., Malik, J., Hagen, H. and Hamann, B. (2007), Applications of visualization and data clustering to 3D gene expression data, poster presentation, presented at: "IEEE Visualization 2007 – Posters," Sacramento, California, October/November 2007.

[323] Rübel, O., Weber, G. H., Huang, M.-Y., Bethel, E. W., Keränen, S. V. E., Fowlkes, C. C., Luengo Hendriks, C. L., DePace, A. H., Simirenko, L., Eisen, M. B., Biggin, M. D., Hagen, H., Malik, J., Knowles, D. W. and Hamann, B. (2007), PointCloudExplore 2: Visual exploration of 3D gene expression, invited presentation at: "Second Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Kaiserslautern, Germany, September 2007.

[322] Rübel, O., Weber, G. H., Keränen, S. V. E., Fowlkes, C. C., Luengo Hendriks, C. L., Simirenko, L., Shah, N. Y., Eisen, M. B., Biggin, M. D., Hagen, H., Sudar, J. D., Malik, J., Knowles, D. W. and Hamann, B. (2007), Parallel coordinates allow visualization of expression correlations between many genes, Drosophila Image Award finalist entry (poster) at: "48th Annual Drosophila Research Conference," Philadelphia, Pennsylvania, March 2007.

[321] Rübel, O., Weber, G. H., Keränen, S. V. E., Fowlkes, C. C., Luengo Hendriks, C. L., Simirenko, L., Shah, N. Y., Eisen, M. B., Biggin, M. D., Hagen, H., Sudar, J. D., Malik, J., Knowles, D. W. and Hamann, B. (2007), Visualization using an unrolled blastoderm representation reveals quantitative differences in pair rule expression between stripes and along the dorsal/ventral axis, Drosophila Image Award entry (poster) at: "48th Annual Drosophila Research Conference," Philadelphia, Pennsylvania, March 2007.

[320] Schlemmer, M., Heringer, M., Morr, F., Hotz, I., Hering-Bertram, M., Garth, C., Kollmann, W., Hamann, B. and Hagen, H. (2007), Moment invariants for the analysis of 2D flow fields, presented at: "IEEE Visualization 2007," Sacramento, California, October/November 2007.

[319] Schlemmer, M., Hotz, I., Hamann, B., Morr, F. and Hagen, H. (2007), Priority streamlines: a context-based visualization of flow fields, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2007)," Norrköping, Sweden, May 2007.

[318] Slankard, T. W., Dillard, S. E., Bingert, J. F. and Hamann, B. (2007), Grain boundary reconstruction from micrographs of shocked tantalum samples, poster presentation, presented at: "2007 TMS (The Minerals, Metals and Materials Society) Annual Meeting and Exhibition," Orlando, Florida, February/March 2007.

[317] Sreevalsan-Nair, J., Van Nieuwenhuyse, E. E., Hotz, I., Linsen, L., and Hamann, B. (2007), An interactive visual exploration tool for Northern California's water monitoting network, presented at: "Electronic Imaging 2007," San Jose, California, January/February 2007.

[316] Sreevalsan-Nair, J., Verhoeven, M., Woodruff, D. L., Hotz, I. and Hamann, B. (2007), Human-guided enhancement of a stochastic local search: Visualization and adjustment of 3D pheromone, presented

at: "Engineering Stochastic Local Search Algorithms (SLS) 2007," Brussels, Belgium, September 2007.

[315] Storm, W., Hart, L. A., Wiley, D. F., Hamann, B. and Molinaro, M. (2007), BioSafaris: a free and interactive safari through the human body, workshop presentation, presented at: "2007 California Science Education Conference," Long Beach, California, October 2007.

[314] Van Nieuwenhuyse, E. E., Sreevalsan-Nair, J., Hotz, I., Linsen, L., and Hamann, B. (2007), Demonstration of an interactive data visualization tool for water resource monitoring networks in the Delta ad its catchment, software demonstration, presented at: "Interagency Ecological Program 2007 Annual Workshop," Pacific Grove, California, February 2007.

[313] Wood, M. W., Hart, L. A., Wiley, D. F., Molinaro, M., Storm, W., Hamann, B., Stevenson, F. T. and Meyers, S. (2007), BioSafaris: Software improving biology and health education – a prototype, presented at: "Sixth World Congress on Alternatives and Animal Use in the Life Sciences," Tokyo, Japan, August 2007.

[312] Zawadzki, R. J., Fuller, A. R., Choi, S. S., Wiley, D. F., Hamann, B. and Werner, J. S. (2007), Correction of motion artifacts and scanning beam distortions in 3D ophthalmic optical coherence tomography imaging, presented at: "Photonics West – Biomedical Optics 2007," San Jose, California, January 2007.

[311] Ahlborn, B. A., Kreylos, O., Hamann, B. and Staadt, O. G. (2006), A foveal inset for large display environments, poster presentation, presented at: "IEEE Virtual Reality 2006," Alexandria, Virginia, March 2006.

[310] Bernardin, T. S., Cowgill, E. S., Gold, R. D., Hamann, B. Kreylos, O. and Schmitt, A. (2006), Interactive mapping on virtual terrain models using RIMS (Real-time Interactive Mapping System), presented at: "American Geophysical Union Fall Meeting 2006," San Francisco, California, December 2006.

[309] Bethel, E. W., Johnson, C., Hansen, C. D., Parker, S., Sanderson, A., Silva, C. T., Tricoche, X., Pascucci, V., Childs, H. R., Cohen, J. D., Duchaineau, M. A., Laney, D. E., Lindstrom, P., Ahern, S., Meredith, J. S., Ostrouchov, G., Joy, K. I. and Hamann, B. (2006), Meet the proposed SciDAC2 Visualization and Analytics Center for Enabling Technologies, poster presentation, presented at: "Scientific Discovery through Advanced Computing (SciDAC) 2006," Denver, Colorado, June 2006.

[308] Bethel, E. W., Johnson, C., Hansen, C. D., Parker, S., Sanderson, A., Silva, C. T., Tricoche, X., Pascucci, V., Childs, H. R., Cohen, J. D., Duchaineau, M. A., Laney, D. E., Lindstrom, P., Ahern, S., Meredith, J. S., Ostrouchov, G., Joy, K. I. and Hamann, B. (2006), VACET: Proposed SciDAC2 Visualization and Analytics Center for Enabling Technologies, presented at: "Scientific Discovery through Advanced Computing (SciDAC) 2006," Denver, Colorado, June 2006.

[307] Cowgill, E. S., Forte, A. M., Bernardin, T. S., Kreylos, O. and Hamann, B. (2006), RIMS: A real-time, interactive mapping system for neotectonic/geologic investigation of digital terrain data, software demonstration, presented at: "Geoinformatics 2006," Reston, Virginia, May 2006.

[306] Crawford, C. W., Kreylos, O., Crivelli, S. N. and Hamann, B. (2006), Visualization of force fields in protein structure prediction, IEEE Computer Society Press, Los Alamitos, California presented at: "Photonics West – Electronic Imaging 2006," San Jose, California, January 2006.

[305] DePace, A. H., Keränen, S. V. E., Luengo Hendriks, C. L., Fowlkes, C. C., Weber, G. H., Rübel, O., Huang, M.-Y., Simirenko, L., Hamann, B., Malik, J., Knowles, D. W., Biggin, M. D. and Eisen, M. B. (2006), Building a 3-dimensional atlas of gene expression in multiple Drosophila species, presented at: "The Biology of Genomes," Cold Spring Harbor, New York, May 2006.

[304] Dillard, S. E., Slankard, T. W. and Hamann, B. (2006), Reconstructing 3D structure from 2D micrographs, poster presentation, presented at: "Materials Design Institute Educational Research Sympo-

sium," University Institutes, Los Alamos National Laboratory, Los Alamos, New Mexico, September 2006.

[303] Dillard, S. E., Natarajan, V., Weber, G. H., Pascucci, V. and Hamann, B. (2006), Tessellation of quadratic elements, presented at: "The Seventeenth International Symposium on Algorithms and Computation (ISAAC 2006)," Kalkota, India, December 2006.

[302] Fowlkes, C. C., Luengo Hendriks, C. L., Keränen, S. V. E., DePace, A. H., Weber, G. H., Rübel, O., Huang, M.-Y., Simirenko, L., Hamann, B., Eisen, M. B., Sudar, J. D., Knowles, D. W., Biggin, M. D. and Malik, J. (2006), Complex interactions between D/V and A/P patterning systems before gastrulation revealed by a 3-D atlas of gene expression patterns, presented at: "47th Annual Drosophila Research Conference," Houston, Texas, March/April 2006.

[301] Fuller, A. R., Krishnan, H., Mahrous, K. M., Hamann, B. and Joy, K. I. (2006), Real-time procedural volumetric fire, poster presentation, presented at: "ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (i3D) 2006," Redwood City, California, March 2006.

[300] Hamann, B. (2006), An overview of selected research efforts at the UC Davis Institute for Data Analysis and Visualization, invited seminar presentation, Joint Genome Institute, Walnut Creek, California, December 2006.

[299] Hamann, B. (2006), A survey of mathematically oriented visual data exploration research, presented at: "UC Davis Graduate Group of Applied Mathematics Graduate Student Mini-Conference," University of California, Davis, California, April 2006.

[298] Hamann, B. (2006), A survey of selected visual data exploration efforts at UC Davis, meeting of the College of Engineering National Laboratories Research Advisory Board, University of California, Davis, California, January 2006.

[297] Hamann, B. (2006), Selected data visualization research efforts at UC Davis, presented at: "Planning Meeting Concerning a Potential University of California Multicampus Research Unit in Space and Earth Observation Sciences (SEOS)," University of California, Davis, April 2006.

[296] Hotz, I., Park, S. W., Yu, H., Kreylos, O., Linsen, L. and Hamann, B. (2006), Visualizing flow structure by identifying and emphasizing high-density particle regions, invited presentation at: "First Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Dagstuhl, Germany, June 2006.

[295] Keränen, S. V. E., Luengo Hendriks, C. L., Fowlkes, C. C., Weber, G. H., Rübel, O., Huang, M.-Y., Simirenko, L., DePace, A. H., Peng, H., Eisen, M. B., Hamann, B., Malik, J., Knowles, D. W., Sudar, J. D. and Biggin, M. D. (2006), Spatio-temporal expression analysis at cellular resolution in the Drosophila embryo reveals new dynamics of morphology and gene expression, presented at: "Systems Biology: Global Regulation of Gene Expression," Cold Spring Harbor, New York, March 2006.

[294] Keränen, S. V. E., Luengo Hendriks, C. L., Fowlkes, C. C., Weber, G. H., Rübel, O., Huang, M.-Y., Henriquez, C. N., Peng, H., Simirenko, L., Sudar, J. D., Hamann, B., Malik, J., Eisen, M. B., Biggin, M. D. and Knowles, D. W. (2006), A morphogenetic framework for analyzing gene expression in Drosophila melanogaster blastoderms, poster presentation, presented at: "47th Annual Drosophila Research Conference," Houston, Texas, March/April 2006.

[293] Keränen, S. V. E., Luengo Hendriks, C. L., Fowlkes, C. C., Weber, G. H., Rübel, O., Huang, M.-Y., Simirenko, L., DePace, A. H., Henriquez, C. N., Peng, H., Sudar, J. D., Hamann, B., Malik, J., Eisen, M. B., Biggin, M. D. and Knowles, D. W. (2006), A morphogenetic framework for analyzing gene expression in Drosophila melanogaster blastoderms, poster presentation, presented at: "Integrating Evolution, Development, and Genomics 2006," University of California, Berkeley, California, May/June 2006.

[292] Knowles, D. W., Luengo Hendriks, C. L., Keränen, S. V. E., Fowlkes, C. C., Weber, G. H., Rübel, O., Huang, M.-Y., Peng, H., DePace, A. H., Simirenko, L., Hamann, B., Sudar, J. D., Malik, J., Eisen, M. B. and Biggin, M. D. (2006), Berkeley Drosophila transcription network project: 3D blastoderm gene expression atlas, presented at: "47th Annual Drosophila Research Conference," Houston, Texas, March/April 2006.

[291] Kreylos, O., Bawden, G. W., Bernardin, T. S., Billen, M. I., Cowgill, E. S., Gold, R. D., Hamann, B., Jadamec, M. A., Kellogg, L. H., Staadt, O. G. and Sumner, D. Y. (2006), Enabling scientific workflows in virtual reality, presented at: "ACM SIGGRAPH International Conference on Virtual Reality Continuum and Its Applications 2006 (VRCIA 2006)," Hong Kong, P. R. China, June 2006.

[290] Kreylos, O., Billen, M. I., Kellogg, L. H., Hamann, B., Staadt, O. G., Sumner, D. Y. and Jadamec, M. A. (2006), Environment-independent 3D visualization software for geo-science applications, presented at: "American Geophysical Union Fall Meeting 2006," San Francisco, California, December 2006.

[289] Luengo Hendriks, C. L., Keränen, S. V. E., Fowlkes, C. C., Weber, G. H., Huang, M.-Y., Rübel, O., Hamann, B., Sudar, J. D., Malik, J., Biggin, M. D. and Knowles, D. W. (2006), Quantitative live imaging describes morpho-genetic nuclear movements in early Drosophila embryo, presented at: "International Society for Analytical Cytology (ISAC) XXIII Congress," Québec City, Quebec, Canada, May 2006.

[288] Luengo Hendriks, C. L., Keränen, S. V. E., Fowlkes, C. C., Weber, G. H., Rübel, O., Huang, M.-Y., Peng, H., DePace, A. H., Simirenko, L., Hamann, B., Sudar, J. D., Malik, J., Eisen, M. B., Biggin, M. D. and Knowles, D. W. (2006), Quantitative imaging describes morphogenetic nuclear movements prior to gastrulation, poster presentation, presented at: "47th Annual Drosophila Research Conference," Houston, Texas, March/April 2006.

[287] Natarajan, V., Wang, Y., Bremer, P.-T., Pascucci, V. and Hamann, B. (2006), Segmenting protein surfaces, presented at: "International Workshop on Visualization in Medicine and Life Sciences," Binz, Rügen, Germany, July 2006.

[286] Park, S. W., Yu, H., Hotz, I., Kreylos, O., Linsen, L. and Hamann, B. (2006), Structure-accentuating dense flow visualization, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2006)," Lisbon, Portugal, May 2006.

[285] Rübel, O., Weber, G. H., Keränen, S. V. E., Fowlkes, C. C., Luengo Hendriks, C. L., Simirenko, L., Shah, N. Y., Eisen, M. B., Biggin, M. D., Hagen, H., Sudar, J. D., Malik, J., Knowles, D. W. and Hamann, B. (2006), PointCloudXplore: a visualization tool for 3D gene expression data, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2006)," Lisbon, Portugal, May 2006.

[284] Rübel, O., Weber, G. H., Huang, M.-Y., Fowlkes, C. C., Keränen, S. V. E., Luengo Hendriks, C. L., Shah, N. Y., Simirenko, L., Eisen, M. B., Biggin, M. D., Hagen, H., Sudar, J. D., Malik, J., Knowles, D. W. and Hamann, B. (2006), PointCloudExplore: Visual analysis of 3D gene expression data, invited presentation at: "First Annual International Research Training Group (IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Dagstuhl, Germany, June 2006.

[283] Rueda-Velásquez, C. A., Gertz, M., Ludäscher, B. and Hamann, B. (2006), An extensible infrastructure for processing distributed geospatial data streams, presented at: "Eighteenth International Conference on Scientific and Statistical Database Management (SSDBM 2006)," Vienna, Austria, July 2006.

[282] Schlemmer, M., Hagen, H., Hotz, I. and Hamann, B. (2006), Clifford pattern matching for color image edge detection, invited presentation at: "First Annual International Research Training Group

(IRTG) Workshop: Visualization of Large and Unstructured Data Sets—Applications in Geospatial Planning, Modeling, and Engineering," Dagstuhl, Germany, June 2006.

[281] Slankard, T. W., Dillard, S. E., Hamann, B. and Bingert, J. F. (2006), Automatically identifying tantalum grain structures, poster presentation, presented at: "Materials Design Institute Educational Research Symposium," University Institutes, Los Alamos National Laboratory, Los Alamos, New Mexico, September 2006.

[280] Slankard, T. W., Owens, J. D., Hamann, B. and Weber, G. H. (2006), Graphics hardware optimization for the watershed transform, poster presentation, presented at: "Materials Design Institute Educational Research Symposium," University Institutes, Los Alamos National Laboratory, Los Alamos, New Mexico, September 2006.

[279] Slankard, T. W., Worthington, D. L., Bingert, J. F., Henrie, B. L., Thoma, D. J., Hamann, B. and Weber, G. H. (2006), Data processing and visualization of tantalum serial sections, poster presentation, presented at: "2006 TMS (The Minerals, Metals and Materials Society) Annual Meeting and Exhibition," San Antonio, Texas, March 2006.

[278] Sreevalsan-Nair, J., Hamann, B. and Hamann, B. (2006), Using ray intersection for dual isosurfacing, presented at: "First International Conference on Computer Graphics Theory and Applications (GRAPP) 2006," Setúbal, Portugal, February 2006.

[277] Staadt, O. G., Ahlborn, B. A., Kreylos, O. and Hamann, B. (2006), A foveal inset for large display environments, presented at: "ACM SIGGRAPH International Conference on Virtual Reality Continuum and Its Applications 2006 (VRCIA 2006)," Hong Kong, P. R. China, June 2006.

[276] Staadt, O. G., Natarajan, V., Weber, G. H., Wiley, D. F. and Hamann, B. (2006), Interactive visualization for biological imaging, presented at: "2006 Workshop on Multiscale Biological Imaging, Data Mining and Informatics," University of California, Santa Barbara, California, September 2006.

[275] Vivodtzev, F., Wiley, D. F., Linsen, L., Jones, J., Amenta, N., Hamann, B. and Joy, K. I. (2006), Automatic feature-based surface mapping for brain cortices, presented at: "Photonics West – Electronic Imaging 2006," San Jose, California, January 2006.

[274] Weber, G. H., Biggin, M. D., DePace, A. H., Eisen, M. B., Fowlkes, C. C., Hamann, B., Hernandez, C., Huang, M.-Y., Keränen, S. V. E., Knowles, D. W., Luengo Hendriks, C. L., Malik, J., Peng, H., Rübel, O., Simirenko, L. and Sudar, J. D. (2006), Visual analysis of three-dimensional gene expression patterns, presented at: "Quantitative Modeling of Gene Expression and Morphology in the Drosophila Blastoderm," Genome Sciences Department Workshop, Genomics Division, Lawrence Berkeley National Laboratory, University of California, Berkeley, California, March 2006.

[273] Weber, G. H., Dillard, S. E., Huang, M.-Y., Ju, D. Y., Rübel, O., Shah, N. Y., Fowlkes, C. C., Keränen, S. V. E., Luengo Hendriks, C. L., Simirenko, L., Eisen, M. B., Hagen, H., Malik, J., Sudar, J. D., Biggin, M. D., Knowles, D. W. and Hamann, B. (2006), Visualization tools for 3D image data applied to gene expression in Drosophila, presented at: "Symposium on Biomedical Image Segmentation," UC Davis Cancer Center, School of Medicine, University of California, Davis, Sacramento, California, December 2006.

[272] Weber, G. H., Rübel, O., Keränen, S. V. E., Fowlkes, C. C., Luengo Hendriks, C. L., Simirenko, L., Shah, N. Y., Eisen, M. B., Biggin, M. D., Hagen, H., Sudar, J. D., Malik, J., Knowles, D. W. and Hamann, B. (2006), A visualization tool to examine quantitative relationships between three-dimensional gene expression patterns, presented at: "International Workshop on Visualization in Medicine and Life Sciences," Binz, Rügen, Germany, July 2006.

[271] Wiley, D. F., Amenta, N., Fuller, A. R., Ghosh, D., Hamann, B., Strong, E. B., Werner, J. S. and Zawadzki, R. J. (2006), Interactive and visualization-based segmentation tools for 3D image data, presented at: "Symposium on Biomedical Image Segmentation," UC Davis Cancer Center, School of

Medicine, University of California, Davis, Sacramento, California, December 2006.

[270] Wiley, D. F., Slankard, T. W., Dillard, S. E. and Hamann, B. (2006), Three-dimensional characterization of tantalum crystal structures, poster presentation, presented at: "Materials Design Institute Educational Research Symposium," University Institutes, Los Alamos National Laboratory, Los Alamos, New Mexico, September 2006.

[269] Yamazaki, I., Natarajan, V., Bai, Z. and Hamann, B. (2006), Segmenting point sets, presented at: "International Conference on Shape Modeling and Applications 2006 (SMI '06)," Matsushima, Japan, June 2006.

[268] Zawadzki, R. J., Fuller, A. R., Zhao, M., Wiley, D. F., Choi, S. S., Bower, B. A., Hamann, B., Izatt, J. A. and Werner, J. S. (2006), 3D OCT imaging in clinical settings: Toward quantitative measurements of retinal structures, presented at: "Photonics West – Biomedical Optics 2006," San Jose, California, January 2006.

[267] Ahlborn, B. A., Thompson, D. C., Kreylos, O., Hamann, B. and Staadt, O. G. (2005), A practical system for laser pointer interaction on large displays, presented at: "ACM Symposium on Virtual Reality Software and Technology 2005 (VRST 2005)," Monterey, California, November 2005.

[266] Bremer, P.-T., Pascucci, V. and Hamann, B. (2005), Maximizing adaptivity in hierarchical topological models, presented at: "International Conference on Shape Modeling and Applications 2005 (SMI '05)," Cambridge, Massachusetts, June 2005.

[265] Dillard, S. E., Weber, G. H., Carr, H., Pascucci, V. and Hamann, B. (2005), Topology-controlled volume rendering, presented at: "2005 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2005.

[264] Gyulassy, A. G., Natarajan, V., Pascucci, V., Bremer, P.-T. and Hamann, B. (2005), Topology-based simplification for feature extraction from 3D scalar fields, presented at: "IEEE Visualization 2005," Minneapolis, Minnesota, October 2005.

[263] Hamann, B. (2005), Analysis and interactive visual exploration of scientific data sets, invited presentation, Joint Los Alamos National Laboratory and UC Davis Materials Design Institute, Los Alamos National Laboratory, Los Alamos, New Mexico, August 2005.

[262] Hamann, B. (2005), Analysis, visualization, and interactive exploration of massive data sets, invited presentation at: "Joint Santa Fe Institute and UC Davis Computational Science and Engineering Center Business Network Meeting," San Jose, California, March 2005.

[261] Hamann, B. (2005), A survey of selected visualization efforts performed at the Institute for Data Analysis and Visualization, invited presentation at: "University of Kaiserslautern and UC Davis International Workshop on Visualization of Large Data Sets with Applications in Geospatial Planning, Modeling, and Engineering," University of California, Davis, July 2005.

[260] Hamann, B. (2005), A survey of some state-of-the-art visualization technologies and challenges for interactive data exploration, invited presentation at: "Fourteenth International Meshing Roundtable," San Diego, California, September 2005.

[259] Hamann, B. (2005), Hierarchical methods, systems, and mathematical approaches for the visualization of large data sets (Hierarchische Methoden, Systeme und mathematische Verfahren zur Visualisierung großer Datenmengen), invited presentation, Department of Computer Science and Fraunhofer Institute for Computer Graphics Seminar, Technical University of Darmstadt, Germany, April 2005.

[258] Hamann, B. (2005), Mathematical methods applied to the representation and visualization of large scientific data sets, invited seminar presentation, Department of Mathematics, University of California, Davis, California, October 2005.

[257] Hamann, B. (2005), Research computing at UC Davis, invited presentation, UC Research Cyberinfrastructure Meeting, CalIT2, University of California, San Diego, California, October 2005.

[256] Hamann, B. (2005), Visualization and interactive exploration technology for massive data set analysis, invited seminar presentation, Department of Computer Science and Engineering, Wright State University, Dayton, Ohio, July 2005.

[255] Hamann, B. (2005), Visualization technology for the interactive exploration and manipulation of complex scientific and engineering data, invited presentation (keynote address) at: "Ninth International Conference on Numerical Grid Generation in Computational Field Simulations," San Jose, California, June 2005.

[254] Hotz, I., Feng, Z. X., Hamann, B., Manaker, D. M., Conjeepuram, N. S., Kellogg, L. H. and Billen, M. I. (2005), Tensor field visualization in geomechanics applications, presented at: "American Geophysical Union Fall Meeting 2005," San Francisco, California, December 2005.

[253] Hotz, I., Feng, Z. X., Sreevalsan-Nair, J. and Hamann, B. (2005), Recent progress in three-dimensional and time-dependent tensor field visualization, invited presentation at: "Scientific Visualization: Challenges for the Future," Dagstuhl, Germany, June 2005.

[252] Huerta, N., Murphy, M. A., Weber, G. H., Natarajan, V., Hamann, B. and Sumner, D. Y. (2005), Three-dimensional reconstruction of intricate archean microbial structures using neutron computed tomography and serial sectioning, presented at: "American Geophysical Union Fall Meeting 2005," San Francisco, California, December 2005.

[251] Kanodia, R. L., Linsen, L. and Hamann, B. (2005), Multiple transparent material-enriched isosurfaces, presented at: "The Thirteenth International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2005 (WSCG 2005)," Plzen, Czech Republic, January/February 2005.

[250] Kil, Y. J., Renzulli, P. A., Kreylos, O., Hamann, B., Monno, G. and Staadt, O. G. (2005), 3D warp brush: Interactive free-form modeling on the responsive workbench, poster presentation, presented at: "IEEE Virtual Reality 2005," Bonn, Germany, March 2005.

[249] Knowles, D. W., Luengo Hendriks, C. L., Keränen, S. V. E., Fowlkes, C. C., Weber, G. H., Rübel, O., Peng H., DePace, A. H., Hamann, B., Sudar, J. D., Eisen, M. B., Biggin, M. D. and Malik, J. (2005), Berkeley Drosophila transcription network project: 3D blastoderm gene expression atlas, presented at: "Genome Informatics," Cold Spring Harbor, New York, October/November 2005.

[248] Kreylos, O., Li, D., Park, S. W., Szudziejka, V., Yoo, S. J. B. and Hamann, B. (2005), Data reconstruction and visualization methods for large next-generation sensor networks, presented at: "CITRIS Information Technology Research Workshop," Berkeley, California, May 2005.

[247] Kreylos, O., Staadt, O. G. and Hamann, B. (2005), Virtual reality: Lessons learned during the past decades and possible directions for the future, invited presentation at: "Scientific Visualization: Challenges for the Future," Dagstuhl, Germany, June 2005.

[246] Linsen, L., Karis, B. J., McPherson, E. G. and Hamann, B. (2005), Tree growth visualization, presented at: "The Thirteenth International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2005 (WSCG 2005)," Plzen, Czech Republic, January/February 2005.

[245] Matyas, N. M, Linsen, L. and Hamann, B. (2005), Metasurfaces: Contouring with changing isovalue, presented at: "Tenth International Fall Workshop on Vision, Modeling, and Visualization 2005 (VMV 2005)," Erlangen, Germany, November 2005.

[244] Park, S. W., Budge, B. C., Linsen, L., Kreylos, O., Hamann, B. and Joy, K. I. (2005), Dense geometric flow visualization, presented at: "2005 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2005.

[243] Park, S. W., Budge, B. C., Linsen, L., Hamann, B. and Joy, K. I. (2005), Dense geometric flow visualization, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis

2005)," Leeds, United Kingdom, June 2005.

[242] Park, S. W., Linsen, L., Kreylos, O., Owens, J. D. and Hamann, B. (2005), A framework for real-time volume visualization of streaming scattered data, presented at: "Tenth International Fall Workshop on Vision, Modeling, and Visualization 2005 (VMV 2005)," Erlangen, Germany, November 2005.

[241] Rübel, O., Weber, G. H., Huang, M.-Y., Fowlkes, C. C., Keränen, S. V. E., Luengo Hendriks, C. L., Biggin, M. D., Hagen, H., Knowles, D. W., Malik, J., Sudar, J. D. and Hamann, B. (2005), Interactive visualization of measured gene expression patterns in three dimensions at cellular resolution, software demonstration, presented at: "Supercomputing 2005," Seattle, Washington, November 2005.

[240] Schlemmer, M., Hotz, I., Natarajan, V., Hamann, B. and Hagen, H. (2005), Fast Clifford Fourier transformation for unstructured vector field data, presented at: "Ninth International Conference on Numerical Grid Generation in Computational Field Simulations," San Jose, California, June 2005.

[239] Shah, N. Y., Teplitsky, M. V., Minovitsky, S., Pennacchio, L. A., Hugenholtz, P., Hamann, B. and Dubchak, I. L. (2005), Interactive single nucleotide polymorphism visualization, software demonstration, presented at: "Supercomputing 2005," Seattle, Washington, November 2005.

[238] Shah, N. Y., Teplitsky, M. V., Pennacchio, L. A., Hugenholtz, P., Hamann, B. and Dubchak, I. L. (2005), SNP-VISTA: An interactive SNPs visualization tool, poster presentation, presented at: "The Biology of Genomes," Cold Spring Harbor, New York, May 2005.

[237] Shah, N. Y., Teplitsky, M. V., Pennacchio, L. A., Hugenholtz, P., Hamann, B. and Dubchak, I. L. (2005), SNP-VISTA: An interactive SNPs visualization tool, software demonstration, presented at: "Thirteenth Annual International Conference on Intelligent Systems for Molecular Biology 2005 (ISMB 2005)," Detroit, Michigan, June 2005.

[236] Weber, G. H., Luengo Hendriks, C. L., Dillard, S. E., Ju, D. Y., Rübel, O., Keränen, S. V. E., Sudar, J. D. and Hamann, B. (2005), Visualization tools for 3D gene expression data in Drosophila, poster presentation, presented at: "Nanotechnology and Cancer Collaborative Conference," Lodi, California, July 2005.

[235] Weber, G. H., Luengo Hendriks, C. L., Keränen, S. V. E., Dillard, S. E., Ju, D. Y., Sudar, J. D. and Hamann, B. (2005), Visualization for validation and improvement of three-dimensional segmentation algorithms, presented at: "Joint Eurographics-IEEE VGTC Symposium on Visualization (EuroVis 2005)," Leeds, United Kingdom, June 2005.

[234] Weber, G. H., Luengo Hendriks, C. L., Keränen, S. V. E., Dillard, S. E., Sudar, J. D. and Hamann, B. (2005), Visualization tools for three-dimensional gene expression data in Drosophila, presented at: "46th Annual Drosophila Research Conference," San Diego, California, March/April 2005.

[233] Weber, G. H., Luengo Hendriks, C. L., Keränen, S. V. E., Rübel, O., Dillard, S. E., Ju, D. Y., Sudar, J. D., Biggin, M. D. and Hamann, B. (2005), Visualization tools for 3D gene expression data in Drosophila, presented at: "Nanotechnology and Cancer Collaborative Conference," Lodi, California, July 2005.

[232] Weber, G. H., Rübel, O. and Hamann, B. (2005), Analysis and interactive visual exploration of Drosophila gene expression data sets, presented at: Genome Sciences Department Workshop, Genomics Division, Lawrence Berkeley National Laboratory, University of California, Berkeley, California, May 2005.

[231] Weber, G. H., Rübel, O., Huang, M.-Y., Fowlkes, C. C., Keränen, S. V. E., Luengo Hendriks, C. L., Biggin, M. D., Hagen, H., Knowles, D. W., Malik, J., Sudar, J. D. and Hamann, B. (2005), Interactive visualization of measured gene expression patterns in three dimensions at cellular resolution, software demonstration, presented at: "IEEE Visualization 2005," Minneapolis, Minnesota, October 2005.

[230] Wiley, D. F., Amenta, N., Alcantara, D. A., Ghosh, D., Kil, Y. J., Delson, E., Harcourt-Smith,

W., Rohlf, F. J., St. John, K. and Hamann, B. (2005), Evolutionary morphing, presented at: "IEEE Visualization 2005," Minneapolis, Minnesota, October 2005.

[229] Yamazaki, I., Natarajan, V., Bai, Z. and Hamann, B. (2005), Segmentation of point sets, presented at: "2005 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2005.

[228] Bremer, P.-T., Edelsbrunner, H., Hamann, B. and Pascucci, V. (2004), Topological hierarchies with minimal error, invited presentation at: "Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration," Banff International Research Station, The Banff Centre, Banff, Alberta, Canada, May 2004.

[227] Crawford, C. W., Bethel, E. W., Hamann, B., Kreylos, O., Max, N. L., Oliva, R. A. and Crivelli, S. N. (2004), Visualization of energy optimization, presented at: "SIAM Conference on the Life Sciences," Portland, Oregon, July 2004.

[226] Fang, D. C., Weber, G. H., Childs, H. R., Brugger, E. S., Hamann, B. and Joy, K. I. (2004), Extracting geometrically continuous isosurfaces from adaptive mesh refinement data, presented at: "2004 Hawaii International Conference on Computer Sciences," Oahu, Hawaii, January 2004.

[225] Feng, Z. X., Hotz, I., Hamann, B. and Joy, K. I. (2004), Texture animation for tensor field visualization, presented at: "2004 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2004.

[224] Fuller, A. R., Hamann, B., Joy, K. I., Jones, E. G., Linsen, L., Olshausen, B. A., Slankard, T. W., Stone, J. M., Vivodtzev, F., Weber, G. H., Wiley, D. F. and Yau, P. C. B. (2004), Brain atlas mapping, poster presentation, presented at: "34th Annual Neuroscience Meeting – Neuroscience 2004," San Diego, California, October 2004.

[223] Gyulassy, A. G., Bremer, P.-T., Pascucci, V. and Hamann, B. (2004), Hierarchical Morse-Smale complex in 3D, presented at: "2004 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2004.

[222] Hamann, B. (2004), Possible directions for multiresolution data approximation, invited presentation at: "Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration," Banff International Research Station, The Banff Centre, Banff, Alberta, Canada, May 2004.

[221] Hamann, B., Staadt, O. G. and Kreylos, O. (2004), Selected visualization research at the UC Davis Institute for Data Analysis and Visualization (IDAV), presented at: Planning a Multiscale Sensor Network to Observe, Forecast and Manage a CLEANER California Water Cycle CLEANER Meeting," University of California, Los Angeles, June 2004.

[220] Hotz, I., Feng, Z. X., Hagen, H., Hamann, B., Jeremic, B. and Joy, K. I. (2004), Mathematical approaches to tensor field visualization, invited presentation at: "Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration," Banff International Research Station, The Banff Centre, Banff, Alberta, Canada, May 2004.

[219] Hotz, I., Feng, Z. X., Hagen, H., Hamann, B., Joy, K. I. and Jeremic, B. (2004), Physically based methods for tensor field visualization, invited presentation at: "Perspectives Workshop: Visualization and Image Processing of Tensor Fields," Dagstuhl, Germany, April 2004.

[218] Hotz, I., Feng, Z. X., Hagen, H., Hamann, B., Jeremic, B. and Joy, K. I. (2004), Physically based methods for tensor field visualization, presented at: "IEEE Visualization 2004," Austin, Texas, October 2004.

[217] Hotz, I., Feng, Z. X., Hamann, B., Joy, K. I., Manaker, D. M., Billen, M. I. and Kellogg, L. H. (2004), Tensor field visualization in geomechanics applications, presented at: "American Geophysical Union Fall Meeting 2004," San Francisco, California, December 2004.

[216] Klein, B. M., Chronister, L. U., Hamann, B. and Läuchli, A. E. (2004), Promoting interdisciplinary research: Experiences at the University of California, Davis, poster presentation, presented at: "Convocation on Facilitating Interdisciplinary Research," The National Academies, Washington, D.C., January 2004.

[215] Kreylos, O., Rustad, J. R. and Hamann, B. (2004), Interactive modeling of molecular structures, presented at: "American Geophysical Union Fall Meeting 2004," San Francisco, California, December 2004.

[214] Linsen, L., Fuller, A. R., Kreylos, O., Scorzelli, G., Vivodtzev, F., Yau, P. C. B., Hamann, B., Joy, K. I., Olshausen, B. A. and Jones, E. G. (2004), Visual exploration of high-resolution neuroscientific data, presented at: "Tenth Annual Human Brain Project Conference – A Decade of Neuroscience Informatics: Looking ahead," National Institutes of Health, Bethesda, Maryland, April 2004.

[213] Park, S. W., Budge, B. C., Linsen, L., Hamann, B. and Joy, K. I. (2004), Multi-dimensional transfer functions for interactive 3D flow visualization, presented at: "Twelfth Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2004," Seoul, South Korea, October 2004.

[212] Shah, N. Y., Couronne, O., Pennacchio, L. A., Brudno, M., Batzoglou, S., Bethel, E. W., Rubin, E. M., Hamann, B., Weber, G. H. and Dubchak, I. L. (2004), Phylo-VISTA: Interactive visualization of multiple DNA alignments, poster presentation, presented at: "Sacramento Regional Life Sciences Summit 2004," Sacramento, California, March 2004.

[211] Shah, N. Y., Poliakov, A. V., Ryaboy, D. V., Teplitsky, M. V., Hamann, B., Rubin, E. M. and Dubchak, I. L. (2004), VISTA tools for interactive visualization and analysis of multiple alignments of data sequences and whole genomes, poster presentation, presented at: "The Biology of Genomes," Cold Spring Harbor, New York, May 2004.

[210] Wiley, D. F., Childs, H. R., Hamann, B. and Joy, K. I. (2004), Ray casting curved-quadratic elements, presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '04)," Konstanz, Germany, May 2004.

[209] Wilson, D. W., Boulanger, R. W., Feng, X., Hamann, B., Jeremic, B., Kutter, B. L., Ma, K.-L., Santamarina, J. C., Sprott, K. S., Velinsky, S. A., Weber, G. H. and Yoo, S. J. B. (2004), The NEES geotechnical centrifuge at UC Davis, presented at: "Thirteenth World Conference on Earthquake Engineering," Vancouver, British Columbia, Canada, August 2004.

[208] Wilson, D. W., Weber, G. H., Slankard, T. W., Hamann, B. and Kutter, B. L. (2004), Visualization of experimental earthquake engineering, presented at: "A CITRIS Workshop on Sensors, Sensor Networks, and Sensor Applications," Davis, California, June 2004.

[207] Bennett, J. C., Mahrous, K. M., Hamann, B. and Joy, K. I. (2003), A segmentation approach to scientific visualization, invited presentation at: "Spring Conference on Computer Graphics (SCCG) 2003," Budmerice, Slovak Republic, April 2003.

[206] Bremer, P.-T., Edelsbrunner, H., Hamann, B. and Pascucci, V. (2003), A multi-resolution data structure for two-dimensional Morse-Smale functions, presented at: "IEEE Visualization 2003," Seattle, Washington, October 2003.

[205] Bremer, P.-T., Edelsbrunner, H., Hamann, B. and Pascucci, V. (2003), A multi-resolution data structure for two-dimensional Morse functions, presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003.

[204] Bremer, P.-T., Edelsbrunner, H., Hamann, B. and Pascucci, V. (2003), A multi-resolution data structure for two-dimensional Morse-Smale functions, invited presentation at: "Second Dagstuhl Seminar on Hierarchical Methods in Computer Graphics," Dagstuhl, Germany, June/July 2003.

[203] Chen, J.-L., Bai, Z., Hamann, B. and Ligocki, T. J. (2003), A normalized-cut algorithm for hierarchical vector field data segmentation, presented at: "Photonics West – Electronic Imaging 2003,"

Santa Clara, California, January 2003.

[202] Chen, J.-L., Bai, Z., Hamann, B. and Ligocki, T. J. (2003), Vector field segmentation with normalized cut, presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003.

[201] Co, C. S., Hamann, B. and Joy, K. I. (2003), Iso-splatting: A point-based alternative to isosurface visualization, presented at: "Eleventh Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2003," Canmore, Alberta, Canada, October 2003.

[200] Co, C. S., Heckel, B., Hagen, H., Hamann, B. and Joy, K. I. (2003), Hierarchical clustering for unstructured volumetric scalar fields, presented at: "IEEE Visualization 2003," Seattle, Washington, October 2003.

[199] Fang, D. C., Gray, J. T., Hamann, B. and Joy, K. I. (2003), Real-time view-dependent extraction of isosurfaces from adaptively refined octrees and tetrahedral meshes, presented at: "Photonics West – Electronic Imaging 2003," Santa Clara, California, January 2003.

[198] Gray, J. T., Linsen, L., Hamann, B. and Joy, K. I. (2003), Adaptive multi-valued volume data visualization using data-dependent error metrics, presented at: "Third IASTED International Conference on Visualization, Imaging, and Image Processing (VIIP) 2003," Benalmádena, Spain, September 2003.

[197] Hamann, B. (2003), Fundamental issues concerning multiresolution data approximation, invited presentation at: "Scientific Visualization: Extracting Information and Knowledge from Scientific Data" (Fifth Dagstuhl Seminar on Scientific Visualization), Dagstuhl, Germany, June 2003.

[196] Hamann, B. (2003), Representation, analysis, manipulation, and visualization of large scientific data sets, presented at: Genome Sciences Department Seminar, Life Sciences Division, Lawrence Berkeley National Laboratory, University of California, Berkeley, California, April 2003.

[195] Hamann, B., Bethel, E. W., Couronne, O., Dubchak, I. L., Joy, K. I., Rubin, E. M. and Shah, N. Y. (2003), Interactive visualization methods for exploration and comparison of multi-billion basepair sequence data, presented at: Laboratory Directed Research and Development (LDRD) program project reviews, Lawrence Berkeley National Laboratory, University of California, Berkeley, California, June 2003.

[194] Klein, E. L., Staadt, O. G. and Hamann, B. (2003), Exploration of three-dimensional vector field data using sound, presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003.

[193] Kreylos, O., Hamann, B., Max, N. L., Crivelli, S. N. and Bethel, E. W. (2003), Collaborative interactive protein manipulation, presented at: "NSF Lake Tahoe Workshop on Collaborative Virtual Reality and Visualization," Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2003.

[192] Kreylos, O., Max, N. L., Hamann, B., Crivelli, S. N. and Bethel, E. W. (2003), Interactive protein manipulation, winner of the "Best Application Award," presented at: "IEEE Visualization 2003," Seattle, Washington, October 2003.

[191] Linsen, L., Bruckschen, R. W., Sreevalsan-Nair, J., Nuber, C., Hamann, B., and Joy, K. I. (2003), Exploration and visualization of large-scale, time-varying and unstructured volume data, presented at: "NPACI All-hands Meeting 2003," San Diego Supercomputer Center (SDSC), University of California, San Diego, California, March 2003.

[190] Linsen, L., Hamann, B. and Joy, K. I. (2003), Wavelets for adaptively refined $\sqrt[3]{2}$-subdivision meshes, presented at: "Sixth IASTED International Conference on Computer Graphics and Imaging (CGIM) 2003," Oahu, Hawaii, August 2003.

[189] Linsen, L. Vivodtzev, F., Fuller, A. R., Yau, P. C. B., Hamann, B., Joy, K. I. and Olshausen, B. A. (2003), Brain mapping based on isosurface segmentation, presentation at: "UC Davis Center

for Neuroscience Annual Retreat," Stanford Sierra Conference Center, South Lake Tahoe, California, September 2003.

[188] Mahrous, K. M., Bennett, J. C., Hamann, B. and Joy, K. I. (2003), A general paradigm for scientific data segmentation, invited presentation at: "Scientific Visualization: Extracting Information and Knowledge from Scientific Data" (Fifth Dagstuhl Seminar on Scientific Visualization), Dagstuhl, Germany, June 2003.

[187] Mahrous, K. M., Bennett, J. C., Hamann, B. and Joy, K. I. (2003), Improving topological segmentation of three-dimensional vector fields, presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '03)," Grenoble, France, May 2003.

[186] Nuber, C., Bruckschen, R. W., Hamann, B. and Joy, K. I. (2003), Interactive visualization of very large datasets using an out-of-core point-based approach, presentated at: "High Performance Computing Symposium 2003 (HPC 2003)," Orlando, Florida, March/April 2003.

[185] Nuber, C., Bruckschen, R. W., Hamann, B. and Joy, K. I. (2003), Interactive visualization of very large medical datasets using point-based rendering, presented at: "Medical Imaging 2003 – Visualization, Image-guided Procedures, and Display (MI01)," San Diego, California, February 2003.

[184] Nuber, C., LaMar, E. C., Hamann, B. and Joy, K. I. (2003), Approximating time-varying multiresolution data using error-based temporal-spatial reuse, presented at: "Photonics West – Electronic Imaging 2003," Santa Clara, California, January 2003.

[183] Nuber, C., LaMar, E. C., Pascucci, V., Hamann, B. and Joy, K. I. (2003), Using graphs for fast error-term approximation of time-varying data sets, presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '03)," Grenoble, France, May 2003.

[182] Pascucci, V., Laney, D. E., Frank, R. J., Scorzelli, G., Linsen, L., Hamann, B. and Gygi, F. (2003), Real-time monitoring of large scientific simulations, presented at: "Eighteenth Annual ACM Symposium on Applied Computing (SAC 2003)," Melbourne, Florida, March 2003).

[181] Renzulli, P. A., Kreylos, O., Staadt, O. G. and Hamann, B. (2003), Higher-level interaction paradigms for virtual reality, presented at: "NSF Lake Tahoe Workshop on Collaborative Virtual Reality and Visualization," Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2003.

[180] Shah, N. Y., Couronne, O., Pennacchio, L. A., Brudno, M., Batzoglou, S., Bethel, E. W., Rubin, E. M., Hamann, B. and Dubchak, I. L. (2003), Interactive visualization of multiple aligned DNA sequences, presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003.

[179] Shah, N. Y., Filkov, V., Hamann, B. and Joy, K. I. (2003), GeneBox: Interactive visualization of microarray data sets, presented at: "The 2003 International Conference on Mathematics and Engineering Techniques in Medicine and Biological Sciences," Las Vegas, Nevada, June 2003.

[178] Sreevalsan-Nair, J., Co, C. S., Van Nieuwenhuyse, E. E., Linsen, L. and Hamann, B. (2003), Visualization of water resource data, presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003.

[177] Sreevalsan-Nair, J., Linsen, L., Ahlborn, B. A., Green, M. S. and Hamann, B. (2003), Hierarchical visualization of large-scale unstructured hexahedral volume data, presented at: "NSF Lake Tahoe Workshop on Collaborative Virtual Reality and Visualization," Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, November 2003.

[176] Staadt, O. G. and Hamann, B. (2003), Visualization and virtual reality, presented at: "Second Annual CITRIS Founding Corporate Members Meeting," University of California, Davis, California, February 2003.

[175] Staadt, O. G., Walker, J. E., Nuber, C. and Hamann, B. (2003), A survey and performance analysis of software platforms for interactive cluster-based multi-screen rendering, presented at: "Ninth Eurographics Workshop on Virtual Environments," Zurich, Switzerland, May 2003.

[174] Szudziejka, V., Kreylos, O. and Hamann, B. (2003), Visualization of environmental data generated by wireless sensor networks, presented at: "2003 UC Davis Student Workshop on Computing," University of California, Davis, California, November 2003.

[173] Vivodtzev, F., Linsen, L., Bonneau, G.-P., Hamann, B., Joy, K. I. and Olshausen, B. A. (2003), Hierarchical isosurface segmentation based on discrete curvature, presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '03)," Grenoble, France, May 2003.

[172] Vivodtzev, F., Linsen, L., Bonneau, G.-P., Hamann, B., Joy, K. I. and Olshausen, B. A. (2003), Segmentation and graph-based mapping of brain imaging data, invited presentation at: "Scientific Visualization: Extracting Information and Knowledge from Scientific Data" (Fifth Dagstuhl Seminar on Scientific Visualization), Dagstuhl, Germany, June 2003.

[171] Weber, G. H., Öhler, M., Kreylos, O., Shalf, J. M., Bethel, E. W., Hamann, B. and Scheuermann, G. (2003), Parallel cell projection rendering of adaptive mesh refinement data, presented at: "IEEE 2003 Symposium on Parallel and Large-data Visualization and Graphics (PVG 2003)," Seattle, Washington, October 2003.

[170] Weber, G. H., Scheuermann, G. and Hamann, B. (2003), Detecting critical regions in scalar fields, presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '03)," Grenoble, France, May 2003.

[169] Weber, G. H., Schneider, M., Wilson, D. W., Hagen, H., Hamann, B. and Kutter, B. L. (2003), Visualization of experimental earthquake data, presented at: "Photonics West – Electronic Imaging 2003," Santa Clara, California, January 2003.

[168] Wiley, D. F., Childs, H. R., Gregorski, B. F., Hamann, B. and Joy, K. I. (2003), Contouring curved quadratic elements, presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '03)," Grenoble, France, May 2003.

[167] Bremer, P.-T., Porumbescu, S. D., Hamann, B. and Joy, K. I. (2002), Automatic construction of B-spline surfaces from adaptively sampled distance fields, presented at: "Fifth International Conference on Curves and Surfaces," Saint-Malo, France, June/July 2002.

[166] Bremer, P.-T., Porumbescu, S. D., Küster, F., Hamann, B., Joy, K. I. and Ma, K.-L. (2002), Virtual clay modeling using adaptive distance fields, presented at: "The 2002 International Conference on Imaging Science, Systems, and Technology," Las Vegas, Nevada, June 2002.

[165] Hamann, B. (2002), Challenges in massive data visualization and solution approaches, invited presentation (keynote address) at: "Fifth IASTED International Conference on Computer Graphics and Imaging (CGIM) 2002," Kauai, Hawaii, August 2002.

[164] Hamann, B. (2002), Collaborative visualization of massive data sets, presented at: "NorCal Optical Networking Planning Meeting," University of California, Berkeley, California, March 2002.

[163] Hamann, B. (2002), Massive data visualization challenges in the context of complex design applications, presented at: "UC Berkeley Institute of Design and Human-centered Computing Retreat," Granlibakken Conference Center, Tahoe City, California, June 2002.

[162] Hamann, B. (2002), Massive scientific data sets: Issues and approaches concerning their representation and exploration, invited presentation at: "Department of Energy Theory and Modeling in Nanoscience Workshop," San Francisco, California, May 2002.

[161] Hamann, B. (2002), Objectives for visualization research in computational science and engineering applications, presented at: "Visualization Requirements for DOE-sponsored Computational Science and Engineering Applications Workshop," Berkeley, California, June 2002.

[160] Kreylos, O., Hamann, B., Max, N. L., Crivelli, S. N. and Bethel, E. W. (2002), Interactive protein manipulation, presented at: "2002 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2002.

[159] Kreylos, O., Tesdall, A. M., Hamann, B., Hunter, J. K. and Joy, K. I. (2002), Interactive visualization and steering of CFD simulations, presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '02)," Barcelona, Spain, May 2002.

[158] Linsen, L., Gray, J. T., Pascucci, V., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2002), Volume data and time-varying volume data modeling using subdivision-wavelet techniques based on repeated bisection, invited presentation at: "Fifth Dagstuhl Seminar on Geometric Modelling," Dagstuhl, Germany, May 2002.

[157] Linsen, L., Pascucci, V., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2002), Hierarchical representation of time-varying volume data with $\sqrt[4]{2}$ subdivision and quadrilinear B-spline wavelets, presented at: "Tenth Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2002," Beijing, P. R. China, October 2002.

[156] Linsen, L., Scorzelli, G., Bruckschen, R. W., Hamann, B., Joy, K. I., Ma, K.-L. and Max, N. L. (2002), Interactive multiresolution visualization of biomedical data, presented at: "NPACI All-hands Meeting 2002," San Diego Supercomputer Center (SDSC), University of California, San Diego, California, March 2002.

[155] Shah, N. Y., St. Clair, D. A., Dodsworth, C., Hamann, B. and Joy, K. I. (2002), GeneBox: Visualizing gene expression data resulting from microarray experiments, presented at: "2002 UC Davis Student Workshop on Computing," University of California, Davis, California, October 2002.

[154] Takanashi, I., Lum, E. B., Ma, K.-L., Meyer, J., Hamann, B. and Olson, A. J. (2002), Segmentation and 3D visualization of high-resolution human brain cryosections, presented at: "Photonics West – Electronic Imaging 2002," San Jose, California, January 2002.

[153] Weber, G. H., Scheuermann, G., Hagen, H. and Hamann, B. (2002), Exploring scalar fields using critical isovalues, presented at: "IEEE Visualization 2002," Boston, Massachusetts, October/November 2002.

[152] Wiley, D. F., Childs, H. R., Hamann, B., Joy, K. I. and Max, N. L. (2002), Best quadratic spline approximation for hierarchical visualization, presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '02)," Barcelona, Spain, May 2002.

[151] Wiley, D. F., Childs, H. R., Hamann, B., Joy, K. I. and Max, N. L. (2002), Using quadratic simplicial elements for hierarchical approximation and visualization, presented at: "Photonics West – Electronic Imaging 2002," San Jose, California, January 2002.

[150] Bertram, M., Laney, D. E., Duchaineau, M. A., Hansen, C. D., Hamann, B. and Joy, K. I. (2001), Wavelet representation of contour sets, presented at: "IEEE Visualization 2001," San Diego, California, October 2001.

[149] Bremer, P.-T., Kreylos, O. and Hamann, B. (2001), A data-dependent gradient quantization scheme for the acceleration of volume rendering, presented at: "Photonics West – Electronic Imaging 2001," San Jose, California, January 2001.

[148] Bremer, P.-T., Porumbescu, S. D., Küster, F., Hamann, B., Joy, K. I. and Ma, K.-L. (2001), Virtual clay modeling using adaptive distance fields, presented at: "2001 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2001.

[147] Bruckschen, R. W., Küster, F., Hamann, B. and Joy, K. I. (2001), Real-time out-of-core visualization of particle traces, presented at: "IEEE 2001 Symposium on Parallel and Large-data Visualization and Graphics (PVG 2001)," San Diego, California, October 2001.

[146] Duchaineau, M. A., Bertram, M., Porumbescu, S. D., Hamann, B. and Joy, K. I. (2001), Interactive

display of surfaces using subdivision surfaces and wavelets, invited presentation at: "Spring Conference on Computer Graphics (SCCG) 2001," Budmerice, Slovak Republic, April 2001.

[145] Gregorski, B. F., Küster, F., Hamann, B. and Joy, K. I. (2001), Mesh painting on subdivision surfaces in virtual reality environments, presented at: "2001 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2001.

[144] Hamann, B. (2001), A survey of recent research results in multiresolution scientific data approximation and visualization, invited seminar presentation, School of Computing Science, Simon Fraser University, Burnaby, British Columbia, Canada, February 2001.

[143] Hamann, B. (2001), A survey of techniques for multiresolution scientific data modeling and visualization, invited presentation, Rensselaer Computer Science Colloquium Series, Department of Computer Science, Rensselaer Polytechnic Institute, Troy, New York, September 2001.

[142] Hamann, B. (2001), Geometric design approaches and challenges in scientific visualization, invited presentation at: "IMA Annual Program for 2000 – 2001: Mathematics in Multimedia; Geometric Design and Computer Graphics; Workshop 7 (Geometric Design)," Institute for Mathematics and its Applications (IMA), University of Minnesota, Minneapolis, Minnesota, April 2001.

[141] Hamann, B. (2001), Hierarchical approaches for the visualization of massive scientific data, invited seminar presentation, Mathematics and Computer Science Division, Argonne National Laboratory, Argonne, Illinois, August 2001.

[140] Hamann, B. (2001), Issues and approaches concerning multiresolution modeling and visualization of scientific data sets, invited seminar presentation, Department of Mathematics, Applied Mathematics Seminar, University of California, Davis, California, October 2001.

[139] Hamann, B. (2001), Multiresolution-based representation and visualization of large data sets, invited seminar presentation, Distinguished Lecturer Series, Department of Computer and Information Science, The Ohio State University, Columbus, Ohio, February 2001.

[138] Küster, F., Bruckschen, R. W., Hamann, B. and Joy, K. I. (2001), Visualization of particle traces in virtual environments, presented at: "ACM Symposium on Virtual Reality Software and Technology 2001 (VRST 2001)," Banff, Alberta, Canada, November 2001.

[137] Küster, F., Hamann, B. and Joy, K. I. (2001), VirtualExplorer: A plugin-based virtual reality framework, presented at: "Photonics West – Electronic Imaging 2001," San Jose, California, January 2001.

[136] LaMar, E. C., Hamann, B. and Joy, K. I. (2001), A magnification lens for interactive volume visualization, presented at: "Ninth Pacific Conference on Computer Graphics and Applications – Pacific Graphics 2001," Tokyo, Japan, October 2001.

[135] Pinskiy, D. V., Brugger, E. S., Ahern, S. and Hamann, B. (2001), Constructing isosurfaces in a localized fashion using an underlying octree data structure, presented at: "Photonics West – Electronic Imaging 2001," San Jose, California, January 2001.

[134] Pinskiy, D. V., Brugger, E. S., Childs, H. R. and Hamann, B. (2001), An octree-based multiresolution approach supporting interactive rendering of very large volume data sets, presented at: "The 2001 International Conference on Imaging Science, Systems, and Technology," Las Vegas, Nevada, June 2001.

[133] Scheuermann, G., Bobach, T., Hagen H., Mahrous, K. M., Hamann, B., Joy, K. I. and Kollmann, W. (2001), A tetrahedra-based stream surface algorithm, presented at: "IEEE Visualization 2001," San Diego, California, October 2001.

[132] Scheuermann, G., Frey, J., Hagen, H., Hamann, B., Jeremić, B. and Joy, K. I. (2001), Visualization of seismic soils structure interaction simulations, presented at: "IASTED International Conference on Visualization, Imaging, and Image Processing (VIIP) 2001," Marbella, Spain, September 2001.

[131] Weber, G. H., Hagen, H., Hamann, B., Joy, K. J., Ligocki, T. J., Ma, K.-L. and Shalf, J. M. (2001), Visualization of adaptive mesh refinement data, presented at: "Photonics West – Electronic Imaging 2001," San Jose, California, January 2001.

[130] Weber, G. H., Kreylos, O., Ligocki, T. J., Shalf, J. M., Hagen, H., Hamann, B. and Joy, K. I. (2001), Extraction of crack-free isosurfaces from adaptive mesh refinement data, presented at: "Joint Eurographics-IEEE TCVG Symposium on Visualization (VisSym '01)," Ascona, Switzerland, May 2001.

[129] Weber, G. H., Kreylos, O., Ligocki, T. J., Shalf, J. M., Hagen, H., Hamann, B., Joy, K. I. and Ma, K.-L. (2001), High-quality volume rendering of adaptive mesh refinement data, presented at: "Sixth International Fall Workshop on Vision, Modeling, and Visualization 2001," Stuttgart, Germany, November 2001.

[128] Bertram, M., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2000), Bicubic subdivision-surface wavelets for large-scale isosurface representation and visualization, presented at: "IEEE Visualization 2000," Salt Lake City, Utah, October 2000.

[127] Bertram, M., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2000), Wavelets on planar tessellations, presented at: "The 2000 International Conference on Imaging Science, Systems, and Technology (CISST 2000)," Las Vegas, Nevada, June 2000.

[126] Bertram, M., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2000), Generalizing lifted tensor-product wavelets to irregular polygonal domains, invited presentation at: "Fourth Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, May 2000.

[125] Bertram, M., Hamann, B., Joy, K. I., Konkle, S. E. and Hagen, H. (2000), Terrain modeling using Voronoi hierarchies, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[124] Bonnell, K. S., Duchaineau, M. A., Schikore, D. R., Hamann, B., and Joy, K. I. (2000), Material boundary surfaces, invited presentation at: "Fourth Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, May 2000.

[123] Bonnell, K. S., Schikore, D. R., Joy, K. I., Duchaineau, M. A. and Hamann, B. (2000), Constructing material interfaces from data sets with volume-fraction information, presented at: "IEEE Visualization 2000," Salt Lake City, Utah, October 2000.

[122] Bremer, P.-T., Kreylos, O., Hamann, B. and Wolter, F.-E. (2000), Simplification of large, closed triangulated surfaces using atomic envelopes, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[121] Bremer, P.-T., Kreylos, O., Hamann, B. and Wolter, F.-E. (2000), Simplification of closed triangulated surfaces, presented at: "2000 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2000.

[120] Bremer, P.-T., Hamann, B., Kreylos, O. and Wolter F.-E. (2000), Simplification of closed triangulated surfaces, presented at: "The Fifth International Conference on Mathematical Methods for Curves and Surfaces," Oslo, Norway, June/July 2000.

[119] Duchaineau, M. A., Bertram, M., Joy, K. I. and Hamann, B. (2000), Realtime view-dependent optimization of billion-triangle isosurfaces, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[118] Gregorski, B. F., Hamann, B. and Joy, K. I. (2000), Approximating material interfaces during data simplification, presented at: "2000 UC Davis Student Workshop on Computing," University of

California, Davis, California, September 2000.

[117] Gregorski, B. F., Hamann, B. and Joy, K. I. (2000), Reconstruction of B-spline surfaces from scattered data points, presented at: "Computer Graphics International 2000," Geneva, Switzerland, June 2000.

[116] Hamann, B. (2000), Computer-aided geometric design methods for numerical grid generation: Non-uniform rational B-splines (NURBS), presented at: "Seventh International Conference on Numerical Grid Generation in Computational Field Simulations, Short Course on Advances in Numerical Grid Generation," Chateau Whistler Resort, Whistler, British Columbia, Canada, September 2000.

[115] Hamann, B. (2000), Grid generation technology and hierarchical approaches for the visualization of massive scientific data, invited presentation at: "Seventh International Conference on Numerical Grid Generation in Computational Field Simulations," Chateau Whistler Resort, Whistler, British Columbia, Canada, September 2000.

[114] Hamann, B. (2000), Hierarchical approaches for representing and visualizing massive scientific data sets, invited presentation at: Institut d'Informatique et Mathématiques Appliquées (IMAG), Laboratoire de Modélisation et Calcul, Grenoble, France, June 2000.

[113] Hamann, B., Joy, K. I., Max, N. L. and Rocke, D. M. (2000), Hierarchical methods for the representation and visualization of terascale data, ASCI ASAP Level 2 Program Review, Sandia National Laboratories, Livermore, California, May 2000.

[112] Heckel, B. and Hamann, B. (2001), Divisive parallel clustering for multiresolution analysis, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[111] Kreylos, O., Hamann, B., Ligocki, T. J. and Bethel, E. W. (2000), Interactive exploration of scientific data using virtual reality methods, presented at: "2000 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2000.

[110] Kreylos, O., Ma, K.-L. and Hamann, B. (2000), A multi-resolution interactive previewer for volumetric data on arbitrary meshes, presented at: "2000 International Computer Symposium – Workshop on Computer Graphics and Virtual Reality," National Chung Cheng University, Chiayi, Taiwan, R.O.C., December 2000.

[109] Kreylos, O., Ma, K.-L. and Hamann, B. (2000), Point-based rendering of arbitrary-mesh volumetric data at multiple levels of resolution, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[108] Küster, F., Duchaineau, M. A., Hamann, B., Joy, K. I. and Ma, K.-L. (2000), The DesignersWorkbench: Towards real-time immersive modeling, presented at: "Photonics West – Electronic Imaging 2000," San Jose, California, January 2000.

[107] Küster, F., Hamann, B. and Joy, K. I. (2000), Interactive two-handed terrain and set design in immersive environments, presented at: "The Tenth International Conference on Artificial Reality and Tele-existence (ICAT 2000)," National Taiwan University, Taipei, Taiwan, R. O. C., October 2000.

[106] Küster, F., Hamann, B. and Joy, K. I. (2000), Interactive two-handed virtual design, presented at: "2000 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2000.

[105] LaMar, E. C., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2000), Multiresolution techniques for interactive texture-based rendering of arbitrarily oriented cutting planes, presented at: "Joint Eurographics and IEEE TCVG Symposium on Visualization (VisSym '00)," Amsterdam, The Netherlands, May 2000.

[104] LaMar, E. C., Hamann, B. and Joy, K. I. (2000), Multiresolution techniques for interactive texture-

based volume visualization, presented at: "Photonics West – Electronic Imaging 2000," San Jose, California, January 2000.

[103] Ligocki, T. J., Van Straalen, B., Shalf, J. M., Weber, G. H. and Hamann, B. (2000), A framework for visualizing hierarchical computations, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[102] Meyer, J., Borg, R., Hamann, B., Joy, K. I., Ma, K.-L. and Max, N. L. (2000), Volume visualization of large-scale biomedical data, presented at: "NPACI All-hands Meeting 2000," San Diego Supercomputer Center (SDSC), University of California, San Diego, California, February 2000.

[101] Meyer, J., Borg, R., Hamann, B., Joy, K. I. and Olson, A. J. (2000), VR-based rendering techniques for large-scale biomedical data sets, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[100] Meyer, J., Borg, R., LaMar, E. C. and Hamann, B., (2000), VR-based rendering techniques for large-scale applications, invited presentation at: "Fourth Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, May 2000.

[99] Moritz, E., Küster, F., Hamann, B., Joy, K. I. and Hagen, H. (2000), Towards immersive clay modeling: Interactive modeling with octrees, presented at: "Photonics West – Electronic Imaging 2000," San Jose, California, January 2000.

[98] Pinskiy, D. V., Ahern, S., Brugger, E. S. and Hamann, B. (2000), Multiresolution cutting-plane visualization based on an octree, presented at: "2000 UC Davis Student Workshop on Computing," University of California, Davis, California, September 2000.

[97] Scheuermann, G., Hamann, B., Joy, K. I., Hagen, H. and Kollmann, W. (2000), Localizing vector field topology, invited presentation at: "Fourth Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, May 2000.

[96] Schussman, S. E., Bertram, M., Hamann, B. and Joy, K. I. (2000), Hierarchical data representations based on planar Voronoi diagrams, presented at: "Joint Eurographics and IEEE TCVG Symposium on Visualization (VisSym '00)," Amsterdam, The Netherlands, May 2000.

[95] Sigeti, D. E., Gregorski, B. F., Ambrosiano, J. J., Graham, G., Duchaineau, M. A., Hamann, B. and Joy, K. I. (2000), Approximating material interfaces in two- and three-dimensional meshes during data simplification, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[94] Takanashi, I., Lum, E. B., Meyer, J., Ma, K.-L., Hamann, B. and Olson, A. J. (2000), Segmentation and volume rendering of human brain cryosections, presented at: "IEEE Visualization 2000," Salt Lake City, Utah, October 2000.

[93] Trotts, I. J., Hamann, B., Joy, K. I. and Kenwright, D. N. (2000), Simplification of tetrahedral meshes using a quadratic error metric, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[92] Weber, G. H., Kreylos, O., Ligocki, T. J., Shalf, J. M., Hagen, H. and Hamann, B. (2000), Crack-free isosurfaces for AMR data, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[91] Wiley, D. F., Bertram, M., Jordan, B. W. and Hamann, B. (2000), Hierarchical best linear spline approximation, presented at: "NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and

Geometrical Methods for Scientific Visualization," Granlibakken Conference Center, Tahoe City, California, October 2000.

[90] Bertram, M., Hamann, B. and Joy, K. I. (1999), Progressive triangulations for scattered data, presented at: "1999 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1999.

[89] Gregorski, B. F., Hamann, B. and Joy, K. I. (1999), Reconstruction of surfaces from scattered points, presented at: "1999 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1999.

[88] Hamann, B. (1999), Representing and visualizing large-scale experimental and computer-simulated data sets, Medical Informatics/Bioinformatics Seminar, School of Medicine, Stanford University, Stanford, California, November 1999.

[87] Hamann, B. (1999), Visualization of data from earthquake simulation experiments and large data sets, presented at: "Workshop on Network Properties for the NSF Network for Earthquake Engineering Simulation (NEES) Program," UC Berkeley Richmond Field Station, Richmond, October 1999.

[86] Hamann, B. (1999), A look at the future of hierarchical schemes in scientific visualization, seminar talk presented at: National Energy Research Scientific Computing Center (NERSC), Lawrence Berkeley National Laboratory, University of California, Berkeley, California, September 1999.

[85] Eick, S., Hamann, B., Heermann, P., Johnson, C. and Krogh, M. (1999), Visualizing large-scale data sets: Challenges and opportunities, panel presentation, Ma, K.-L., organizer, and Van Rosendale, J., chair, in: *Conference Abstracts and Applications – ACM SIGGRAPH 99*, ACM Press, New York, New York, pp. 133–135.

[84] Hamann, B. (1999), A semi-automatic approach for the correction and reduction of large CAD data containing discontinuities, invited presentation, ELASIS, Fiat research center, Pomigliano, Italy, March 1999.

[83] Hamann, B. (1999), A survey of recent developments in hierarchical visualization technology for massive scientific data sets, Center for Applied Scientific Computing (CASC), Lawrence Livermore National Laboratory, Livermore, California, May 1999.

[82] Hamann, B. (1999), A vision for solving massive scientific data visualization problems, Los Alamos National Laboratory, Los Alamos, New Mexico, April 1999.

[81] Hamann, B. (1999), Best approximation, simulated annealing, and clustering methods for massive data visualization, invited seminar presentation, Department of Information and Computer Science, University of California, Irvine, California, February 1999.

[80] Hamann, B. (1999), Data refinement and coarsening methods supporting terascale data analysis and visualization, NASA Ames Research Center, Moffett Field, California, April 1999.

[79] Hamann, B. (1999), Dealing with large CAD data containing errors and trimming curves, invited presentation, Mechanical Engineering Department, Università degli Studi di Napoli Federico II, Naples, Italy, March 1999.

[78] Hamann, B. (1999), Dealing with terascale data in the context of data analysis and visualization, Sandia National Laboratory, New Mexico, April 1999.

[77] Hamann, B. (1999), Hierarchical approximation, clustering, and combinatorial optimization supporting multiresolution visualization, invited presentation at: "NSF/DOE Workshop on Large-scale Visualization and Data Management," Salt Lake City, Utah, May 1999.

[76] Hamann, B., chair (1999), Hierarchical data representations, remote visualization, and virtual reality, Birds-of-a-Feather presentation, "NPACI All-hands Meeting 1999," San Diego Supercomputer Center (SDSC), University of California, San Diego, California, January 1999.

[75] Hamann, B. (1999), Hierarchical methods addressing data and visualization corridor challenges,

invited presentation, "DOE Data and Visualization Corridors PI Meeting," Center for Advanced Computing Research, California Institute of Technology, Pasadena, California, March 1999.

[74] Hamann, B. (1999), How hierarchical visualization approaches can support analysis and visualization of large-scale computer-aided design data, presented at: "Workshop on Mathematical Foundations of CAD," Mathematical Sciences Research Institute, Berkeley, California, June 1999.

[73] Hamann, B. (1999), Multiresolution models in scientific visualization and the interplay between research and education, invited poster presentation at: "NSF CAREER Principal Investigator Meeting," Washington, D.C., January 1999.

[72] Hamann, B. (1999), Recent developments in interactive computer-aided design, invited presentation, Mechanical Engineering Department, Politecnico di Bari, Dipartimento di Progettazione e Produzione Industriale, Bari, Italy, March 1999.

[71] Hamann, B. and Kreylos, O. (1999), A simulated annealing method for the construction of hierarchical representations of scalar- and vector-valued functions, invited presentation at: "Fourth Dagstuhl Seminar on Geometric Modelling," Dagstuhl, Germany, May 1999.

[70] Hamann, B., Kreylos, O., Monno, G. and Uva, A. E. (1999), Optimal linear spline approximation of digitized models, presented at: "1999 IEEE International Conference on Information Visualization," London, United Kingdom, July 1999.

[69] Heckel, B., Weber, G. H., Hamann, B. and Joy, K. I. (1999), Construction of vector field hierarchies, presented at: "IEEE Visualization '99," San Francisco, California, October 1999.

[68] Jankun-Kelly, T. J., Hamann, B., Joy, K. I. and Uselton, S. P. (1999), Towards corner matching for 2D and 3D, presented at: "1999 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1999.

[67] Kreylos, O. and Hamann, B. (1999), On simulated annealing and the construction of linear spline approximations for scattered data, presented at: "Joint Eurogra- phics-IEEE TCCG Symposium on Visualization (VisSym '99)," Vienna, Austria, May 1999.

[66] Küster, F., Duchaineau, M. A., Hamann, B., Joy, K. I., and Uva, A. E. (1999), 3DIVS: 3-dimensional immersive virtual sculpting, presented at: "Eigth ACM International Conference on Information and Knowledge Management (CIKM '99) – Workshop on New Paradigms in Information Visualization and Manipulation (NPIV '99)," Kansas City, Missouri, November 1999.

[65] Küster, F. and Hamann, B. (1999), The designer workbench project – Semi-immersive interactive modeling, presented at: "1999 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1999.

[64] Küster, F., Uva, A. E., Hamann, B. and Monno, G. (1999), 3DIVS: 3-dimensional immersive virtual sketching, presented at: "12th International Conference on Engineering Design (ICED '99)," Munich, Germany, August 1999.

[63] LaMar, E. C., Hamann, B. and Joy, K. I. (1999), Multiresolution techniques for interactive texture-based volume visualization, presented at: "IEEE Visualization '99," San Francisco, California, October 1999.

[62] Liverani, A., Küster, F. and Hamann, B. (1999), Towards interactive finite element analysis of shell structures in virtual reality, presented at: "1999 IEEE International Conference on Information Visualization," London, United Kingdom, July 1999.

[61] Schussman, S. E., Bertram, M., Hamann, B. and Joy, K. I. (1999), Hierarchical data representations based on planar Voronoi diagrams, presented at: "1999 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1999.

[60] Weber, G. H., Heckel, B., Hamann, B. and Joy, K. I. (1999), Procedural generation of triangulation-based visualizations, presented at: "IEEE Visualization '99 – Late Breaking Hot Topics," San Fran-

cisco, California, October 1999.

[59] Hamann, B. (1998), Hierarchical approaches for representing and visualizing massive scientific data sets, presented in the seminar series of the Center for Applied Scientific Computing (CASC), Lawrence Livermore National Laboratory, Livermore, California, July 1998.

[58] Hamann, B. (1998), Hierarchical visualization: Challenges and approaches, invited seminar presentation, Interaction Environments Thrust, San Diego Supercomputer Center (SDSC), University of California, San Diego, California, July 1998.

[57] Hamann, B. (1998), Massive scientific data sets in science and engineering applications and how to represent them hierarchically, invited presentation, Silicon Graphics, Inc., Mountain View, California, December 1998.

[56] Hamann, B. (1998), Multiresolution methods in scientific visualization – Current approaches and research issues, presented at: "ONR Workshop on Research Issues in Visualization," Washington, D.C., June 1998.

[55] Hamann, B. (1998), The challenges in terascale data representation and visualization, invited presentation, Mitsubishi Electric Research Laboratories, Inc., Cambridge Research Center, Cambridge, Massachusetts, November 1998.

[54] Hamann, B. (1998), Various approaches to hierarchical data modelling, invited presentation at: "First Dagstuhl Seminar on Hierarchical Methods in Computer Graphics," Dagstuhl, Germany, May 1998.

[53] Heckel, B. and Hamann, B. (1998), ObVis: A generic framework for information visualization, presented at: "Seventh ACM International Conference on Information and Knowledge Management (CIKM '98) – Workshop on New Paradigms in Information Visualization and Manipulation (NPIV '98)," Bethesda, Maryland, November, 1998.

[52] Heckel, B. and Hamann, B. (1998), Visualization of cluster hierarchies, presented at: "Photonics West – Electronic Imaging '98," San Jose, California, January 1998.

[51] Heckel, B., Uva, A. E. and Hamann, B. (1998), Clustering-based generation of hierarchical surface models, presented at: "IEEE Visualization '98 – Late Breaking Hot Topics," Research Triangle Park, North Carolina, October 1998.

[50] Trotts, I. J. and Hamann, B. (1998), Texture planes: Real-time volume rendering using hardware texture mapping and alpha blending, presented at: "1998 UC Davis Student Workshop on Computing," University of California, Davis, California, October 1998.

[49] Trotts, I. J., Hamann, B., Joy, K. I. and Wiley, D. F. (1998), Simplification of tetrahedral meshes, presented at: "IEEE Visualization '98," Research Triangle Park, North Carolina, October 1998.

[48] Uva, A. E., Monno, G. and Hamann, B. (1998), A new method for the repair of CAD data with discontinuities, presented at: "II Seminario Italo-Espanol – Progettazione e Fattibilitá dei Prodotti Industriali" (Design and Feasibility of Industrial Products), Naples, Italy, June 1998.

[47] Barnes, J. C., Hamann, B. and Joy, K. I. (1997), An edge-preserving, data-dependent triangulation scheme for hierarchical rendering, invited presentation at: "Third Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, June 1997.

[46] Cox, M. B., Crawfis, R. A., Hamann, B., Hanson, C. and Miller, M. C. (1997), Terascale visualization: Approaches, pitfalls and issues, panel presentation (receiving "Best Panel" award), Hunter, C. L. and Crawfis, R. A., chairs, in: Yagel, R. and Hagen, H., eds., *IEEE Visualization '97*, IEEE Computer Society Press, Los Alamitos, California, pp. 507–509.

[45] Gieng, T. S., Hamann, B., Joy, K. I., Schussman, G. L. and Trotts, I. J. (1997), Smooth hierarchical surface triangulations, presented at: "IEEE Visualization '97," Phoenix, Arizona, October 1997.

[44] Hamann, B. (1997), Data decimation and hierarchical data representation schemes for very large data sets, invited presentation at: "Workshop on Approaches to the Analysis and Visualization of Massive

Data Sets," UC San Diego and San Diego Supercomputer Center (SDSC), San Diego, California, March 1997.

[43] Hamann, B. (1997), Hierarchical and multiresolution methods for curves, surfaces, and volumetric data, invited presentation at: "The Fourth International Conference on Mathematical Methods for Curves and Surfaces," Lillehammer, Norway, July 1997.

[42] Hamann, B. (1997), Hierarchical representations of very large data sets for analysis and visualization, presented in the MURI Seminar Series of the Computer Sciences Division, Electrical Engineering and Computer Sciences Department, University of California, Berkeley, California, April 1997.

[41] Hamann, B. (1997), Hierarchical representations of very large data sets for analysis and visualization, presented in the Graphics Lunch series of the Computer Graphics Laboratory, Computer Science Department, Stanford University, Stanford, California, December 1997.

[40] Hamann, B. (1997), Solution approaches to the large-scale visualization problems of the near future, presented in the Numerical Methods Seminar, Mathematics Group, Lawrence Berkeley National Laboratory, University of California, Berkeley, California, August 1997.

[39] Hamann, B. (1997), Research challenges in terascale data visualization, invited presentation at "DOE Workshop on Terascale Visualization," organized by C. Hunter and R. Springmeyer, Lawrence Livermore National Laboratory, September 9–12.

[38] Hamann, B. and Jordan, B. W. (1997), Research Issues regarding hierarchical data representations, invited presentation at: "NSF Workshop on Voronoi Diagrams, Triangulations, and Splines," Tempe, Arizona, February, 1997.

[37] Heckel, B. and Hamann, B. (1997), EmVis – A visual e-mail analysis tool, presented at: "Sixth ACM International Conference on Information and Knowledge Management (CIKM '97) – Workshop on New Paradigms in Information Visualization and Manipulation (NPIV '97)," Las Vegas, Nevada, November 1997.

[36] Joy, K. I., Hamann, B., Gieng, T. S., Schussman, G. L. and Trotts, I. J. (1997), Smooth blending of multiresolution surface triangulations, presented at: "Fifth SIAM Conference on Geometric Design," Nashville, Tennessee, November 1997.

[35] Wynn, C. W., Barnes, J. C., Hamann, B. and Miller, M. C. (1997), Multiresolution and adaptive rendering techniques for structured, curvilinear data, invited presentation at: "Third Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, June 1997.

[34] Banks, D. C., Hamann, B., Tsai, P.-Y., Moorhead, R. J. and Barlow, J. H. (1996), Data reduction and interpolation for visualizing 3D soil-quality data, presented at: "IEEE Visualization '96," San Francisco, California, October/November 1996.

[33] Hamann, B. (1996), Correction of discontinuous CAD data using geometric modeling (in German: Approximation diskontinuierlicher CAD-Daten unter Verwendung des Geometrischen Modellierens), invited presentation, Department of Computer Science Seminar, Technical University of Braunschweig, Germany, November 1996.

[32] Forgang, A. B., Hamann, B. and Cerco, C. F. (1996), Visualization of water quality data for the Chesapeake Bay, presented at: "IEEE Visualization '96," San Francisco, California, October/November 1996.

[31] Hamann, B. (1996), Using Voronoi diagrams and scan line algorithms for the rendering and discretization of trimmed surfaces, invited presentation at: "Third Dagstuhl Seminar on Geometric Modelling," Dagstuhl, Germany, May 1996.

[30] Hamann, B. and Jordan, B. W. (1996), Research Issues in Scientific Visualization – Representing Large Scientific Data Sets Using Multiresolution Triangulations, invited presentation at: "ONR Volume Visualization Workshop," Tempe, Arizona, February, 1996.

[29] Tsai, P.-Y. and Hamann, B. (1996), Decomposing trimmed surfaces using the Voronoi tessellation, presented at: "Fifth International Conference on Numerical Grid Generation in Computational Fluid Dynamics and Related Fields," Mississippi State University, Mississippi State, Mississippi, April 1996.

[28] Hamann, B. (1995), A survey of recent developments in surface modeling and geometry processing for computer-aided design, invited seminar presentation, Department of Computer Science, University of California, Davis, California, April 1995.

[27] Hamann, B., Jean, B. A. and Tsai, P.-Y. (1995), Interactive construction of B-spline approximations of surfaces and a tessellation algorithm for the representation of trimmed surfaces for use in numerical grid generation, presented at: "The Third International Congress on Industrial and Applied Mathematics (ICIAM/SIAM) '95," Hamburg, Germany, July 1995.

[26] Hamann, B. and Tsai, P.-Y. (1995), Decomposing trimmed surfaces using the Voronoi diagram and a scan line algorithm, presented at: "Second Mississippi State Conference on Differential Equations and Computational Simulations," Mississippi State University, Mississippi State, Mississippi, April 1995.

[25] Lever, J. A., Moorhead, R. J. and Hamann, B. (1995), Oceanographic visualization interactive research tool (OVIRT), presented at: "Third Thematic Conference on Remote Sensing for Marine and Coastal Environments," Seattle, Washington, September 1995.

[24] Hamann, B. (1994), Triangulations in the context of static mesh problems, presented at: "NSF/SEMATECH Workshop on Gridding in VLSI TCAD," Mississippi State University-NSF Engineering Research Center for Computational Field Simulation, Mississippi State University, Mississippi State, Mississippi, March 1994.

[23] Hamann, B., Chen, J.-L. and Hong, G. (1994), Automatic generation of unstructured grids for volumes outside or inside closed surfaces, presented at: "Fourth International Conference on Numerical Grid Generation in Computational Fluid Dynamics and Related Fields," Swansea, United Kingdom, April 1994.

[22] Hamann, B. and Tsai, P.-Y. (1994), Tessellation algorithms for the representation of trimmed surfaces, presented at: "Third Workshop on Proximity Graphs," Mississippi State University, Mississippi State, Mississippi, December 1994.

[21] Hamann, B., Wu, D. and Moorhead, R. J. (1994), On particle path generation based on quadrilinear interpolation and Bernstein-Bézier polynomials, invited presentation at: "Second Dagstuhl Seminar on Scientific Visualization," Dagstuhl, Germany, May 1994.

[20] Jean, B. A. and Hamann, B. (1994), Interactive techniques for correcting CAD/CAM data, presented at: "Fourth International Conference on Numerical Grid Generation in Computational Fluid Dynamics and Related Fields," Swansea, United Kingdom, April 1994.

[19] Moorhead, R. J., Hamann, B., Everitt, C., Jones, S. C., McAllister, J. and Barlow, J. H. (1994), Oceanographic visualization interactive research tool (OVIRT), presented at: "Visual Data Exploration and Analysis," San Jose, California, February 1994.

[18] Remotigue, M. G., Gaither, A., Hamann, B., Jean, B. A., Mastin, C. W., Parmley, K. P., Soni, B. K., Thompson, J. F. and Vaughan, P. (1994), The National Grid Project: Making dreams into reality, presented at: "Fourth International Conference on Numerical Grid Generation in Computational Fluid Dynamics and Related Fields," Swansea, United Kingdom, April 1994.

[17] Barnhill, R. E., Farin, G. and Hamann, B. (1993), NURBS and grid generation, presented at: "IMA Summer Program on Modeling, Mesh Generation, and Adaptive Numerical Methods for Partial Differential Equations," Minneapolis, Minnesota, July 1993.

[16] Hamann, B. (1993), Construction of B-spline approximations for use in numerical grid generation, presented at: "Differential Equations & Computational Simulations," Mississippi State University,

Mississippi State, Mississippi, March 1993.

[15] Hamann, B. (1993), Interactive construction of B-spline approximations of surfaces for use in numerical grid generation, invited presentation at: "Second Dagstuhl Seminar on Geometric Modelling," Dagstuhl, Germany, June/July 1993.

[14] Hamann, B. (1993), Triangle reduction for use in computer graphics and grid generation, presented at: "Second Workshop on Proximity Graphs," Mississippi State University, Mississippi State, Mississippi, February 1993.

[13] Hamann, B. and Jean, B. A. (1993), Interactive surface correction based on a local approximation scheme, presented at: "Third SIAM Conference on Geometric Design," Tempe, Arizona, November 1993.

[12] Hamann, B., Lever, J. and Moorhead, R. J. (1993), Oceanographic visualization interactive research tool (OVIRT), presented at: "Navy Scientific Visualization and Virtual Reality Seminar," Bethesda, Maryland, June 1993.

[11] Soni, B. K. and Hamann, B. (1993), Computational geometry tools in grid generation, invited presentation at: "First International Conference on Hydro-science & -engineering," Washington, D.C., June 1993.

[10] Hamann, B. (1993), A program concept for teaching and research in computer graphics and geometric modeling (in German: Ein Lehr- und Forschungskonzept für Computergraphik und Geometrisches Modellieren), invited presentation, Department of Computer Science Seminar, University of Rostock, Germany, March 1993.

[9] Hamann, B. (1992), Geometric modeling and scientific visualization at the Mississippi State University-NSF Engineering Research Center for Computational Field Simulation (in German: Geometrisches Modellieren und wissenschaftliche Visualisierung am Mississippi State University-NSF Engineering Research Center for Computational Field Simulation), invited presentation, Department of Computer Science Seminar, University of Kaiserslautern, Germany, July 1992.

[8] Hamann, B., Moorhead, R. J. and Meyer, D. B. (1992), Oceanographic volumetric interactive research tool (OVIRT), Version 1, presented at: Naval Oceanographic Office (NAVO), Stennis Space Center, Mississippi, May 1992.

[7] Hamann, B. (1992), Spline and geometric modeling techniques applied to scientific visualization problems, invited presentation, Department of Mathematics Seminar, Vanderbilt University, Nashville, Tennessee, March 1992.

[6] Hamann, B. (1991), Curvature approximation for triangulated surfaces, invited presentation at: "First Dagstuhl Seminar on Geometric Modelling," Dagstuhl, Germany, July 1991.

[5] Hamann, B. and Foley, T. A. (1991), A quartic spline based on a variational approach, presented at: "Second SIAM Conference on Geometric Design," Tempe, Arizona, November 1991.

[4] Nielson, G. M. and Hamann, B. (1991), The asymptotic decider: Resolving the ambiguity in marching cubes, presented at: "IEEE Visualization '91," San Diego, California, October 1991.

[3] Hamann, B. (1990), Modeling contours of trivariate data, presented at: "Topics in CAGD '90," Erice, Italy, May 1990.

[2] Nielson, G. M. and Hamann, B. (1990), Techniques for the interactive visualization of volumetric data, presented at: "IEEE Visualization '90," San Francisco, California, October 1990.

[1] Hamann, B., Farin, G. and Nielson, G. M. (1989), A parametric triangular patch based on generalized conics, presented at: "First SIAM Conference on Geometric Design," Tempe, Arizona, November 1989.

Co-PI (UC Davis component), ,,Physical modelling for virtual manufacturing systems and processes", International Research Training Group (IRTG) effort, second phase, University of Kaiserslautern, Germany (overall lead institution), UC Davis (U.S. lead institution), and UC Berkeley, **Deutsche Forschungsgemeinschaft (DFG), German Research Foundation**, with Jan C. Aurich (PI and Co-Director), Bahram Ravani (Co-PI and Co-Director) and Tarek I. Zohdi (Co-PI and Co-Director), **5,301,780 euro**, 1/1/2019 – 30/6/2023.

PI, ,,Los Alamos National Laboratory - UC Davis Institute of Next-generation Visualization and Analysis (INGVA)", **Los Alamos National Laboratory**, with Kwan-Liu Ma (Co-PI), **$165,000**, 1/10/2016 – 30/9/2017.

PI, ,,Los Alamos National Laboratory - UC Davis Institute of Next-generation Visualization and Analysis (INGVA)", **Los Alamos National Laboratory**, with Kwan-Liu Ma (Co-PI), **$165,000**, 1/10/2015 – 30/9/2016.

PI, ,,Los Alamos National Laboratory - UC Davis Institute of Next-generation Visualization and Analysis (INGVA)", **Los Alamos National Laboratory**, with Kenneth I. Joy, Kwan-Liu Ma and John D. Owens (Co-PIs), **$213,571**, 1/10/2014 – 30/9/2015.

Co-PI (UC Davis component), ,,Physical modelling for virtual manufacturing systems and processes", International Research Training Group (IRTG) effort, first phase, University of Kaiserslautern, Germany (overall lead institution), UC Davis (U.S. lead institution), and UC Berkeley, **Deutsche Forschungsgemeinschaft (DFG), German Research Foundation**, with Jan C. Aurich (PI and Co-Director), Bahram Ravani (Co-PI and Co-Director) and David A. Dornfeld (Co-PI and Co-Director), **5,700,000 euro**, 1/7/2014 – 31/12/2018.

PI, ,,Los Alamos National Laboratory - UC Davis Institute of Next-generation Visualization and Analysis (INGVA)", **Los Alamos National Laboratory**, with Kenneth I. Joy, Kwan-Liu Ma and John D. Owens (Co-PIs), **$200,000**, 1/10/2013 – 30/9/2014.

Co-PI, ,,Third International Workshop on Visualization in Medicine and Life Sciences 2013", workshop and program co-chairs: Lars Linsen, Bernd Hamann and Hans-Christian Hege, **Deutsche Forschungsgemeinschaft (DFG), German Research Foundation**, with Lars Linsen (PI) and Hans-Christian Hege (Co-PI), **7,200 euro**, Leipzig, Germany, 16.–18. Juni 2013.

PI, ,,Los Alamos National Laboratory - UC Davis Institute of Next-generation Visualization and Analysis (INGVA)", **Los Alamos National Laboratory**, with Kenneth I. Joy, Kwan-Liu Ma and John D. Owens (Co-PIs), **$124,998**, 1/10/2012 – 30/9/2013.

Co-Investigator, ,,Los Alamos National Laboratory - UC Davis Education Collaboration: Materials Design Institute (MDI)", **Los Alamos National Laboratory**, with Enrique J. Lavernia (UC Davis PI), Daniel J. Thoma (Los Alamos National Laboratory PI), and Ricardo H. R. Castro, Jean-Pierre Delplanque, David A. Horsley, Niels G. Jensen, Billy R. Sanders and Julie M. Schoenung (co-investigators), **$479,707** (Computer Science component: $120,883), 1/10/2012 – 30/9/2013.

PI, ,,Performance Visualization at Exascale", **University of California**, UC Laboratory Fees Research Grant Program, with Peer-Timo Bremer (Lawrence Livermore National Laboratory PI) and George Todd Gamblin (Lawrence Livermore National Laboratory Co-PI), **$1,001,500** (UC Davis Computer Science component: $697,243), 1/7/2012 – 30/6/2017 (first no-cost extension for 1/10/2015 – 30/9/2016, second no-cost extension for 1/10/2016 – 30/6/2017).

Co-PI, ,,CI-TEAM Implementation Project: Dynamic interdisciplinary research environment to engage and develop cyber-ready workforce", **National Science Foundation**, Office of Cyberinfrastructure, with Louise H. Kellogg (PI), Eric S. Cowgill, Joseph Dumit, Dawn Y. Sumner (Co-PIs), Anamaria B. Amenta, Magali I. Billen, James P. Crutchfield, Hagen, H., Oliver Kreylos, Colin N. Milburn, Michael E. Oskin, S. Geoffrey Schladow and Timothy D. Weaver (Other Senior Personnel), **$949,992**, 1/12/2011 – 30/11/2016 (no-cost extension for 1/12/2015 – 30/11/2016).

Co-Investigator, ,,Los Alamos National Laboratory - UC Davis Education Collaboration: Materials Design Institute (MDI)", **Los Alamos National Laboratory**, with Enrique J. Lavernia (UC Davis PI), Daniel J. Thoma (Los Alamos National Laboratory PI), and Ricardo H. R. Castro, Jean-Pierre Delplanque, David A. Horsley, Niels G. Jensen, Billy R. Sanders and Julie M. Schoenung (co-investigators), **$638,578** (Computer Science component: $135,992), 1/10/2011 – 30/9/2012.

Co-PI, ,,CDI-Type II: Collaborative Research—Four-dimensional visualization of past ocean circulation from paleoceanographic data", **National Science Foundation**, Cyber-enabled Discovery and Innovation (CDI) program, with Howard J. Spero (PI), Louise H. Kellogg, Oliver Kreylos (UC Davis Co-PIs), Geoffrey A. Gebbie (Woods Hole Oceanographic Institution PI) and Lorraine E. Lisiecki (UC Santa Barbara PI), **$1,806,003** (UC Davis component: $771,126), 1/9/2011 – 31/8/2017 (no-cost extension for 1/9/2015 – 31/8/2017).

Co-Investigator, ,,Los Alamos National Laboratory - UC Davis Education Collaboration: Materials Design Institute (MDI)", **Los Alamos National Laboratory**, with Enrique J. Lavernia (UC Davis PI), Daniel J. Thoma (Los Alamos National Laboratory PI), and Nigel Browning, Jean-Pierre Delplanque, Joanna R. Groza, David A. Horsley, Niels G. Jensen and Billy R. Sanders (co-investigators), **$751,643** (Computer Science component: $52,135), 1/10/2010 – 30/9/2011.

Co-Investigator, ,,Los Alamos National Laboratory - UC Davis Education Collaboration: Materials Design Institute (MDI)", **Los Alamos National Laboratory**, with Enrique J. Lavernia (Davis PI) and Daniel J. Thoma (Los Alamos National Laboratory PI), and Nigel Browning, Jean-Pierre Delplanque, Joanna R. Groza, David A. Horsley, Niels G. Jensen and Billy R. Sanders (co-investigators), **$455,000** (Computer Science component: $69,731), 1/10/2009 – 30/9/2010.

Co-Investigator, ,,Digitally merged environments", planning grant to develop a Canada-California multi-institutional effort, **Canada-California Strategic Innovation Partnership (CCSIP) Program**, with Jeremy Cooperstock (PI, Canada), Sheldon Brown (Co-PI, University of California), Ruzena Bajcsy, Chris Barnes, Pierre Boulanger, Chris Chafe, Luc Courchesne, Keith Devlin, Herbert Enns, Gordon Fitzell, JoAnn Kuchera-Morin, Martha Ladly, George Legrady, Michael McGuffin, Peter Otto, Benoit Pirenne, John Roston, Wieslaw Woszczyk and Shahrokh Yadegari (Co-Investigators), **$48,400** (original request), 1/9/2009 – 31/7/2010.

Co-PI, ,,Second International Workshop on Visualization in Medicine and Life Sciences 2009", workshop and program co-chairs: Lars Linsen, Hans Hagen, Bernd Hamann and Hans-Christian Hege, **Deutsche Forschungsgemeinschaft (DFG), German Research Foundation**, with Lars Linsen (PI), Hans Hagen and Hans-Christian Hege (Co-PIs), **5,440 euro**, Bremerhaven, Germany, 22.–24. Juli 2009.

Co-PI and Co-Director, ,,Visualization of large and unstructured data sets—Applications in geospatial planning, modeling, and engineering", International Research Training Group (IRTG) effort, second phase, University of Kaiserslautern, Germany (overall lead institution), UC Davis (U.S. lead institution), Arizona State University, and The University of Utah, **Deutsche Forschungsgemeinschaft (DFG), German Research Foundation**, with Hans Hagen (PI and Co-Director), **2,741,259 euro**, 1/7/2009 – 31/12/2013 (additional funding of approx. **280,000 euro** for period 1/7/2009–31/12/2013 provided by Ministry for Science, Education, Research and Culture, Mainz, Rhineland-Palatinate,

Germany, and funding of approx. **200,000 euro** for period 1/9/2009 – 30/8/2012 provided by Deutsches Zentrum für Luft- und Raumfahrt (DLR), German Aerospace Center).

Co-Investigator, ,,UC Management Contingency Award (UCOP): Materials Design Institute (MDI)", **University of California Office of the President**, with Enrique J. Lavernia (UC Davis PI), Daniel J. Thoma (Los Alamos National Laboratory PI), and Nigel Browning, Jean-Pierre Delplanque, Joanna R. Groza, David A. Horsley, Niels G. Jensen and Billy R. Sanders (co-investigators), **$345,168** (Computer Science component: $44,915), 1/1/2009 – 31/12/2009.

Co-Investigator, ,,Los Alamos National Laboratory - UC Davis Education Collaboration: Materials Design Institute (MDI)", **Los Alamos National Laboratory**, with Enrique J. Lavernia (UC Davis PI) and Daniel J. Thoma (Los Alamos National Laboratory PI), and Mark D. Asta, Nigel Browning, Jean-Pierre Delplanque, Joanna R. Groza, David A. Horsley, Niels G. Jensen and Billy R. Sanders (co-investigators), approx. **$955,000** (Computer Science component: approx. $113,400), 1/10/2008 – 30/9/2009.

Co-PI, ,,Planning grant to support the development of the project: ,Visualization as a tool in informal science education at Lake Tahoe", **National Science Foundation**, Division of Research on Learning in Formal and Informal Settings (DRL), **$73,697**, with S. Geoffrey Schladow (PI) and Oliver Kreylos (Co-PI), 15/7/2008 – 14/7/2010.

Co-PI, ,,CI-TEAM Implementation Project: Enabling interactive visual exploration and remote collaboration for the geosciences and physical sciences", **National Science Foundation**, Office of Cyberinfrastructure, **$920,672**, with Louise H. Kellogg (PI), Magali I. Billen, James P. Crutchfield, Dawn Y. Sumner (Co-PIs), Eric S. Cowgill, Oliver Kreylos and Oliver G. Staadt (Other Senior Personnel), 1/3/2008 – 31/3/2012.

Co-PI (of local UC Davis sub-award), ,,Tele-immersive environments for geographically distributed collaborations amongst medical professionals", Center for Information Technology Research in the Interest of Society (CITRIS), **State of California**, **$75,000** (total UC Davis sub-award: $30,999), with Ruzena Bajcsy (UC Berkeley, overall PI), Louise H. Kellogg and Oliver Kreylos (local UC Davis Co-PIs), 1/1/2008 – 31/5/2010.

PI, ,,Topology-based methods for analysis and visualization of noisy data", **National Science Foundation**, Computing and Communication Foundations (CCF) Division, Foundations of Computing Processes and Artifacts Cluster, **$300,000**, with Valerio Pascucci and Gunther H. Weber (Co-PIs), 1/9/2007 – 31/8/2011.

PI, ,,The transcription network controlling Drosophila development", **Lawrence Berkeley National Laboratory**, **$29,335**, with Gunther H. Weber (Senior Personnel), 1/8/2007 – 31/12/2008.

Co-Investigator, ,,Los Alamos National Laboratory - UC Davis Education Collaboration: Materials Design Institute (MDI)", **Los Alamos National Laboratory**, with Enrique J. Lavernia (UC Davis PI) and Daniel J. Thoma (Los Alamos National Laboratory PI), and Mark D. Asta, Nigel Browning, Jean-Pierre Delplanque, Joanna R. Groza, David A. Horsley, Niels G. Jensen and Billy R. Sanders (co-investigators), approx. **$988,000** (IDAV component: approx. $88,000), 1/10/2007 – 30/9/2008.

Investigator, ,,BioSafaris: A Software Prototype Introducing Four Human Body Systems", **Alternatives Research and Development Foundation (ARDF)**, Jenkintown, Pennsylvania, **$11,000**, with Lynette A. Hart (PI), 4/8/2007.

PI, ,,Analysis and visualization of scientific data using topology-based methods", **Lawrence Livermore National Laboratory**, **$17,231**, with Vijay Natarajan and Gunther H. Weber (Co-PIs), 20/8/2006 – 30/9/2006.

PI, ,,The transcription network controlling Drosophila development", **Lawrence Berkeley National Laboratory**, **$112,978**, with Gunther H. Weber (Co-PI), 1/8/2006 – 31/7/2007.

Co-Investigator, ,,Los Alamos National Laboratory - UC Davis Education Collaboration: Materials Design Institute (MDI)", **Los Alamos National Laboratory**, with Enrique J. Lavernia (UC Davis PI) and Daniel J. Thoma (Los Alamos National Laboratory PI), and Mark D. Asta, Nigel Browning, Jean-Pierre Delplanque, Joanna R. Groza, David A. Horsley, Niels G. Jensen and Billy R. Sanders (co-investigators), approx. **$800,000** (IDAV component: approx. $87,500), 1/10/2006 – 30/9/2007.

Co-PI of UC Davis sub-contract, ,,Seeing the unsee-able—Visualization and analytics center for enabling technologies (VACET)", **Department of Energy**, Office of Science, Scientific Discovery through Advanced Computing (SciDAC) II Program, approx. **$11,000,000** (UC Davis sub-award: $1,494,955), with E. Wes Bethel (PI), Christopher Johnson, Charles D. Hansen, Steven Parker, Claudio T. Silva, Kenneth I. Joy (PI of UC Davis sub-contract), Sean Ahern, George Ostrouchov, Jeremy Meredith, Valerio Pascucci, Peter Lindstrom, Mark A. Duchaineau, Jonathan Cohen, Daniel E. Laney, Hank R. Childs, Kathleen S. Bonnell, Ming Jiang and Ajith Arthur Mascarenhas (Co-PIs), 15/9/2006 – 14/9/2011.

Co-PI, ,,Biology safaris: Software prototype on the respiratory system for Seventh Grade Life Science", **Association of Veterinarians for Animal Rights (AVAR)**, Davis, California, **$10,000**, with Lynette A. Hart (PI), Marco Molinaro and David F. Wiley (Co-PIs), 31/8/2006.

Co-PI, ,,Biology safaris: Software prototype on the digestive system for Seventh Grade Life Science", **The William and Charlotte Parks Foundation for Animal Welfare**, Gaithersburg, Maryland, **$7,000**, with Lynette A. Hart (PI), Marco Molinaro and David F. Wiley (Co-PIs), 31/7/2006 – 5/31/2008.

Co-PI, ,,International Workshop on Visualization in Medicine and Life Sciences", workshop and program co-chairs: Lars Linsen, Hans Hagen and Bernd Hamann, **Deutsche Forschungsgemeinschaft (DFG), German Research Foundation**, with Lars Linsen (PI) and Hans Hagen (Co-PI), **4,160 euro**, Binz, Rügen, Germany, 19.–21. Juli 2006.

Co-PI, ,,Scientific visualization in the geological sciences: An interdisciplinary research experience for undergraduates", **University of California Presidential Chair in Undergraduate Education** program, Office of the Provost, **University of California, Davis**, **$90,000** (original request), with Louise H. Kellogg (PI), 1/7/2006 – 30/6/2010.

Co-PI, ,,Production of alternatives for laboratory dissection", donation to the UC Davis Center for Animal Alternatives, School of Veterinary Medicine, **Animal Welfare Institute**, Washington, D.C., **$15,000**, with Lynette A. Hart (PI) and David F. Wiley (Co-PI), 19/6/2006.

Co-PI, ,,The UC Davis Energy Efficiency Center", **California Clean Energy Fund (CalCEF)** and **Pacific Gas and Electric (PG&E)**, Energy Efficiency Challenge Grant competition, **$1,500,000** (CalCEF: $1,000,000, PG&E: $500,000), (matched by **$1,300,000** provided by UC Davis), with Daniel Sperling (PI), Andrew S. Hargadon, Bryan M. Jenkins and Michael J. Siminovitch (Co-PIs), 1/4/2006 – 31/3/2011.

PI, ,,The transcription network controlling Drosophila development", **Lawrence Berkeley National Laboratory**, **$116,896**, with Gunther H. Weber (Co-PI), 1/8/2005 – 31/7/2006.

PI, ,,Proposal for an international activities planning workshop", **University of California, Davis**, University Outreach and International Programs, **$12,000**, with Louise H. Kellogg, Hans Hagen, Kenneth I. Joy, Bruce L. Kutter and John B. Rundle, 1/4/2005 – 31/12/2007.

PI, ,,Topological analysis for scientific visualization", **Lawrence Livermore National Laboratory**, **$74,613**, with Vijay Natarajan and Gunther H. Weber (Co-PIs), 1/4/2005 – 30/9/2005.

Co-PI, ,,SEI(SBE): Collaborative research on visualization of evolutionary transformation using 3D morphometrics: African monkeys as a test case", **National Science Foundation**, Science and Engineering Informatics (SEI) Program, **$477,419**, with Anamaria B. Amenta (PI) and Ryosuke Motani

(Co-PI), 1/7/2005 – 30/6/2008.

Co-PI and Co-Director, ,,Visualization of large and unstructured data sets—Applications in geospatial planning, modeling, and engineering", International Research Training Group (IRTG) effort, first phase, University of Kaiserslautern, Germany (overall lead institution), UC Davis (U.S. lead institution), Arizona State University, UC Irvine, and The University of Utah, **Deutsche Forschungsgemeinschaft (DFG), German Research Foundation**, with Hans Hagen (PI and Co-Director), **2,540,940 euro**, 1/1/2005 – 30/6/2009 (additional funding of approx. **300,000 euro** for period 1/1/2005 – 30/6/2009 provided by Ministry for Science, Education, Research and Culture, Mainz, Rhineland-Palatinate, Germany).

PI, ,,Analysis and visualization of scientific data sets using generalized segmentation methods", **Lawrence Livermore National Laboratory**, **$23,456**, 11/8/2004 – 30/9/2004.

PI, ,,Mathematical foundations of scientific visualization, computer graphics, and massive data exploration", workshop and program co-chairs: Bernd Hamann, Torsten Möller and Robert D. Russell, **Natural Science and Engineering Research Council of Canada (NSERC), National Science Foundation (NSF) and Alberta Science Research Authority (ASRA)**, with Torsten Möller and Robert D. Russell (Co-PIs), **$1,000** (travel grant), Banff International Research Station (BIRS), Banff Centre, Banff, Alberta, Canada, 22.–27. Mai 2004.

PI, ,,Clustering of adaptive mesh refinement data and exploration of comparative genomics data", **Lawrence Berkeley National Laboratory**, **$90,000**, with Kenneth I. Joy (Co-PI), 1/1/2004 – 30/9/2004.

Co-PI, ,,Collaborative teaching and learning over ConferenceXP", **Microsoft Research**, with S. J. Ben Yoo (PI), Chen-Nee Chuah and Oliver G. Staadt (Co-PIs), **$35,000**, 1/10/2004 – 31/3/2005.

Co-PI, ,,Efficient and reliable data exploration via multi-scale Morse analysis and combinatorial information visualization", **Lawrence Livermore National Laboratory**, Institute for Scientific Computing Research (ISCR), University Relations Program (URP) and Center for Applied Scientific Computing (CASC), Laboratory Directed Research and Development (LDRD) program, project no. 05-ERI-002, with Valerio Pascucci (PI), Daniel E. Laney, Herbert Edelsbrunner, Randall J. Frank, Bernd Hamann, John Harer and Jack S. Snoeyink (Co-PIs), approx. **$1,247,000** (request for three years), 1/10/2004 – 30/9/2007.

Co-PI, ,,Scalable multiresolution methods for the representation and exploration of terascale data", **Lawrence Livermore National Laboratory**, **$175,000**, with Kenneth I. Joy (PI), 1/10/2004 – 30/9/2005.

Investigator, ,,Whole-genome-based approach for investigation of key genes and pathways in MTBE-degrading strain PM1", **University of California Office of the President**, Laboratory Programs, with Kate M. Scow (UC Davis PI), Daniel Barsky (Lawrence Livermore National Laboratory PI) and Krassimira R. Hristova (investigator), **$376,829** (original request), 1/10/2004 – 30/9/2007.

Co-PI, ,,High-performance networking and collaborative real-time visualization for the next-generation CalREN", **Corporation for Education Network Initiatives in California (CENIC)**, with S. J. Ben Yoo (PI), Chen-Nee Chuah and Oliver G. Staadt (Co-PIs), **$38,000**, 1/7/2004 – 31/12/2004.

Senior Personnel and PI of UC Davis component, ,,Planning a multiscale sensor network to observe, forecast and manage a CLEANER California water cycle", **National Science Foundation**, Collaborative Large-scale Engineering Analysis Network for Environmental Research (CLEANER): an Engineering Cyberinfrastructure "Test Bed" Program, with Thomas C. Harmon (PI), Deborah Estrin, William J. Kaiser, Samuel J. Traina and Roger C. Bales (Co-PIs), **$86,000**, 1/7/2004 – 30/6/2005.

Co-PI, ,,W. M. Keck Foundation Center for Active Visualization in the Earth Sciences (KeckCAVES)", **W. M. Keck Foundation**, Los Angeles, California, with Louise H. Kellogg (PI), Magali I. Billen,

Eric S. Cowgill, John B. Rundle, James R. Rustad, Dawn Y. Sumner and Donald L. Turcotte (Co-PIs), **$3,298,000** ($1,000,000 from W. M. Keck Foundation), 1/1/2004 – 31/12/2006.

PI, ,,Rapid volume rendering", part of UC Davis' contribution to UC San Diego's National Partnership for Advanced Computational Infrastructure (NPACI) supercomputing proposal, Scalable Visualization Alpha Project, **National Science Foundation**, **$75,000**, with Kenneth I. Joy, Kwan-Liu Ma and Nelson L. Max (Co-PIs), 1/10/2003 – 31/1/2005.

PI, ,,Development of computer visualization tools for displaying interagency ecological program compliance monitoring data", project extension, **U.S. Bureau of Reclamation**, **$124,641**, with Kenneth I. Joy (Co-PI), 1/10/2003 – 30/6/2006.

Donation to CIPIC, ImmersaDesk (table projection system supporting stereo visualization), **Lawrence Berkeley National Laboratory**, Berkeley, California, **$70,000**, June 2003.

Co-PI, ,,Collaborative teaching and learning over ConferenceXP", **Microsoft Research**, with S. J. Ben Yoo (PI), Chen-Nee Chuah and Oliver G. Staadt (Co-PIs), **$35,000**, 1/10/2003 – 31/3/2004.

Co-PI, ,,Scalable multiresolution methods for the representation and exploration of terascale data", **Lawrence Livermore National Laboratory**, **$175,000**, with Kenneth I. Joy (PI), 1/10/2003 – 30/9/2004.

Co-PI, ,,Quantitative assessment by computer-aided anatomy of developmental abnormalities due to air pollution exposure", **Philip Morris External Research Program**, Postdoctoral Fellowship Program, **$86,400** (request for two years), with Anthony S. Wexler (PI), Rida T. Farouki and Charles G. Plopper (Co-PIs), 1/3/2003 – 28/2/2005.

Co-PI, ,,Next-generation collaborative teaching and learning over ConferenceXP", **Microsoft Research**, **$35,000**, with S. J. Ben Yoo (PI), William H. Fink, Kenneth I. Joy, Patrick E. Mantey (UC Santa Cruz), Harry R. Matthews, Dianne L. Meador and Oliver G. Staadt (Co-PIs), 1/1/2003 – 1/7/2003.

PI, ,,Clustering of adaptive mesh refinement data, interactive steering of protein folding simulations and exploration of comparative genomics data", **Lawrence Berkeley National Laboratory**, **$123,353**, with Kenneth I. Joy, Kwan-Liu Ma and Nelson L. Max (Co-PIs), 1/10/2002 – 30/9/2003.

PI, ,,Interactive visualization methods for exploration and comparison of multi-billion base pair sequence data", **Lawrence Berkeley National Laboratory**, National Energy Research Scientific Computing Center (NERSC), Laboratory Directed Research and Development (LDRD) program, **$150,000** for FY 03, **$150,000** for FY 04 and **$80,000** for FY 04 (original requests: $200,000 for FY 03, $211,000 for FY 04, and $223,000 for FY 05), with E. Wes Bethel, Inna L. Dubchak, Kenneth I. Joy, Kenneth S. Schwartz and Edward M. Rubin (Co-PIs), 1/10/2002 – 30/9/2005.

PI, ,,Rapid volume rendering", part of UC Davis' contribution to UC San Diego's National Partnership for Advanced Computational Infrastructure (NPACI) supercomputing proposal, Scalable Visualization Alpha Project, **National Science Foundation**, **$75,000**, with Kenneth I. Joy, Kwan-Liu Ma and Nelson L. Max (Co-PIs), 1/10/2002 – 30/9/2003.

PI, ,,Development of computer visualization tools for displaying interagency ecological program compliance monitoring data", **U.S. Bureau of Reclamation**, **$70,000**, with Kenneth I. Joy (Co-PI), 1/9/2002 – 31/12/2003.

Co-PI, ,,Scalable multiresolution methods for the representation and exploration of terascale data", **Lawrence Livermore National Laboratory**, **$175,000**, with Kenneth I. Joy (PI), 1/10/2002 – 30/9/2003.

Co-PI, ,,Effective and efficient segmentation frameworks for scientific data exploration", **National Science Foundation**, Advanced Computational Research (ACR) Program, **$250,000** (original request: $447,802), with Kenneth I. Joy (PI), 1/10/2002 – 30/9/2006.

Co-PI, ,,Adaptive mesh refinement data visualization", **Department of Energy, Office of Science**,

contract administered by Lawrence Berkeley National Laboratory, approx. **$1,112,000**, with E. Wes Bethel (PI) and Terry J. Ligocki (Co-PI), 1/4/2002 – 31/3/2005.

PI, ,,Approximation and visualization of curved, high-degree finite element data", **Lawrence Livermore National Laboratory**, **$205,025** (original request: $255,648), with Kenneth I. Joy (Co-PI), 1/4/2001 – 30/9/2003.

PI, ,,Exploration and visualization of AMR data and interactive methods for protein folding simulations", **Lawrence Berkeley National Laboratory**, **$81,916**, with Kenneth I. Joy and Nelson L. Max (Co-PIs), 1/10/2001 – 30/9/2002.

PI, ,,Multiresolution-based volume visualization supporting interactive data viewing", part of UC Davis' contribution to UC San Diego's National Partnership for Advanced Computational Infrastructure (NPACI) supercomputing proposal, **National Science Foundation**, **$75,000**, with Kenneth I. Joy, Kwan-Liu Ma and Nelson L. Max (Co-PIs), 1/10/2001 – 30/9/2002.

PI, ,,Visualization of adaptive mesh refinement data", **Lawrence Berkeley National Laboratory**, **$62,500**, with Kenneth I. Joy, Kwan-Liu Ma and Nelson L. Max (Co-PIs), 1/10/2001 – 30/9/2002.

Donation to CIPIC, pocket PCs (two HP Jornada 548s, one HP Jornada 720), **Hewlett-Packard Company**, Palo Alto, California, **$2,000**, April 2001.

Co-PI, ,,Multiresolution methods for the representation and exploration of terascale data", **Department of Energy**, Accelerated Strategic Computing Initiative (ASCI), **$100,035**, with Kenneth I. Joy (PI) and Kwan-Liu Ma (Co-PI), 15/10/2001 – 15/1/2002.

Co-PI, ,,Interactive web-based volume rendering using hierarchical data representations", Mississippi State University's contribution to UC San Diego's National Partnership for Advanced Computational Infrastructure (NPACI) supercomputing proposal, **National Science Foundation**, **$75,000**, with Joerg Meyer (PI), 1/10/2001 – 30/9/2002.

Co-PI and PI of UC Davis sub-award, ,,Societal-scale information systems: technologies, design and applications", **National Science Foundation**, Information Technology Research (ITR) Program, **$7,500,000** (total UC Davis sub-award: $875,000), with James Demmel (PI), Gregory L. Fenves, Randy H. Katz, Jan M. Rabaey and Shankar Sastry (Co-PIs), 1/10/2001 – 30/9/2007.

Co-PI, ,,ViSUS: Visualization streams for ultimate scalability", **Lawrence Livermore National Laboratory**, Institute for Scientific Computing Research (ISCR), University Relations Program (URP) and Center for Applied Scientific Computing (CASC), Laboratory Directed Research and Development (LDRD) program, project no. 02-ERI-003, **$1,245,000**, with Valerio Pascucci (PI), Mark A. Duchaineau, Kenneth I. Joy, Peter Lindstrom, Kwan-Liu Ma and Samuel P. Uselton (Co-PIs), 1/10/2001 – 30/9/2004.

Co-PI and key participating investigator of UC Davis component, research co-chair of the *Human-centered Computing* thrust, Center for Information Technology Research in the Interest of Society (CITRIS), **State of California**, California Institutes for Science and Innovation (CISI) program, funds provided by the State of California: **$100,000,000** (matched by over **$200,000,000** provided by companies and individual contributors), UC Berkeley in partnership with UC Davis, UC Merced, and UC Santa Cruz, with Robert M. Berdahl (PI, Chancellor, UC Berkeley), Larry N. Vanderhoef (Co-PI, Chancellor, UC Davis), Carol Tomlinson-Keasey (Co-PI, Chancellor, UC Merced), M.R.C. Greenwood (Co-PI, Chancellor, UC Santa Cruz), Randy H. Katz (Institute Director, UC Berkeley), James Demmel (Chief Scientist and Associate Director, UC Berkeley), and Albert P. Pisano (Administrative Director, UC Berkeley), see http://www.citris.berkeley.edu/, 1/7/2001 – 30/6/2005.

Co-PI, ,,Informatics of human and monkey brain atlases", **National Institutes of Health**, National Institute of Mental Health, The Human Brain Project (Neuroinformatics), **$6,905,744**, with Edward G. Jones (PI), Leo M. Chalupa, Michael Gertz, Fredric A. Gorin, Harvey J. Karten, Bruno A. Olshausen

and Richard F. Walters (Co-PIs), 28/9/2001 – 31/10/2006.

PI, ,,NSF/DOE Lake Tahoe workshop on hierarchical visualization methods", workshop and program co-chairs: Gerald Farin, Hans Hagen and Bernd Hamann, **National Science Foundation and Department of Energy**, **$10,600**, with Gerald Farin (Co-PI), Granlibakken Conference Center, Tahoe City, California, 15.–17. Oktober 2000.

PI, ,,Multiresolution-based volume visualization supporting interactive data viewing", part of UC Davis' contribution to UC San Diego's National Partnership for Advanced Computational Infrastructure (NPACI) supercomputing proposal, **National Science Foundation**, **$75,000**, with Kenneth I. Joy, Kwan-Liu Ma and Nelson L. Max (Co-PIs), 1/10/2000 – 30/9/2001.

PI, ,,Multiresolution- and topology-based visualization of large scientific data sets in parallel and distributed computing environments", **National Science Foundation**, Large Scientific and Software Data Set Visualization (LSSDSV) Program, **$769,629**, with V. Ralph Algazi, Michael Gertz, Kenneth I. Joy, Kwan-Liu Ma and Nelson L. Max (Co-PIs), 1/7/2000 – 31/5/2005.

PI, ,,A study of multiresolution methods and visualization in immersive environments", second project period, **Lawrence Livermore National Laboratory**, **$154,558**, with Kenneth I. Joy, Kwan-Liu Ma and Nelson L. Max (Co-PIs), 1/4/2000 – 31/3/2002.

Co-PI, ,,A NEES geotechnical centrifuge facility", **National Science Foundation**, Network for Earthquake Engineering Simulation (NEES), Division of Civil and Mechanical Systems, **$4,614,294**, with Bruce L. Kutter (PI), Ross W. Boulanger, Boris Jeremić, Kwan-Liu Ma, J. Carlos Santamarina, Steven A. Velinsky, Daniel W. Wilson and S. J. Ben Yoo (Co-PIs), 1/10/2000 – 31/10/2004.

Co-PI, ,,Interactive exploration and analysis of terascale data sets in virtual environments", second project period, **Lawrence Livermore National Laboratory**, **$73,178**, with Kenneth I. Joy (PI), 1/10/2000 – 30/9/2001.

Co-PI, ,,Interactive web-based volume rendering using hierarchical data representations", Mississippi State University's contribution to UC San Diego's National Partnership for Advanced Computational Infrastructure (NPACI) supercomputing proposal, **National Science Foundation**, **$75,000**, with Joerg Meyer (PI), 1/10/2000 – 30/9/2001.

Co-PI, ,,The W. M. Keck Foundation Cellular and Molecular Neuroscience Imaging Program", **W. M. Keck Foundation**, Los Angeles, California, **$2,485,358** ($2,000,000 from W. M. Keck Foundation), with Edward G. Jones (PI), Barbara Chapman, Fredric A. Gorin, Xiao-Bo Liu, Anne K. McAllister, Bruno A. Olshausen and James M. Stone (Co-PIs), 1/8/2000 – 31/7/2003.

Co-PI, ,,Interactive exploration and analysis of terascale data sets in virtual environments", first project period, **Lawrence Livermore National Laboratory**, **$49,292**, with Kenneth I. Joy (PI), 1/4/2000 – 30/9/2000.

Co-PI, ,,Image-based rendering for interactive TV viewpoint choice", **ST Microelectronics, Inc./UC Digital Media Innovation (DiMI) Program**, **$123,216** (original request), with Nelson L. Max (PI), Kenneth I. Joy and Kwan-Liu Ma (Co-PIs), 1/2/2000 – 31/12/2001.

Co-PI, ,,Interactive data analysis and visualization technology for experimental and theoretical plasma physics data", **General Atomics/UC Digital Media Innovation (DiMI) Program**, **$87,981** (original request), with Kwan-Liu Ma (PI), Kenneth I. Joy and Nelson L. Max (Co-PIs), 1/5/2000 – 30/4/2001.

PI, ,,Multiresolution-based volume visualization supporting interactive data viewing", part of UC Davis' contribution to UC San Diego's National Partnership for Advanced Computational Infrastructure (NPACI) supercomputing proposal, **National Science Foundation**, **$75,447**, with Kenneth I. Joy, Kwan-Liu Ma and Nelson L. Max (Co-PIs), 1/10/1999 – 30/9/2000.

PI, ,,A study of multiresolution methods and visualization in immersive environments", first project

period, **Lawrence Livermore National Laboratory**, **$25,000**, with Kenneth I. Joy (Co-PI), 1/6/1999 – 30/9/1999.

Co-PI, ,,Development of techniques for interactive exploration and analysis of terascale data sets in virtual environments", **Lawrence Livermore National Laboratory**, **$207,126**, with Kenneth I. Joy (PI), 1/7/1999 – 30/9/2002.

PI, ,,CAREER Supplement Award", supplement to 1996 CAREER Award, **National Science Foundation**, Advanced Computational Infrastructure and Research, **$25,000**, Dezember 1998.

Donation to Bernd Hamann, contribution to an NSF CAREER Supplement Award, **Silicon Graphics, Inc.**, Mountain View, California, **$25,000**, November 1998.

PI, ,,Hierarchical methods for the representation and visualization of terascale data coupled with data mining and immersive environments", **Department of Energy**, Accelerated Strategic Computing Initiative (ASCI), Academic Strategic Alliances Program (ASAP), Level 2 – Strategic Investigations, **$966,000**, with Kenneth I. Joy, Kwan-Liu Ma, Nelson L. Max and David M. Rocke (Co-PIs), 1/10/1998 – 31/3/2002.

PI, ,,Towards real-time vector field visualization for massive and multi-source data using hierarchies", **1998 NRA Award**, **NASA Ames Research Center**, NAS Systems Division, NASA's Research in Scientific Visualization of Computational Fluid Dynamics and Related Aerosciences Program, **$300,000** (original request), with Kenneth I. Joy, Nelson L. Max and David M. Rocke (Co-PIs), 1/7/1998 – 31/12/2000.

Donation to the Center for Image Processing and Integrated Computing (CIPIC), **Fakespace, Inc.**, Mountain View, California, approx. **$45,000** (contribution towards immersive workbench purchase), März 1998.

PI, ,,Application-specific visualization technology for the immersive workbench", **Office of Naval Research (ONR)**, Defense University Research Instrumentation Program (DURIP), **$127,500** (UC Davis match: $42,500), with V. Ralph Algazi, Jean-Jacques Chattot, Andrew J. Fisher, Graham E. Fogg, Kenneth I. Joy, Nelson L. Max, James F. Quinn, Bahram Ravani, David M. Rocke, Susan L. Ustin, Wes Wallender and David L. Woodruff (Co-PIs and individual investigators), 2/3/1998 – 28/2/2002.

Donation to the Center for Image Processing and Integrated Computing (CIPIC), **Lockheed Martin**, San Jose, California, **$2,000**, Februar 1998.

PI, ,,Visualization and representation of very large data sets", **North Atlantic Treaty Organization (NATO)**, International Scientific Exchange Programme, approx. **$5,630** (=206,000.00 Belgian Franc, exchange rate of 12/12/1997), 1/1/1998 – 31/12/1998.

Co-PI, ,,Advanced computing infrastructure for UC Davis Computer Science and Engineering", **National Science Foundation**, CISE Instrumentation Program, **$150,000** (UC Davis match: $60,000), with David M. Rocke (PI) and Kent Wilken (Co-PI), 1/4/1998 – 31/3/1999.

PI, ,,Hierarchical representations for the visualization of large volume data sets", **Office of Naval Research (ONR)**, Volume Visualization Program, **$406,550** (original request), with Kenneth I. Joy and Nelson L. Max (Co-PIs), 1/1/1997 – 31/12/1999.

Co-PI and Associate Director, ,,Data-intensive computing", UC Davis' contribution to UC San Diego's National Partnership for Advanced Computational Infrastructure (NPACI) supercomputing proposal, **National Science Foundation**, approx. **$1,900,000** (including UC Davis match), with David M. Rocke (PI), James F. Quinn and David L. Woodruff (Co-PIs), 1/10/1997 – 31/1/2005.

Co-PI, ,,Hierarchical methods for the accelerated visualization of very large scientific data sets", **U.S. Army Research Office (ARO)**, Defense University Research Instrumentation Program (DURIP), **$212,908**, with Kenneth I. Joy (PI) and Nelson L. Max (Co-PI), 1/3/1997 – 1/3/1999.

PI, ,,Development of techniques for the representation and rendering of multiresolution scientific data", **Lawrence Livermore National Lab.**, Livermore, California, **$54,491**, 1/10/1996 – 30/6/1998.

PI, ,,A proposal regarding the unification of data reduction and multiresolution methods for use in scientific visualization and the education in scientific visualization", **1996 CAREER Award**, **National Science Foundation**, New Technologies Program, **$200,000**, 1/7/1996 – 30/9/2005.

Co-PI, ,,An interactive computer graphics system for the teaching of undergraduate optics", **National Science Foundation (EHR/DUE-CCD)**, **$175,928**, with John Foley (PI), Department of Physics, Mississippi State University, 1/1/96 – 31/12/97. *Der ursprüngliche Forschungsantrag wurde von Prof. John Foley und Prof. Bernd Hamann verfaßt. Die National Science Foundation entschied im November 1995, diesen Antrag zu fördern. Da Prof. Hamann zu diesem Zeitpunkt bereits den Ruf an die University of California (Davis) angenommen hatte, einigte man sich, Prof. Hamann durch Prof. David C. Banks, Mississippi State University, als Co-PI zu ersetzen.*

PI, ,,Development of an interactive visualization system for the analysis of water quality", **U.S. Army Corps of Engineers**, Waterways Experiment Station, Vicksburg, Mississippi, **$55,834**, 25/9/1995 – 30/9/1996.

PI, ,,Accelerated scattered data interpolation algorithms for the generation of rectilinear data from scattered SCAPS data", **U.S. Army Corps of Engineers**, Waterways Experiment Station, Vicksburg, Mississippi, **$35,306**, with Robert J. Moorhead (Co-PI), 16/5/1995 – 15/11/1995.

PI, ,,Improving the computer graphics education via an interactive software system for 3D data reduction and visualization", educational supplements to CISE-supported research grants, **National Science Foundation**, New Technologies Program, **$20,000**, 3/1994 – 8/1997.

Co-PI, ,,A unified air-sea visualization system", **Office of Naval Research (ONR)**, Arlington, VA, **$456,606**, with Robert J. Moorhead (PI) and James H. Corbin (Co-PI), 1/10/94 – 30/9/96.

PI, ,,Development of an interactive tool for the visualization of irregularly sampled data obtained from soil contamination measurement", **U.S. Army Corps of Engineers**, Waterways Experiment Station, Vicksburg, Mississippi, **$64,337**, with Robert J. Moorhead (Co-PI), 1/9/1993 – 15/6/1994.

PI, ,,Reparametrization of NURBS surfaces", **Lawrence Livermore National Laboratory**, Livermore, California, **$25,922**, sub-contractor: Gerald Farin, Computer Science Department, Arizona State University, Tempe, Arizona, 1/8/1993 – 30/7/1994.

Co-PI, ,,Visualization for acoustic monitoring of global ocean climates", **ARPA/NSF**, Washington, D.C., **$2,050,800**, with Robert J. Moorhead (PI), 1/8/93 – 30/9/96.

Investigator, ,,National Grid Project – Microwave and millimeter advanced computational environment", **Mississippi State University-NSF Engineering Research Center for Computational Field Simulation**, Mississippi State University, insgesamt: **$150,000** (Bernd Hamann: $8,736), with Joe F. Thompson (PI), 11/93 – 10/94.

PI, ,,Data reduction and new visualization techniques for three-dimensional data sets", **1992 Research Initiation Award (RIA)**, **National Science Foundation**, New Technologies Program, **$95,000**, 9/1992 – 8/1997.

PI, ,,Data reduction and generalized visualization techniques for trivariate data sets", **1992 Research Initiation Award**, **Mississippi State University**, **$6,000**, 1/1/1992 – 31/12/1992.

Investigator, ,,Oceanographic data visualization II", **Naval Oceanographic Office (NAVO)**, Stennis Space Center, Mississippi, **$53,822**, with Robert J. Moorhead (PI), 15/7/92 – 15/1/93.

Investigator, ,,Oceanographic data visualization I", **Naval Oceanographic Office (NAVO)**, Stennis Space Center, Mississippi, **$33,000**, with Robert J. Moorhead (PI), 15/1/92 – 15/5/92.

PI, ,,National Grid Project – Algorithm development for non-uniform rational B-spline (NURBS) curves and surfaces", **Mississippi State University-NSF Engineering Research Center for Com-**

putational Field Simulation, **Mississippi State University**, approx. **$350,000**, 1/8/1991 – 31/3/1995.

PI, ,,National Grid Project – Surface approximation for CAD data containing errors", **Mississippi State University-NSF Engineering Research Center for Computational Field Simulation**, **Mississippi State University**, approx. **$250,000**, 1/8/1991 – 31/3/1995.

FIRMA — MITGRÜNDUNG

Stratovan Corporation

Mitgründer; November 2005

Lizenzen und Patente von Stratovan Corporation

- US 9342893, Method and apparatus of performing image segmentation
- US 8799328 B2, Centralized selection context for user interface data binding and event handling
- US 8644578 B1, Method and apparatus of identifying objects of interest using imaging scans
- US 8201101, Resolution independent layout
- US 8194964, Analysis of anatomic regions delineated from image data

AUSZEICHNUNGEN, NOMINIERUNGEN, ERNENNUNGEN UND ORGANISATIONSTÄTIGKEITEN

Gewinner, **NSF Research Initiation Award (RIA)**, National Science Foundation, 1992.

Gewinner, **Research Initiation Award**, Mississippi State University, 1992.

Gewinner, **Hearin-Hess Distinguished Professorship in Engineering**, College of Engineering Faculty Award Program, Mississippi State University, 1995.

Nominiert für einen **NSF PFF (Presidential Faculty Fellows) Award**, ausgewählt vom Präsidenten der Mississippi State University, 1995.

Nominiert für einen **Outstanding Researcher Award** als einziger Kandidat des Department of Computer Science, College of Engineering Faculty Award Program, Mississippi State University, 1995.

Nominiert für ein **William L. Giles Distinguished Professorship**, Mississippi State University, 1995.

Ernennung zum **Co-Direktor** des Forschungszentrums **,,CIPIC – Center for Image Processing and Integrated Computing"**, University of California, Davis, 1996.

Gewinner, **NSF CAREER Award**, National Science Foundation, 1996.

Nominiert für ein **Sloan Research Fellowship** als einziger Kandidat des Department of Computer Science, University of California, Davis, 1996.

Gewinner, **Best Panel Award**, Terascale visualization: Approaches, pitfalls and issues, *IEEE Visualization '97*, Phoenix, Arizona, Oktober 1997.

Nominiert für den **NSF Alan T. Waterman Award**, (höchste jährliche Auszeichnung der NSF für einen Wissenschaftler unter 35 Jahren), 1998.

Mitglied, **Research Council**, **Digital Media Innovation Program (DiMI)**, University of California, Davis, Juli 1998 – Juni 2002.

Chair, **Industrial Affiliates Program (IAP)**, Department of Computer Science, University of California, Davis, 1999–2004.

UC Davis **Acting Committee Chair**, **UC Davis Computational Science and Engineering Initiative**, University of California, Davis, 1999–2000.

Co-Organisator des Workshops **NSF/DOE Lake Tahoe Workshop on Hierarchical Approximation and Geometrical Methods for Scientific Visualization**, Farin, G., Hagen, H. and Hamann, B., workshop and program co-chairs, Granlibakken Conference Center, Tahoe City, California, 15.–17. Oktober 2000 (electronic abstracts available at http://graphics.cs.ucdavis.edu/hvm00).

Mitglied, **ArtsVision Steering Committee**, **UC Davis ArtsVision Initiative**, University of California, Davis, 2000–2001.

Mitglied, **Computational Science Steering Committee**, **UC Davis Computational Science Initiative**, University of California, Davis, 2000–2001.

Mitglied, **Executive Committee**, **The W. M. Keck Foundation Cellular and Molecular Neuroscience Imaging Program**, Center for Neuroscience, University of California, Davis, 2000–2003.

Mitglied, **Faculty Search Committee**, **Department of Electrical and Computer Engineering**, University of California, Davis, 2000–2003.

Mitglied, **UC Davis Coordination Committee**, **Center for Information Technology Research in the Interest of Society (CITRIS)** (lead campus: UC Berkeley), California Institutes for Science and Innovation (CISI) program, University of California, Davis, Juli 2001 – Juni 2012.

Mitglied, **Committee of Visitors** (evaluation committee), Evaluierung des ,,Advanced Computational

Research (ACR) Programs", **National Science Foundation**, Arlington, Virginia, August 15, 2001.

Nominiert für die Position des **Chair of the Department of Computer Science**, 2001; Department of Computer Science, **Rensselaer Polytechnic Institute**, Troy, New York, September 2001.

Mitglied, **Program Committee**, **UC Davis Technocultural Studies**, University of California, Davis, 2002–2004.

Co-Organisator des Workshops **Visualization Requirements for DOE-sponsored Computational Science and Engineering Applications Workshop**, Bethel, E. W., Hamann, B. and Simon, H. D., workshop and program co-organizers, Berkeley, California, 5. Juni 2002, http://vis.lbl.gov/Events/VisGreenbookWorkshop-June02/index.html.

Mitglied, **Review Committee**, evaluation of **Center for Simulation of Dynamic Response of Materials** (DOE Center of Excellence, California Institute of Technology, Pasadena, California), **Department of Energy**, Accelerated Strategic Computing Initiative (ASCI) Program, Academic Strategic Alliances Program (ASAP), Oktober 2002.

Mitglied (ex officio), **Research Coordinating Council**, August 2003 – Juni 2012; Office of Research, University of California, Davis.

Gewinner, **Best Application Award**, *IEEE Visualization 2003*, Seattle, Washington, Oktober 2003.

Mitglied (ex officio), **Research Vision Study Group**, Oktober 2003 – September 2007; Office of Research, University of California, Davis.

Co-Organisator des Workshops **NSF Lake Tahoe Workshop on Collaborative Virtual Reality and Visualization**, Bajcsy, R., Gross, M., Hamann, B., Joy, K. I. and Staadt, O. G., workshop and program co-chairs, Granlibakken Conference Center, Tahoe City, California, 26.–28. Oktober 2003 (electronic abstracts available at http://graphics.cs.ucdavis.edu/CVRV2003/program.html).

Mitglied (ex officio), **Nanoscience and Nanotechnology Steering Committee**, Januar 2004 – Juni 2012; Office of Research, University of California, Davis.

Co-Organisator des Workshops **Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration**, Möller, T., Hamann, B. and Russell, R. D., workshop and program co-chairs, Banff International Research Station (BIRS), Banff Centre, Banff, Alberta, Canada, 22.–27. Mai 2004.

Ernennung zum **Co-Direktor** des Forschungsinstituts **„IDAV – Institute for Data Analysis and Visualization"**, University of California, Davis, 2004.

Facilitator, **Intel-UC Davis Center of Excellence Working Group**, Oktober 2004 – September 2005; Intel, Folsom, California, and Graduate School of Management and College of Engineering, University of California, Davis.

Mitglied, **Search Committee for the position of „Executive Director of Technology Transfer and Business Development"**, Oktober–Dezember 2004; **Office of Research**, University of California, Davis.

Mitglied, **Committee on Research and Outreach (ROC)**, Oktober 2004 – September 2008, Department of Computer Science, University of California, Davis.

Mitglied, **Project Steering Committee**, Oktober 2004 – Dezember 2005, **Training to Enhance Prevention, Deterrence, Response and Recovery from Weapons-of-Mass-Destruction (WMD) Incidents in the California Dairy and Processed Produce Systems**, Department of Homeland Security Training Grant effort, Western Institute for Food Safety and Security (WIFSS), University of California, Davis.

Mitglied, **UC Davis Stem Cell Internal Advisory Committee**, Dezember 2004 – Juni 2012; University of California, Davis.

Mitglied, **Executive Board**, Information Technology Research (ITR) Program grant "Societal-scale in-

formation systems: technologies, design and applications," Januar 2005 – September 2007; University of California, Berkeley and Davis.

Mitglied (ex officio), **Group of Organized Research Unit Directors**, Januar 2005 – Juni 2012; Office of Research, University of California, Davis.

Mitglied, **UC Davis Academic Senate Public Service Committee**, Januar 2005 – Juni 2012; University of California, Davis.

Mitglied (ex officio), **Computational Resource Center Working Group**, 2005–2006; co-chair, Oktober 2005 – September 2007; Office of Research, University of California, Davis.

Co-Organisator des Workshops **University of Kaiserslautern and UC Davis International Workshop on Visualization of Large Data Sets with Applications in Geospatial Planning, Modeling, and Engineering**, Kellogg, L. H., Hagen, H., Joy, K. I., Kutter, B. L. and Rundle, J. B., Workshop Co-Organizatoren, University of California, Davis, Juli 2005.

Mitglied, **Search Committee for the position of ,,Edward Teller Chair of Applied Science"**, Oktober 2005 – Juni 2006; **Department of Applied Science**, University of California, Davis.

Mitglied (ex officio), **University of California Universitywide Information Technology Guidance Committee – Cyberinfrastructure Advisory Group**, organized by Associate Vice President Kristine Hafner, April 2006 – März 2007; Office of the President, University of California, Oakland.

Gewinner, **University of California Presidential Chair in Undergraduate Education**, Juli 2006 – Juni 2010; ,,Scientific Visualization in the Geological Sciences: An Interdisciplinary Research Experience for Undergraduates", University of California, Davis.

Co-Organisator, **International Workshop on Visualization in Medicine and Life Sciences**, Lars Linsen, Hans Hagen and Bernd Hamann, workshop and program co-chairs, Binz, Rügen, Germany, 19.–21. Juli 2006.

Mitglied, **Research Advisory Committee (RAC)**, McClellan Nuclear Radiation Center (MNRC), November 2006 – Juni 2012; Office of Research, University of California, Davis.

Mitglied, **UC Davis 2007 Chancellor's Fall Conference Planning Committee**, Februar 2007 – Oktober 2007; University of California, Davis.

Mitglied, **UC Davis 2007 Cyberinfrastructure Workshop Planning Committee**, März 2007 – April 2007; University of California, Davis.

Mitglied, **UC Davis College of Engineering Biomedical Technology Translational Research Initiative (BTTRI) Committee**, Mai 2007 – Juni 2012; University of California, Davis.

Mitglied, **Campus Council for Information Technology (CCFIT)**, Oktober 2007 – September 2011; University of California, Davis.

Chair, **Chancellor's Fall Conference Follow-up Committee**, Recommendations for information technology at UC Davis, Oktober 2007 – April 2008; University of California, Davis.

Mentor, **UC Discovery Fellowship Program, Industry-University Cooperative Research Program (IUCRP)**, April 2008 – Juni 2012; Office of the President, University of California.

Gewinner, **Outstanding Paper Award**, *IADIS Multi-conference on Computer Science and Information Systems (MCCSIS) 2008 – International Conference on Computer Graphics and Visualization (CGV) 2008*, Amsterdam, The Netherlands, July 2008.

Mitglied, **Containment Laboratory Review Committee**, Development of policy for the operations, development, and management of UC Davis containment (BSL3) microbiology research laboratories, Oktober 2008 – Juni 2012; University of California, Davis.

Mitglied, **Biotechnology Advisory Committee (BAC)**, UC Davis Biotechnology Program, Januar 2009 – Juni 2012; Office of Research, University of California, Davis.

Mitglied, **University of California Shared Research Computing Services Oversight Board**,

organized by Associate Vice President David J. Ernst, Juni 2009 – Juni 2012; Office of the President, University of California, Oakland.

Co-Organisator, **Second International Workshop on Visualization in Medicine and Life Sciences 2009**, Lars Linsen, Bernd Hamann, Hans-Christian Hege and Hans Hagen, workshop and program co-chairs, Bremerhaven, Germany, 22.-24. Juli 2009.

Mitglied, **NSF CREATE Advisory Board**, Integrative Graduate Education and Research Traineeship (IGERT) effort, UC Davis Biotechnology Program and Department of Chemical Engineering and Materials Science, August 2009 – Juni 2012; Office of Research, University of California, Davis.

Mitglied (ex officio), **Subcommittee on Research Computing (SORC)**, Oktober 2009 – Juni 2012; University of California, Davis.

Co-chair, **UC Davis Academic Assessments Workgroup**, organized by Provost and Executive Vice Chancellor Enrique J. Lavernia (subsequently by Provost and Executive Vice Chancellor Ralph J. Hexter) and Vice Provost for Student Affairs Fred E. Wood, Januar 2010 – Juni 2010; Office of the Provost, University of California, Davis.

Co-chair des Workshops **Phase-II Kick-off Workshop of the International Research Training Group ,,Visualization of Large Data Sets with Applications in Geospatial Planning, Modeling and Engineering"**, Hagen, H. and Hamann, B., Workshop Co-chairs, University of California, Davis, Bodega Marine Laboratory (BML), Bodega Bay, California, 19.-21. März 2010.

Co-chair, **UC Davis Bodega Marine Laboratory Strategic Plan Committee**, organized by Chancellor Linda P. Katehi, April 2010 – Januar 2011; Office of the Chancellor, University of California, Davis.

Mitglied, **Northern California Nanotechnology Center Strategic Advisory Committee**, Oktober 2010 – Juni 2012; College of Engineering, University of California, Davis.

Co-Organisator des Workshops **Workshop on Cooperation between the University of California, Davis, and the Cyprus Institute**, Barry M. Klein and Jan W. Hopmans, UC Davis workshop co-organizers, Nicosia, Cyprus, 13.–15. Dezember 2010.

Mitglied, **Taskforce to Explore a UC Davis Branch Campus in Madrid, Spain**, Chair, Sub-group on Research, Februar 2011 – Juni 2012; University of California, Davis.

Mitglied, **UC Davis-Sandia National Laboratories, Livermore Working Group**, Development of a roadmap for major research collaborations, Februar 2011 – Mai 2011; Office of Research, University of California, Davis.

Mitglied, **Recruitment Advisory Committee for the position of ,,Executive Associate Vice Chancellor for Research Administration",** März 2011 – April 2011; Office of Research, University of California, Davis.

Mitglied, **International Programs Advisory Committee**, März 2011 – Juni 2012; Office of University Outreach and International Programs, University of California, Davis.

Mitglied, **UC Davis Coastal and Marine Sciences Institute Planning Committee**, appointed by Chancellor Linda P. Katehi and Vice Chancellor for Research Harris A. Lewin, Juni 2011 – Oktober 2011; Office of the Chancellor, University of California, Davis.

Mitglied, **NSF Center for Biophotonics Science and Technology (CBST) Transition Planning Committee**, appointed by Vice Chancellor for Research Harris A. Lewin, August 2011 – Juni 2012; Office of the Vice Chancellor for Research, University of California, Davis.

Mitglied, **UC Davis Research Core Administration Committee**, appointed by Vice Chancellor for Research Harris A. Lewin, November 2011 – Juli 2012; Office of the Vice Chancellor for Research, University of California, Davis.

Mitglied, **UC Davis National Center for Advancing Translational Sciences (NCATS) Working**

Group, Development of strategies for proposal planning, April 2012 – Juni 2012; Office of Research, University of California, Davis.

Direktor (UC Davis), **Los Alamos National Laboratory - UC Davis Institute of Next-generation Visualization and Analysis (INGVA)**, Los Alamos National Laboratory and University of California, Davis, Oktober 2012 – September 2017.

Co-Organisator, **Third International Workshop on Visualization in Medicine and Life Sciences 2013**, Lars Linsen, Hans-Christian Hege and Bernd Hamann, workshop and program co-chairs, Leipzig, Germany, 16.-18. Juni 2013.

Chair, **Distinguished Lecturer Series Committee**, Department of Computer Science, University of California, Davis; September 2013 – September 2017.

Mitglied, **Bylaws Committee**, Academic Senate Graduate Council, University of California, Davis; seit September 2015.

Mitglied, **College of Engineering Faculty Personnel Committee (FPC)**, Committee on Academic Personnel (CAP), University of California, Davis; September 2016 – August 2018.

Gewinner, **Best Paper Award**, *BrainKDD: The Third International Workshop on Data Mining and Visualization for Brain Science*, held in conjunction with *The Seventh ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB 2016)*, Seattle, Washington, October 2016.

Faculty Coordinator, **Computer Science Advisory Board**, Department of Computer Science, University of California, Davis; seit Mai 2017.

Mitglied, local organizing committee, **XXX IUPAP Conference on Computational Physics 2018 (CCP 2018)**, Barry M. Klein, conference chair, Davis, California, 29. Juli – 2. August 2018.

Chair, **College of Engineering Faculty Personnel Committee (FPC)**, Committee on Academic Personnel (CAP), University of California, Davis; September 2018 – August 2019.

Mitglied, **College of Engineering Faculty Personnel Committee (FPC)**, Committee on Academic Personnel (CAP), University of California, Davis; August 2019 – Dezember 2019.