Kwan-Liu Ma

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PROFESSIONAL EXPERIENCE

- **Distinguished Professor,** Department of Computer Science, UC Davis, July 2018-present
- **Professor**, Department of Computer Science, UC Davis, July 2003-June 2018
- **Chair,** Graduate Group in Computer Science, UC-Davis, July 2009-June 2018
- **Director,** UC Davis Center for Visualization, October 2012-present
- **Distinguished Visiting Chair Professor,** Academia Sinica, Taiwan, May-September 2019 and July-September 2020
- **Chair Professor**, Computer Science, National Chiao Tung University, Taiwan, 2012-present
- **Chair Professor**, Computer Science and Information Engineering, National Taipei University of Technology, Taiwan, May 2012-April 2013
- **Visiting Professor,** Computer Science and Information Engineering, National Taiwan University, Taiwan, 2013-present
- **Visiting Professor,** Keio University, Japan, December 2016-March 2017
- **Qiushi Chair Professor**, Zhejiang University, China, 2013-2015
- **Chair Professor,** School of Software, Tsinghua University, Beijing, China, Jan. 2009-Dec. 2011
- **Director**, DOE SciDAC Institute for Ultra-Scale Visualization, September 2006-December 2012
  $9M multi-Institution project (UCD, Ohio-State, Rutgers, Argonne Lab, Sandia Labs)
- **Associate Professor**, Department of Computer Science, UC-Davis, July 1999-June 2003
- **Senior Staff Scientist**, Institute for Computer Applications in Science and Engineering (ICASE), NASA Langley Research Center, Jun 1998-July 1999
- **Staff Scientist**, ICASE, NASA Langley Research Center, May 1993-May 1998
- **Adjunct Assistant Professor**
  Computer Science Department
  State University of New York, Stony Brook, Jan 1998-Dec 2000
  Computer Science Department, Old Dominion Univ., Oct 1994- Sept 1997

- **Consultant**, *GUI, Visualization & Modeling*
  Fuji Xerox Co., Ltd., Japan, 2017-2018
  Nissan Motor Co., Ltd., Japan, 2004-2009
  Mitsubishi Precision Co., Ltd., Japan, 2001-2003

High Technology Corporation, Hampton, Virginia, Jan 1995- Dec 1996
Entertainment Research Inc., San Jose, California, 1992-93
Reaction Engineering International, Salt Lake City, Utah, 1992-93

- **Student Researcher**, Modular Microsystems Group
  IBM Thomas J. Watson Research Center, Yorktown Heights, New York
  Parallel Distributed Software and Applications Development, Jun-Sept 1991
- **Research Assistant**, Dept. of Computer Science, University of Utah
  NSF/ACERC (Advanced Combustion Engineering Research Center)
  Solving Combustion Problems with Parallel Distributed-Memory Computers, 1989-93
  Scientific Visualization Group
  Visualization Services and Tools Development, 1990-93
  CSS (Center for Software Science)
  Compiler Optimization, Distributed Program Analysis, Object Systems, 1986-89

EDUCATION

- **Ph.D., Computer Science,** University of Utah, 1993
  Dissertation: *Interactive Volume Visualization.*
- **M.S., Computer Science,** University of Utah, 1988
  Thesis: *A Type Inference System for Common Lisp.*
- **B.S. (Cum Laude), Computer Science,** University of Utah, 1986

HONORS AND AWARDS

- 2022 Two IEEE VIS Best Paper Honorable Mention Awards
- 2022 IEEE PacificVis Best Paper Honorable Mention Award
- 2021 VISSOFT Most Influential Paper Award
- 2019 Inductee of the **IEEE Visualization Academy**
- 2019 Best Paper Honorable Mention Awards, IEEE VAST
- 2018 Distinguished Professor, UC Davis
- 2018 Best Visual Storytelling Award, IEEE Pacific Visualization Symposium
- 2018 Best Paper Honorable Mention Award, IEEE Pacific Visualization Symposium
- 2017 Best Paper Award, IEEE Pacific Visualization Symposium
- 2017 Best Visual Storytelling Award, IEEE Pacific Visualization Symposium
- 2015 Best VisNotes Award, IEEE Pacific Visualization Symposium
- 2015 Best Paper Award, the 23rd International Symposium on Graph Drawing & Network Visualization
- 2015 Two Best Paper Honorable Mention Awards, IEEE Symposium on Large Data Analysis and Visualization (LDAV)
- 2015 SciVis Contest Honorable Mention Award, IEEE VIS
- 2015 Best of CHI Honorable Mention Award, ACM CHI 2015
- 2013 **IEEE VGTC Visualization Technical Achievement Award**
  (https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=6634186)
  (http://engineering.ucdavis.edu/blog/kwan-liu-ma-receives-ieee-technical-achievement-award/)
- 2012 **IEEE Fellow**
- 2011 Best Paper Award, the 3rd Workshop on Large-Scale System and Application

Performance

- 2009 Best Paper Award, International Conference on Arts & Technology
- 2008, 2009, and 2012 HP Labs Innovation Research Award
- 2007 College of Engineering Mid-Career Research Award, UC Davis
- 2001 Schlumberger Foundation Technical Award
- 2000 **NSF Presidential Early Career Award for Scientists and Engineers** (**PECASE**) (http://web.cs.ucdavis.edu/~ma/PR00-PECASE1.html)
- 1999 **NSF Career Award**
- NSF/ACERC Research Fellowship 1990-1993
- Graduated Cum Laude, 1986
- Clyde Christensen Scholarship 1985
- Member Phi Kappa Phi 1985-87

PUBLICATIONS

In Journal:

1. Kwan-Liu Ma: Pushing Visualization Research Frontiers: Essential Topics Not Addressed by Machine Learning. **IEEE Computer Graphics and Applications** 43(1): 97-102 (2023)

2. David Bauer, Qi Wu, Kwan-Liu Ma: FoVolNet: Fast Volume Rendering using Foveated Deep Neural Networks. **IEEE Transactions on Visualization and Computer Graphics** 29(1): 515-525 (2023)

3. Tyson Neuroth, Martin Rieth, Aditya Konduri, Myoungkyu Lee, Jacqueline H. Chen, Kwan-Liu Ma: Level Set Restricted Voronoi Tessellation for Large scale Spatial Statistical Analysis. **IEEE Transactions on Visualization and Computer Graphics** 29(1): 548-558 (2023)

4. Xiaoyu Zhang, Jorge Piazentin Ono, Huan Song, Liang Gou, Kwan-Liu Ma, Liu Ren: SliceTeller: A Data Slice-Driven Approach for Machine Learning Model Validation. **IEEE Transactions on Visualization and Computer Graphics** 29(1): 842-852 (2023)

5. Jian Zhao, Shenyu Xu, Senthil K. Chandrasegaran, Chris Bryan, Fan Du, Aditi Mishra, Xin Qian, Yiran Li, Kwan-Liu Ma: ChartStory: Automated Partitioning, Layout, and Captioning of Charts into Comic-Style Narratives. **IEEE Transactions on Visualization and Computer Graphics** 29(2): 1384-1399 (2023)

6. Suraj P. Kesavan, Harsh Bhatia, Abhinav Bhatele, Stephanie Brink, Olga Pearce, Todd Gamblin, Peer-Timo Bremer, Kwan-Liu Ma: Scalable Comparative Visualization of Ensembles of Call Graphs. **IEEE Transactions on Visualization and Computer Graphics**. 29(3): 1691-1704 (2023)

7. Takanori Fujiwara, Xinhai Wei, Jian Zhao, Kwan-Liu Ma: Interactive Dimensionality Reduction for Comparative Analysis. **IEEE Transactions on Visualization and Computer Graphics** 28(1): 758-768 (2022)

8. Xiwei Xuan, Xiaoyu Zhang, Oh-Hyun Kwon, Kwan-Liu Ma: VAC-CNN: A Visual Analytics System for Comparative Studies of Deep Convolutional Neural Networks. **IEEE Transactions on Visualization and Computer Graphics** 28(6): 2326-2337 (2022)

9. Shilpika, Takanori Fujiwara, Naohisa Sakamoto, Jorji Nonaka, Kwan-Liu Ma: A Visual Analytics Approach for Hardware System Monitoring with Streaming Functional Data Analysis. **IEEE Transactions on Visualization and Computer Graphics** 28(6): 2338-2349 (2022)

10. Xumeng Wang, Chris Bryan, Yiran Li, Rusheng Pan, Yanling Liu, Wei Chen, Kwan-Liu Ma: Umbra: A Visual Analysis Approach for Defense Construction Against Inference Attacks on Sensitive Information. **IEEE Transactions on Visualization and Computer Graphics** 28(7): 2776-2790 (2022)

11. Jingming Hu, Tuan Tran Chu, Seok-Hee Hong, Jialu Chen, Amyra Meidiana, Marnijati Torkel, Peter Eades, Kwan-Liu Ma: BC tree-based spectral sampling for big complex network visualization. **Applied Network Science** 6(1): 60 (2021)

12. Jianping Kelvin Li, Kwan-Liu Ma: P6: A Declarative Language for Integrating Machine Learning in Visual Analytics. **IEEE Transactions on Visualization and Computer Graphics** 27(2): 380-389 (2021)

13. Tarik Crnovrsanin, Shilpika, Senthil K. Chandrasegaran, Kwan-Liu Ma: Staged Animation Strategies for Online Dynamic Networks. **IEEE Transactions on Visualization and Computer Graphics** 27(2): 539-549 (2021)

14. Keshav Dasu, Kwan-Liu Ma, Joyce Ma, Jennifer Frazier: Sea of Genes: A Reflection on Visualising Metagenomic Data for Museums. **IEEE Transactions on Visualization and Computer Graphics** 27(2): 935-945 (2021)

15. Takanori Fujiwara, Shilpika, Naohisa Sakamoto, Jorji Nonaka, Keiji Yamamoto, Kwan-Liu Ma: A Visual Analytics Framework for Reviewing Multivariate Time-Series Data with Dimensionality Reduction. **IEEE Transactions on Visualization and Computer Graphics**. 27(2): 1601-1611 (2021)

16. A User-Centered Design Study in Scientific Visualization Targeting Domain Experts. Chris Ye, Franz Sauer, Kwan-Liu Ma, Konduri Aditya, Jacqueline Chen. **IEEE Transactions on Visualization and Computer Graphics** 26(6): 2192-220 (2020)

17. Decoding Complex Visualizations in Science Museums – An Empirical Study. Joyce Ma, Kwan-Liu Ma, and Jennifer Frazier. **IEEE Transactions on Visualization and Computer Graphics** 26(1):472-481 (2020)

18. P5: Portable Progressive Parallel Processing Pipelines for Interactive Data Analysis and Visualization. Jianping Kelvin Li and Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 26(1):1151-1160 (2020)

19. A Deep Generative Model for Graph Layout. Oh-Hyun Kwon and Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 26(1):665-675 (2020)

20. An Incremental Dimensionality Reduction Method for Visualizing Streaming Multidimensional Data. Takanori Fujiwara, Jia-Kai Chou, Shilpika, Panpan Xu, Liu Ren, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 26(1):418-428 (2020)

21. Supporting Analysis of Dimensionality Reduction Results with Contrastive Learning. Takanori Fujiwara, Oh-Hyun Kwon, and Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 26(1):45-55 (2020)

22. P4: Portable Parallel Processing Pipelines for Interactive Information Visualization. Kelvin Jianping Li and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics** 26(3):1548-1561 (2020)

23. Resolving Conflicting Insights in Asynchronous Collaborative Visual Analysis. Jianping Kelvin Li, Shenyu Xu, Yecong (Chris) Ye, Kwan-Liu Ma. **Computer Graphics Forum** 39(3): 497-509 (2020)

24. Comparative visual analytics for assessing medical records with sequence embedding. Rongchen Guo, Takanori Fujiwara, Yiran Li, Kelly M. Lima, Soman Sen, Nam K. Tran, Kwan-Liu Ma. **Visual Informatics** 4(2): 72-85 (2020)

25. A visual analytics system for multi-model comparison on clinical data predictions. Yiran Li, Takanori Fujiwara, Yong K. Choi, Katherine K. Kim, Kwan-Liu Ma. **Visual Informatics** 4(2): 122-131 (2020)

26. Chris Bryan, Aditi Mishra, Hidekazu Shidara, Kwan-Liu Ma: Analyzing gaze behavior for text-embellished narrative visualizations under different task scenarios. **Visual Informatics** 4(3): 41-50 (2020)

27. Deep Neural Representation Guided Face Sketch Synthesis. B. Sheng, P. Li, C. Gao, K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics** 25(12):3216-3230 (2019)

28. An Interactive Visualization System for Large Sets of Phase Space Trajectories. Tyson Neuroth, Franz Sauer, Kwan-Liu Ma. **Computer Graphics Forum** 38(3):297-309 (2019)

29. A Declarative Grammar of Flexible Volume Visualization Pipelines. M. Shih, C. Rozhon, K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics** 25(1):1050-1059 (2019)

30. GraphProtector: A Visual Interface for Employing and Assessing Multiple Privacy Preserving Graph Algorithms. X. Wang, W. Chen, J.-K. Chou, C. Bryan, H. Guan, W. Chen, R. Pan, K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics** 25(1):193-203 (2019)

31. A Scalable Hybrid Scheme for Ray-Casting of Unstructured Volume Data. R. Binyahib, T. Peterka, M. Larsen, K.-L. Ma, H. Childs. **IEEE Transactions on Visualization and Computer Graphics** 25(7):2349-2361 (2019)

32. Uncertainty-Aware Visualization for Analyzing Heterogeneous Wildfire Detections. **IEEE Computer Graphics and Applications** 39(5):72-82 (2019)

33. Privacy Preserving Visualization: A Study on Event Sequence Data. Jia-Kai Chou, Yang Wang, Kwan-Liu Ma. **Computer Graphics Forum** 38(1):340-355 (2019)

34. LightPainter: Creating Long-Exposure Imagery from Videos. Yi-Ling Chen, Zhenyu Tang, Kwan-Liu Ma. **IEEE Computer Graphics & Applications** 38(4):27-36 (2018)

35. MeetingVis: Visual Narratives to Assist in Recalling Meeting Context and Content. Yang Shi, Chris Bryan, Sridatt Bhamidipati, Ying Zhao, Yaoxue Zhang, and Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 24(6):1918-1929 (2018)

36. A Visual Analytics System for Optimizing the Performance of Large-scale Networks in Supercomputing Systems. Takanori Fujiwara, Jianping Kelvin Li, Misbah Mubarak, Caitlin Ross, Christopher D. Carothers, Robert B. Ross, Kwan-Liu Ma. **Visual Informatics** 2(1):98-110 (2018)

37. Multi-Material Volume Rendering with a Physically-Based Surface Reflection Model. Oleg Igouchkine, Yubo Zhang, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 24(12):3147-3159 (2018)

38. A Utility-Aware Visual Approach for Anonymizing Multi-Attribute Tabular Data. Xu-Meng Wang, Jia-Kai Chou, Wei Chen, Huihua Guan, Wenlong Chen, Tianyi Lao, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 24(1): 351-360 (2018)

39. What Would a Graph Look Like in this Layout? A Machine Learning Approach to Large Graph Visualization. Oh-Hyun Kwon, Tarik Crnovrsanin, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 24(1): 478-488 (2018)

40. Chart Constellations: Effective Chart Summarization for Collaborative and Multi-User Analyses. Shenyu Xu, Chris Bryan, Jianping Kelvin Li, Jian Zhao, Kwan-Liu Ma. **Computer Graphics Forum** 38(4):27-36 (2018)

41. Takanori Fujiwara, Tarik Crnovrsanin, Kwan-Liu Ma: Concise provenance of interactive network analysis. **Visual Informatics** 2(4): 213-224 (2018)

42. *Scalable Visualization of Time-varying Multi-parameter Distributions using Spatially Organized Histograms.* Tyson Neuroth, Franz Sauer, Weixing Wang, Stephane Ethier, Choong-Seock Chang, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics.** 23(12): 2599-2612 (2017)

43. *Temporal Summary Images: An Approach to Narrative Visualization via Interactive Annotation Generation and Placement.* Chris Bryan, Kwan-Liu Ma, and Jonathan Woodring. **IEEE Transactions on Visualization and Computer Graphics.** 23(1): 511-520 (2017)

44. *Synteny Explorer: An Interactive Visualization Application for Teaching Genome Evolution*. Chris Bryan, Gregory Guterman, Kwan-Liu Ma, Harris Lewin, Denis Larkin, Jaebum Kim, Jian Ma, Marta Farre. **IEEE Transactions on Visualization and Computer Graphics.** 23(1): 711-720 (2017)

45. *An Incremental Layout Method for Visualizing Online Dynamic Graphs*. Tarik Crnovrsanin, Jacqueline Chu, Kwan-Liu Ma. **Journal of Graph Algorithms Applications** 21(1): 55-80(2017)

46. *Visualizing the Relationship Between Human Mobility and Points of Interest*. Wei Zeng, Chi-Wing Fu, Stefan Müller Arisona, Simon Schubiger, Remo Burkhard, Kwan-Liu Ma**. IEEE Transactions on Intelligent Transportation Systems** 18(8): 2271-2284 (2017)

47. *Spatio-Temporal Feature Exploration in Combined Particle/Volume Reference Frames*. Franz Sauer, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 23(6): 1624-1635 (2017)

48. *Stereoscopic Thumbnail Creation via Efficient Stereo Saliency Detection*. Wenguan Wang, Jianbing Shen, Yizhou Yu, Kwan-Liu Ma: **IEEE Transactions on Visualization on Computer Graphics** 23(8): 2014-2027 (2017)

49. *A Combined Eulerian-Lagrangian Data Representation for Large-Scale Applications*. Franz Sauer, Jinrong Xie, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 23(10): 2248-2261 (2017)

50. Wei Zeng, Chi-Wing Fu, Stefan Müller Arisona, Simon Schubiger, Remo Burkhard, Kwan-Liu Ma: A visual analytics design for studying rhythm patterns from human daily movement data. **Visual Informatics** 1(2): 81-91 (2017)

51. *A Study of Layout, Rendering, and Interaction Methods for Immersive Graph Visualization*. Oh-Hyun Kwon, Chris Muelder, Kyungwon Lee, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics.** 22(7): 1802-1815 (2016)

52. *Visual Analysis of Cloud Computing Performance Using Behavioral Lines.* Chris Muelder, Biao Zhu, Wei Chen, Hongxin Zhang, Kwan-Liu Ma**. IEEE Transactions on Visualization and Computer Graphics.** 22(6): 1694-1704 (2016)

53. *VTK-m: Accelerating the Visualization Toolkit for Massively Threaded Architectures.* Kenneth Moreland, Christopher Sewell, William Usher, Li-Ta Lo, Jeremy S. Meredith, David Pugmire, James Kress, Hendrik A. Schroots, Kwan-Liu Ma, Hank Childs, Matthew Larsen, Chun-Ming Chen, Robert Maynard, Berk Geveci**. IEEE Computer Graphics and Applications** 36(3): 48-58 (2016)

54. Audience-Targeted Design Considerations for Effective Scientific Storytelling. Franz Sauer, Tyson Neuroth, Jacqueline Chu, and Kwan-Liu Ma. **IEEE Computing in Science and Engineering** 18(2):68-77 (2016)

55. *Visualization Techniques for Studying Large-Scale Flow Fields from Fusion Simulations.* Franz Sauer, Yubo Zhang, Weixing Wang, Stephane Ethier, and Kwan-Liu Ma. **IEEE Computing in Science and Engineering** 18(2):68-77 (2016)

56. Yuzuru Tanahashi, Nick Leaf, Kwan-Liu Ma: A Study On Designing Effective Introductory Materials for Information Visualization. **Computer Graphics Forum** 35(7): 117-126 (2016)

57. *Design and Effects of Personal Visualizations.* Shimin Wang, Yuzuru Tanahashi, Nick Leaf, Kwan-Liu Ma**. IEEE Computer Graphics and Applications** 35(4): 82-93 (2015)

58. *An Efficient Framework for Generating Storyline Visualizations from Streaming Data.* Yuzuru Tanahashi, Chien-Hsin Hsueh, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 21(6): 730-742 (2015)

59. *Scalable Parallel Distance Field Construction for Large-Scale Applications.* Hongfeng Yu, Jinrong Xie, Kwan-Liu Ma, Hemanth Kolla, Jacqueline H. Chen**. IEEE Transactions on Visualization and Computer Graphics** 21(10): 1187-1200 (2015)

60. *Content-aware model resizing with symmetry-preservation.* Chunxia Xiao, Liqiang Jin, Yongwei Nie, Renfang Wang, Hanqiu Sun, Kwan-Liu Ma. **The Visual Computer** 31(2): 155-167 (2015)

61. Chih-Wei Huang, Syed Abdul Shabbir, Wen-Shan Jian, Usman Iqbal, Phung-Anh (Alex) Nguyen, Peisan Lee, Shen-Hsien Lin, Wen-Ding Hsu, Mai-Szu Wu, Chun-Fu Wang, Kwan-Liu Ma, Yu-Chuan (Jack) Li: A novel tool for visualizing chronic kidney disease associated polymorbidity: a 13-year cohort study in Taiwan. **J. American Medical Informatics Association** 22(2): 290-298 (2015)

62. Chih-Wei Huang, Richard Lu, Usman Iqbal, Shen-Hsien Lin, Phung-Anh (Alex) Nguyen, Hsuan-Chia Yang, Chun-Fu Wang, Jianping Kelvin Li, Kwan-Liu Ma, Yu-Chuan (Jack) Li, Wen-Shan Jian: A richly interactive exploratory data analysis and visualization tool using electronic medical records. **BMC Medical Informatics Decision Making** 15: 92 (2015)

63. *Using Global Illumination in Volume Visualization of Rheumatoid Arthritis CT Data*. Lin Zheng, Abhijit J. Chaudhari, Ramsey Derek Badawi, Kwan-Liu Ma**. IEEE Computer Graphics and Applications** 34(6): 16-23 (2014)

64. *Visualization techniques for categorical analysis of social networks with multiple edge sets*. Tarik Crnovrsanin, Chris Muelder, Robert Faris, Diane Felmlee, Kwan-Liu Ma. **Social Networks** 37: 56-64 (2014)

65. *Fast Closed-Form Matting Using a Hierarchical Data Structure.* Chunxia Xiao, Meng Liu, Donglin Xiao, Zhao Dong, Kwan-Liu Ma**. IEEE Transactions on Circuits Syst. Video Techn**. 24(1): 49-62 (2014)

66. *Regression Cube: A Technique for Multidimensional Visual Exploration and Interactive Pattern Finding.* Yu-Hsuan Chan, Carlos D. Correa, Kwan-Liu Ma. **ACM Transactions on Interactive Intelligent Systems** (TiiS) 4(1): 7 (2014)

67. *Object Movements Synopsis viaPart Assembling and Stitchin*g. Yongwei Nie, Hanqiu Sun, Ping Li, Chunxia Xiao, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 20(9): 1303-1315 (2014)

68. *Volume Rendering of Curvilinear-Grid Data Using Low-Dimensional Deformation Textures*. Robert Hero, Chris Ho, Kwan-Liu Ma**. IEEE Transactions on Visualization and Computer Graphics** 20(9): 1330-1343(2014)

69. *Visual Abstraction and Exploration of Multi-class Scatterplo*ts. Haidong Chen, Wei Chen, Honghui Mei, Zhiqi Liu, Kun Zhou, Weifeng Chen, Wentao Gu, Kwan-Liu Ma**. IEEE Transactions on Visualization and Computer Graphics** 20(12): 1683-1692 (2014)

70. *Interactive Progressive Visualization with Space-Time Error Control.* Steffen Frey, Filip Sadlo, Kwan-Liu Ma, Thomas Ertl **IEEE Transactions on Visualization and Computer**

Graphics 20(12): 2397-2406 (2014)

71. *Trajectory-Based Flow Feature Tracking in Joint Particle/Volume Datasets*. Franz Sauer, Hongfeng Yu, Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 20(12): 2565-2574 (2014)

72. *The generalized Sensitivity Scatterplot.* Y.-H. Chan, C. Correa, and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics** 19(10):1768-1781 (2013).

73. *Big Data Visualization.* Daniel A. Keim, Huamin Qu, and Kwan-Liu Ma. **IEEE Computer Graphics and Applications** 33(4): 20-21 (2013).

74. *Real-time Volume Rendering in Dynamic Lighting Environments using Precomputed Photon Mapping.* . **IEEE Transactions on Visualization and Computer Graphics** 19(8):1317-1330 (2013).

75. *Perceptually Based Depth-Ordering Enhancement for Direct Volume Rendering*. L. Zheng, Y. Wu, and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics**, 19(3):446-459 (2013).

76. *ViSizer: A Visualization Resizing Framework.* Y. Wu, X. Liu, S. Liu, and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics**, 19(2):278-290 (2013).

77. *Visualizing Large-Scale Parallel Communication Traces using a Particle Animation Technique*. C. Sigovan, C. Muelder, K.-L. Ma. **Computer Graphics Forum** 32(3):141-150 (2013).

78. *Interactive Ray Casting of Geodesic Grids*. J. Xie, H. Yu, and K.-L. Ma. **Computer Graphics Forum** 32(3): 481-490 (2013).

79. *Fast Shadow Removal using Adaptive Multi-Scale Illumination Transfer*. C. Xiao, R. She, D. Xiao, and K.-L. Ma. **Computer Graphics Forum** 32(8):207-218 (2013).

80. *Large-Scale Graph Visualization and Analytics*. K.-L. Ma and C. Muelder**. IEEE Computer** 46(7):39-46 (2013).

81. *Satio-temporal Extrapolation for Fluid Animation*. Y. Zhang and K.-L. Ma. **ACM Transactions on Graphics** 32(6):183 (2013) SIGGRAPH Asia 2013, full paper.

82. *A Multi-Criteria Approach to Camera Motion Design for Volume Data Animation*. W.-H. Hsu, Y. Zhang, and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics** 19(12):2792-2801 (2013). (Vis 2013).

83. *Lighting Design for Globally Illuminated Volume Rendering*. Y. Zhang and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics** 19(12):2946-2955 (2013) (Vis 2013).

84. *Living Liquid: Design and Evaluation of an Exploratory Visualization Tool for Museum Visitors*. J. Ma, I. Liao, J. Frazier, and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics**, 18(12):2799-2808. (InfoVis 2012).

85. *Visualizing Flow of Uncertainty through Analytical Processes.* Y. Wu, G.-X. Yuan, and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics**, 18(12):2526-2535 (InfoVis 2012).

86. *Design Considerations for Optimizing Storyline Visualizations*. Y. Tananhashi and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics** 18(12):2679-2688 (InfoVis 2012).

87. *Fuzzy Volume Rendering*. N. Fout and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics**, 18(12):2335-2344 (Visualization 2012).

88. *An Adaptive Predication-based Approach to Lossless Compression of Floating-Point Volume Data*. N. Fout and K.-L. Ma**. IEEE Transaction on Visualization and Computer Graphics,** 18(12):2295-2304 (Visualization 2012).

89. *Ambiguity-Free Edge-Bundling for Interactive Graph Visualization*. S.-J. Luo, C.-L. Liu, B.-Y. Chen, and K.-L. Ma**. IEEE Transactions on Visualization and Computer Graphics**, 18(5):810-821 **(**2012).

90. *Restoration of Brick and Stone Relief from Single Rubbing Images*. Z. Li, S. Wang, J. Yu, and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics**. 18(2):177-187 (2012).

91. *Visual Reasoning about Social Networks using Centrality Sensitivities.* C. Correa, T. Crnovrsanin, and K.-L. Ma. **IEEE Transactions on Visualization and Computer Graphics**, 18(1): 106-120 (2012).

92. *Scientific Storytelling using Visualization.* K.-L. Ma et al. **IEEE Computer Graphics and Applications**, 32(1):12-19, Jan/Feb 2012.

93. *Visual Analysis of Particle Behaviors to Understand Combustion Simulations.* J. Wei, H. Yu, R. W. Grout, J. Chen, and K.-L. Ma. **IEEE Computer Graphics and Applications**, 32(1):12-19 (2012).

94. *A Rendering Framework for Multiscale Views of 3D Models*. W.-H. Hsu, K.-L. Ma, and C. Correa. **ACM Transactions on Graphics**, 30(6), December 2011. (ACM SIGGRAPH Asia)

95. *Collaborative Visualization*: Definition, Challenges, and Research Agenda. Petra Isenberg et al. **Information Visualization Journal**, 10(4):310-326, October 2011.

96. *An Illustrative Visualization Framework for Vector Fields*. C.-K. Chen et al. **Computer Graphics Forum**, 30(5), September 2011.

97. *Semantic*-Preserving Word Cloud Generation by Seam Carving. Y. Wu, T. Provan, S. Liu, F. Wei, and K.-L. Ma. **Computer Graphics Forum**, 30(3), June 2011.

98. *Visual Recommendations for Network Navigation*. T. Crnovrsanin, I. Liao, Y. Wu, and K.-L. Ma. **Computer Graphics Forum,** 30(3), June 2011.

99. *A Comparison of Gradient Estimation Methods for Volume Rendering on Unstructured Meshes.* C. Correa, R. Hero, K.-L. Ma. IEEE **Transactions on Visualization and Computer Graphics**, 17(3), March 2011, pp. 305-319.

100. *Visibility Histograms and Visibility-Driven Transfer Function*. Carlos Correa and Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics**, 17(2), February 2011, pp. 192-204.

101. *Feature-Preserving Volume Data Reduction and Focus+Context Visualization*. Yu-Shuen Wang, Chaoli Wang, Tong-Yee Lee, and Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics** 17(2), February 2011, pp. 171-181.

102. *View-Dependent Streamlines for 3D Vector Fields*. Stephane Marchesin, Cheng-Kai Chen, Chris Ho, and Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics,** Volume 16, Number 6, November/December 2010, pp. 1578-1586. (IEEE Visualization 2010 Conference)

103. *Visualization by Proxy: A Novel Framework for Deferred Interaction with Volume Data*. Anna Tikhonova, Carlos Correa and Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics,** Volume 16, Number 6, November/December 2010, 1551-1559. (IEEE Visualization 2010 Conference).

104. *Visualizing Flow Trajectories using Locality-based Rendering and Warped Curve Plots*. Chad Jones and Kwan-Liu Ma. **IEEE Transactions on Visualization and Computer Graphics,** Volume 16, Number 6, November/December 2010, pp. 1587-1594. (IEEE Visualization 2010 Conference).

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222. *Fast Algorithms for Visualizing Fluid Motion in Steady Flow*. S. Ueng, K. Sikorski, and Kwan-Liu Ma. In Proceedings IEEE Visualization '95 Conference, Nov 1995

223. *Parallel Volume Ray-tracing on Unstructured Grids*. Kwan-Liu Ma. In Proceedings Parallel Rendering '95 Symposium, Oct 1995

224. *Cloud Dispersion Properties in Visualization of Gas and Particle Mixing*. Kwan-Liu Ma and Philip J. Smith. In Proceedings the 7th Inter. Symposium on Flow Visualization, September 1995.

225. *Volume Visualization of Airplane Wake Vortices*, Kwan-Liu Ma and Z. C. Zheng. In Proceedings the 7th Inter. Symposium on Flow Visualization, Sep 1995

226. *Runtime Volume Visualization of Parallel CFD*. Kwan-Liu Ma. In Proceedings Parallel CFD '95 Conference.

227. *3D Visualization of Unsteady 2D Airplane Wake Vortices*. Kwan-Liu Ma and Z. Zheng. In Proceedings IEEE Visualization '94 Conference, Oct 1994

228. *Interactive Visualization of Multiple Phases Mixing in CFD*. Kwan-Liu Ma and Philip J. Smith. AIAA Paper 94-0325, AIAA 32nd Aerospace Sciences Meeting, Reno, Jan, 1994

229. *Cloud Tracing in Convection-Diffusion Systems*. Kwan-Liu Ma and Philip J. Smith. In Proceedings IEEE Visualization '93 Conference, Oct 1993

230. *A Data Distributed Parallel Algorithm for Ray-Traced Volume Rendering*. Kwan-Liu Ma, James S. Painter, Charles D. Hansen and Michael F. Krogh. In Proceedings Parallel Rendering 1993 Symposium.

231. *Virtual Smoke: An Interactive 3D Flow Visualization Technique*. Kwan-Liu Ma and Philip J. Smith. In Proceedings IEEE Visualization '92 Conference, Oct 1992

232. *Volume Seedlings*. Michael Cohen, James Painter, Mihil Mehta, and Kwan-Liu Ma. In Proceedings 1992 ACM Symposium on Interactive 3D Graphics

233. *Comparison of Maximum Intensity Projection and Volume Rendering Algorithms for Evaluation of Renal Artery Anatomy in Patients with Abdominal Aortic Aneurysm*. A. Sanderson, Kwan-Liu Ma, J. Painter, M. Cohen, M. Mehta and F. Miller. The 78th Scientific Assembly of the Radiological Society of North America, 1992

234. *A Distributed Solution and Visualization for 3D Flow Simulation*, Kwan-Liu Ma and K. Sikorski. In Proceedings of the 5th SIAM Conference on Parallel Processing for Scientific Computing, 1992

235. *Direct Numerical Simulation and Visualization of a 3D Planar Mixing Layer*, Kwan-Liu Ma and Randy Clarkean. In Proceedings 1991 AIAA Fluid Dynamics Conference

236. *A Distributed Algorithm for the 3D Compressible Navier-Stokes Equations*. Kwan-Liu Ma and K. Sikorski. Transputer Research and Application 4, IOS Press, 1990

INVITED TALKS, KEYNOTE and PLENARY SPEECHES (since 1999)

Including 38 Keynote Speeches, 4 Plenary Talks, and 1 Capstone Speeches

1. Lightning talk, "Smart HER Data Analytics to Enhance Cancer Care Multiteam Systems", NSF-NIH Smart Health Workshop 2022, October 7
2. Scientific presentation, "Intelligent Visual Analytics for Critical Care Monitoring", NCIBT Inaugural Symposium, UC Davis, September 30
3. Invited talk, National Center for High Performance Computing (NCHC), Hsinchu, Taiwan, September 2
4. Invited talk, National Cheng Kung University, Tainan, Taiwan, August 26, 2022
5. Invited talk, the 1st Visualization Workshop, Academia Sinica, Nangang, Taiwan, August 19
6. **Keynote speech**, "Machine Learning and Data Visualization", Computer Graphics Workshop (CGW), Taipei, Taiwan, July 19
7. Guest lecture, CS6635, School of Computing, University of Utah, March 16, 2022 (virtual)
8. Invited Talk, the Story of Storyline Visualization, Awards and MIP Talk session, VISSOFT 2021, September 28, 2021
9. Invited Talk (virtual), Intelligent Visual Analysis of High Dimensional Data, ChinaVis 2021, July 25, 2021
10. Invited Talk (virtual), A Machine Learning Approach to Data Visualization and Analysis, ISI World Statistics Congress (WSC) 2021, July 11-16
11. **Keynote Speech** (virtual), Intelligent Visualization Interfaces, the 27th Aannual Conference on Intelligent User Interfaces (ACM IUI 2021), April 13-17, 2021
12. Guest lecture, CS6635, School of Computing, University of Utah, March 10, 2021
13. Invited Talk, Big Data Visualization and Analysis: A Machine Learning Apprach, E.Sun Financial, Taipei, Taiwan, November 2, 2020.
14. Invited Seminar, Big Data Visualization and Analytics: A Machine Learning Approach, Graduate Institute of Statistics, National Central University, Zhongli, Taiwan, October 27, 2020.
15. Information Interfaces. **Keynote** Speech, TaiCHI 2020, October 23, 2020
16. Invited Seminar, Data Driven Discovery and Storytelling using Visualization, National Chiao Tung University, Hsinchu, Taiwan, September 21, 2020.

17. Invited Seminar, Big Data Visualization and Analytics, Department of Statistics, National Cheng Kung University, Tainan, Taiwan, September 17, 2020.
18. Invited Lecture, Data Visualization and Analytics: A Machine Learning Approach, Department of Computer Science and Information Engineering, National Cheng Kung University, Tainan, Taiwan, September 16, 2020.
19. Invited Lecture, Visual Analytics: A Statistical and Machine Learning Approach, Statistical Science Camp, Academia Sinica, Taiwan, September 4, 2020.
20. Invited Lecture, Data Driven Discovery and Storytelling using Visualization, Statistical Science Camp, Academia Sinica, Taiwan, September 4, 2020.
21. Invited Talk. Data Driven Discovery and Storytelling using Visualization, Pathology and Laboratory Medicine, UC Davis, February 26, 2020.
22. Invited Talk, Data Driven Discovery and Storytelling using Visualization, College of Life Sciences, National Chung Hsing University, Taichung, Taiwan December 27, 2019.
23. Invited Talk, Machine Learning for Visualization, National Chiao Tung University, Taiwan, December 18, 2019
24. **Keynote** Speech, Big Data Visualization, International Forum on Innovation and Emerging Industries Development, Shanghai, China , September 18, 2019,
25. Invited Seminar, Data Driven Discovery and Storytelling using Visualization, Institute of Information Science, Academia Sinica, Nangang, Taiwan, September 5, 2019
26. Invtied Lecture, Visualize Your Data, Science Camp, Academia Sinica, Nangang, Taiwan, September 3-4, 2019
27. **Keynote** Speech, Data-intensive Discovery and Storytelling using Visualization, Data Science, Statistics & Visualization Conference (DSSV), August 13-15, 2019, Kyoto, Japan.
28. Invtied Lecture, Data Visualization, Statistical Summer School 2019, Academia Sinica, Nangang, Taiwan, July 19, 2019
29. Visualization: An Essential Tool for Data-driven Discovery and Storytelling, **Keynote** Speech, National Conference on Statistics Master Student Theses, Hsinchu, Taiwan, June 2, 2019.
30. Data Driven Discovery and Storytelling using Visualization, **Keynote** Speech, The 1st International Forum on Artificial Intelligence and Data Design, Tongji University, Shanghai, China, May 25, 2019
31. Data Driven Discovery and Storytelling using Visualization, Invited Lecture, NTU-AS Data Science Program, National Taiwan University, May 15, 2019, Taipei, Taiwan.
32. Smart Visualization and Group Support Systems, **Keynote** Speech, 1st Thailand-China Visualization Workshop, April 22, 2019, Bangkok, Thailand.
33. Emerging Visualization Research Directions, **Keynote** Speech, International Symposium on Visualization, Science Council of Japan, Nogizawa, Tokyo, Japan, December 15, 2018

34. VIDI Research, Invited Seminar, Watanave's Laboratory, Tokyo University, Tokyo, Japan, December 14, 2018
35. Visualization: A Powerful Tool for Data Exploration and Storytelling, Invited Seminar, National Sun Yat-sen University, Nangang, Taipei, Taiwan, December 5, 2018
36. Visualizing Large, Complex Data, Invited Talk, National Center for High-Perforamnce Computing (NCHC), Hsinchu, Taiwan, December 3, 2018
37. Big Data Visualization, Invited Seminar, Monash University, Melbourne, Australia, November 15, 2018
38. Big Data Visualization, Invited Seminar, University of Sydney, Sydney, Australia, November 14, 2018
39. Big Data Visualization, Invited Seminar, University of Technology Sydney (UTS), Sydney, Australia, November 13, 2018
40. Visualization Research: Reviews and Perspectives, **Keynote** Speech, Sino-German Workshop on Visualization, Berlin, Germany, October 21, 2018
41. Audience-Targeted Exploratory and Explanatory Visualization Designs, **Capstone** Speech, InfoVis Camp, Hachioji, Japan, September 7, 2018
42. Visualization: A Tool for Data Exploration and Storytelling, **Keynote** Speech, International Conference on Biological Ontology (ICBO 2018), Corvallis, Oregon, August 7, 2018
43. Big Data Visualization Workshop, Invited talk, ICBO 2018, Corvallis, Oregon, August 7, 2018
44. Interactive Visualization and Visual Analytics, Invited lecture, Summer School on Visualization, Zhejiang University, Hangzhou, China, July 28-August 8, 2018
45. Emerging Topics in Data Visualization, Invited seminar, Tianjin University, Tianjin, China, July 22, 2018
46. Audience-Targeted Exploratory and Explanatory Visualization Designs, Invited lecture, Summer School on Visual Computing, Shandong University, Qingdao, China, July 18-20, 2018
47. Data Visualization for Discovery and Storytelling, Invited talk, UC Davis Chancellor with Alumni in Taiwan, Taipei, Taiwan, June 27, 2018
48. Effective Visualization Designs, Invited lecture, National Chiao Tung University, April 18, 2018, HsinChu, Taiwan
49. Visualization: An Essential Tool for Scientific Discovery and Storytelling, Invited talk, Riken Center on Biosystems Dynamics Research, April 12, 2018, Kobe, Japan
50. Audience-Targeted Exploratory and Explanatory Visualization Designs, **Keynote**, Visual and Data Analysis Conference (VDA 2018), January 28-February 1, San Francisco, CA
51. Exploratory and Explanatory Visualization, Invited Talk, Visualization Workshop, Hyatt Regency, Kyoto, Japan, January 19, 2018
52. Big Data Visualization, Invited talk, CREST International Symposium on Big Data Application, Akihabara Convention Hall, Tokyo, Japan, January 16-17, 2018
53. Big Data Visualization, **Keynote**, Taiwan Data Science Conference, November 11, 2017, Taipei, Taiwan
54. Visualization for Scientific Discovery and Storytelling, Invited talk, Oak Ridge National Laboratory, August 24, 2017, Tennessee

55. Audience Targeted Exploratory and Explanatory Visualization, **Keynote,** SCCG 2017, May 15-17, 2017, Czech Republic
56. Emerging Topics in Visual Analytics, IEEE PacificVAST 2017, **Keynote**, April 18, Seoul, South Korea
57. IEEE PacificVAST 2017, Panelist, April 18, 2017, Seoul, South Korea
58. *Data Visualization*, Invited Lecture, NRS212, February 8, 2017, UC Davis Medical School, Sacramento
59. Visualization for the Public, Invited Seminar, University of Tokyo, Tokyo, Japan, December 19, 2016
60. Big Data Visualization, invited talk, Fuji Xerox, Yokohama, Japan, December 15, 2016
61. Introduction to Data Visualization, Invited lecture to undergraduate students, Keio University, Yokohama, Japan, December 13, 2016
62. Auidence-Targeted Visualization Designs for Effective Storytelling, Invited seminar, Keio University, Yokohama, Japan, December 8, 2016
63. Visualization for You, **Keynote** speech, OzCHI, Tasmania, Australia, November 30, 2016
64. Emerging Topics for Visualization Research, invited seminar, Linkoping University, Norrkoping, Sweden, October 20, 2016
65. Emerging Topics for Visualization Research, invited seminar, Vienna University of Technology, Vienna, Austria, October 17, 2016
66. Data Visualization, invited talk, Fall Seminar, Center for Healthcare Policy and Research, University of California, Davis, September 28, 2016
67. Visualization: A Tool for Data Exploration and Storytelling, invited lecture, Hokudai University, Hokkaido, Japan, August 9, 2016
68. *Scientific Visualization for the Public*, invited talk, Hanzhou Low Carbon Science & Technology Museum, Hangzhou, China, July 8, 2016
69. *Visualization: An Exploratory and Explanatory Tool*, invited talk, International Symposium on Visual Computing, Hangzhou, China, July 7, 2016
70. *Recent Advances in Visualization Research*, invited seminar, National Chiao Tung University, Hsinchu, Taiwan, June 29, 2016
71. *Big-Data Visualization Techniques for Studying Behaviors, Connections, and Evolution*. Invited Talk, Institute of Statistical Science, Academia Sinica, Taipei, Taiwan, June 17, 2016
72. *Visualization: An Essential Tool for Scientific Discovery and Storytelling*. Invited Talk, 2016 Pacific Science Congress, Academia Sinica, Taipei, Taiwan, June 16, 2016
73. *Visualization: A Tool for Exploration and Storytelling*, inited talk, Biophotonics Seminar, UC Davis, June 2, 2016
74. *Visualizing Extreme-Scale CFD Simulations*. **Plenary Talk**, Parallel CFD 2016, May 9-12, Kobe, Japan
75. *Visualization: A Tool for Data Exploration and Storytelling*. Invited Lecture, April 28, Taipei Medical University, Taiwan
76. *Recent Advances in Visualization Research*. Invited Talk, April 27, Institute of Sociology, Academia Sinica, Taiwan
77. Big Data Visualization, 2016 Summit Forum on Big Data Visualization, invited talk, April 24, Fudan University, Shanghai, China.

78. *Topics in Visualization*. Invited Seminar, Institute for Visualization and Interactive Systems, University of Stuttgart, March 11, Germany
79. *Exploratory and Explanatory Visualization*. **Keynote** Speech, VIZBI 2016 (the 3rd EMBO Conference on Visualizing Biological Data), March 9-11, 2016, Heidelberg, GermanyData Visualization, Invited Lecture, Medical Health Informatics, UCDMC, Sacramento, CA, November 25, 2015
80. *Visualization and High-Performance Visualization,* **Keynote** Speech, Symposium on Visualization in HPC, ACM SIGGRAPH Asia, November 2, 2015
81. *Advanced Concepts and Strategies for Visualizing Large-Scale, Complex Simulation Data*, Invited Talk, International Computational Accelerator Physics, Shanghai, China, October 12-14
82. *Emerging Topics in Network Visualization,* Invited Speech, Graph Drawing 2015, Los Angeles, CA, September 24-26
83. *Topics in Data Visualization*, Invited Seminar, Beijing Technology and Business University, September 2, 2015
84. *New Techniques for Visualizing Large-Scale Scientific Data*, Invited Talk, CAEP-SCNS, Beijing, China, September 2, 2015
85. *Big Data Visualization,* Invited Talk, Qinghai University, China, August 28, 2015
86. Trends and Advanced Concepts for Scientific Visualization, **Keynote**, China Scientific Data Conference, Lanzhou, China, August 26-27
87. Frontiers of Visualization Research, **Keynote**, ChinaVis 2015, Tianjin, China, July 17
88. Network Visualization, Invited lecture, National Chiao Tung University, Hsinchu City, Taiwan, July 2
89. Visual Summarization and Analysis of Big Biomedical Data, Clinical and Translational Science Center, UC Davis Health System, Sacramento, CA, February 19, 2015
90. Volume Data Visualization, Network Data Visualization, Dynamic Network Data Visualization. Invited lectures, International Winter School on Big Data, Tarragona, Spain, January 26-30, 2015
91. Emerging Topics for Big Graph Visualization, invited talk, Shonan Seminar on Big Graph Drawing, Kanagawa, Japan, January 12, 2015
92. *Advances in Network Visualization*, invited seminar, Academia Sinica, Taipei, Taiwan, December 31, 2014
93. *Big Data Visualization*, **Keynote** speech, ChinaGraph 2014, Wuhan, China, October 18, 2014
94. *Advanced Volume Visualization*, invited talk, National Chiao Tung University, Hsinchu, Taiwan, September 9, 2014
95. *Big-Data Visualization Techniques for Studying Behaviors, Connections, and Evolution*, **Keynote**, the 1st China Visual Analytics Conference, Beijing, China, July 19, 2014
96. *Emerging Research Topics in Visualization*, Invited Seminar, Zhejiang University of Technology, Hangzhou, China, July 4, 2014
97. *Emerging Research Topics in Visualization*, Invited Seminar, Zhejiang University, Hangzhou, China, July 3, 2014
98. *Advanced Concepts and Techniques for Visualization*, Invited Talk, High Performance Computing and Geospatial Analytics Workshop, Argonne National Laboratory, April 29, 2014
99. *Explorable Images for Extreme-Scale Visualization*, Invited Talk, Shonan Seminar, Japan, March 11, 2014

100. *Center of Excellence for Visualization*, Invited Talk, RISE Symposium, Davis, CA, January 27, 2014
101. *Big Data Visualization*. Invited Talk, CA Technologies, Santa Clara, CA, January 22, 2014
102. *Visual Analytics: Opportunities and Challenges*. National Taiwan University, Invited Seminar, Taipei, Taiwan, December 6, 2013
103. *Big Data Visualization*. SEAIP (Southeast Asia International Program), Joint Research and Training Program in High-Performance Computing Applications and Networking Technology, Invited Talk, Taichung, Taiwan, October 2, 2013
104. *Visualization Techniques for Assisting Heterogeneous Text Analysis*. The 3rd IEEE Workshop on Interactive Visual Text Analytics, **Keynote** Speech, Atlanta, GA, October 14, 2013
105. *Big-Data Visualization*, HRL Laboratory, Invited Talk, Malibu, CA, October 3, 2013
106. *Visual Analytics Techniques for Gleaning Insight from Big Data*, Statistical Science Camp, Academia Sinica, Invited Talk, Taipei, Taiwan, September 4, 2013
107. *Advanced Visualization Techniques for Scientific Research and Education*, Invited Talk, Zhejiang University, Hangzhou, China, September 2, 2013
108. *Big Data Visualization*, Invited Talk, Trend Micro, Taipei, Taiwan, August 30, 2013
109. *Advanced Concepts and Techniques for Visualizing Large, Complex Data*, Invited Talk, Los Alamos National Laboratory, New Mexico, August 8, 2013.
110. *Big-Data Visualization Techniques for Studying Behaviors, Connections, and Evolution* , Invited Lecture, National Chao Tung University, HsinChu, Taiwan, July 10, 2013
111. *Big-Data Visualization*, Invited Talk, Industrial Technology Research Institute, HsinChu, Taiwan, July 9, 2013
112. *Visualization for Studying Social Networks*, Dagstuhl Seminar, Germany, May 14, 2013.
113. *Emerging Topics for Visualization Research*, **Keynote Speech,** TopoVis 2013, March 4.
114. *Extreme-Scale Data Visualization*, Invited Talk, AICS International Symposium, Kobe, Japan, March 1, 2013
115. *VIDI Research*, CS Club, UC Davis, February 13, 2013
116. *Big Data Visualization*, Electrical Engineering Department, Taipei Tech, December 26, 2012.
117. *Big Data Visualization*, Distinguished Lecture, Computer Science and Calit2, University of California at Irvine, November 16, 2012.
118. *Advanced Concepts and Techniques for Extreme-Scale Data Analysis and Visualization*, DOE Exascale Computing Conference, Washington DC, October 1-3, 2012.
119. *Information Visualization for Studying Behaviors, Connections and Evoluation*, Taiwan Tech, Taipei, Taiwan, September 20, 2012.
120. *Information Visualization for Studying Behaviors, Connections, and Evoluation*, Zhejiang University, Hangzhou, China, September 13, 2012.
121. *Information Visualization for Studying Behaviors, Connections, and Evoluation*, Zhegjiang University of Technology, Hangzhou, China, September 11, 2012.
122. *Big Data Visualization: Advanced Concepts and Techniques*, SIBGRAPI 2012, Ouro Preto, Brazil, August 24, 2012.
123. *VIDI Reserach Overview*, University of Sao Paulo, Brazil, August 21, 2012.
124. *Big Data Visualization*, HP Labs, Palo Alto, CA, July 23, 2012.
125. *Big Data Visualization*, Chunghwa Telecom Laboratories, Taipei, Taiwan, July 6, 2012.

126. *Large Data Visualization*, Invited Talk, National Chao Tung University, Taiwan, July 2, 2012.
127. *Visualization: An Enabling Tool for Discovery and Communication*, Invited Talk, St. John's University of Technology, Taiwan, June 27, 2012.
128. *Visualization Research Challenges and Opportunities*, Invited Talk, National Taipei University of Technology, Taipei, Taiwan, May 17, 2012.
129. *Recent Advances in Social Network Visualization*, Invited Talk, Academia Sinica, Taipei, Taiwan, May 14, 2012.
130. *Large Data Visualization*, Invited Talk, Zhejiang University of Technology, Hangzhou, China, May 8, 2012.
131. *Advanced Concepts for Large Data Visualization*, Invited Seminar, Seoul National University, South Korea, Feb 28, 2012.
132. *Visualizing Large and Complex Data*, Invited Talk, IBM Almaden Research, Febrary 8, 2012.
133. *Next-Generation Visualization Requirements for In-Situ Processing*, Invited Talk, SC11 BOF, Seattle, WA, November 15, 2011.
134. *Visualizing Large, Complex Data*, Invited Talk, 5th XLDB, Stanford, CA, October 18-19, 2011.
135. *Visualizing Large, Complex Data*, Invited Seminar, National Tsing Hua University, Taiwan, September 14, 2011.
136. **Keynote Speech,** *Research Directions in Data Visualization*, Computer Graphics Workshop, Taipei, Taiwan, July 14-15, 2011
137. *Visualizing Large, Complex Data: An Overview*, June 14, 2011, CEA/EDF/INRIA Summer Schools, Cadarache, France.
138. *Parallel Visualization*, June 15, 2011, CEA/EDF/INRIA Summer Schools, Cadarache, France.
139. *Particle Data Visualization*, June 16, 2011, CEA/EDF/INRIA Summer Schools, Cadarache, France.
140. *Vector Field Visualization*, June 17*Network Visualization*, June 21, CEA/EDF/INRIA Summer Schools, Cadarache, France.
141. *Advanced Concepts for Large Data Visualization*, June 22, CEA/EDF/INRIA Summer Schools, Cadarache, France.
142. *In Situ Visualization*, CEA/EDF/INRIA Summer Schools, Cadarache, France, June 23, 2011
143. *Network Analysis and Visualization*, Invited Lecture, National Chiao Tung University, Taiwan, May 11, 2011
144. *Explorable Images: A New Approach to Large Data Visualization*, Invited Lecture, National Chiao Tung University, Taiwan, May 10, 2011
145. *Visualizing Large Data*, Invited Lecture, AMP Lab, Univesity of California, Berkeley, April 27
146. *New Approaches to Large Data Visualization*, **Keynote** speech. 2011 IEEE Pacific Visualization Symposium, March 3.
147. *Data Analysis and Visualization Computing Requirements: A Case Study*, invited talk, Workshop on Large Scale Computing and Storage Requirements for ASCR, DOE, January 5-6, 2011
148. *Visualization as a Knowledge Discovery and Communication Tool*, Undergraduate Seminar, Computer Science, National Chiao Tung University, Taiwan, December 21, 2010
149. *Modeling the Uncertainty due to Data/Visual Transformations using Sensitivity Analysis*, NSF FODAVA Project Review Meeting, Georgia Institute of Technology, Atlanta, GA, December 10, 2010

150. *Techniques for Visualizing Large, Complex Data.* SCI **Distinguished Lecture**, University of Utah, November 12, 2010
151. Drawing Insight from Large Networks with Visual Analytics. Invited talk, NPUC 2010, Harnessing the Buzz of the Crowd: Technologies and Applications, IBM Almaden Symposium, San Jose, CA, October 22, 2010
152. *Distance Visualization of Ultrascale Data*, invited talk, Argonne National Laboratory, IL, September 30, 2010
153. *Centrality Based Visual Analysis of Networks*, **Distinguished Lecture**, Peking University, Beijing, China, September 17, 2010
154. *A New Approach to Distance Visualization of Large Volume Data*, invited lecture,Tsinghua University, Beijing, China, September 16, 2010
155. *Distance Visualization of Ultrascale Data with Explorable Images*, invited lecture, National Taiwan University of Science and Technology, Taipei, Taiwan, August 11, 2010
156. *Visual Analysis of Networks*, invited lecture, Academia Sinica, Taipei, Taiwan, August 9, 2010
157. *Ultrascale Visualization*, invited lecture, Academia Sinica, Taipei, Taiwan, August 4, 2010
158. *Advanced Volume Classification and Vsiualization*, invited lecture, Academia Sinica, Taipei, Taiwan, August 2, 2010
159. *Distance Visualization of Ultrascale Data with Explorable Images*, SIGGRAPH 2010 Talk, LA, CA, July 26, 2010.
160. *Visualization: An Emerging Discipline*, National Cheng Kung University, Taiwan, May 20, 2010
161. *Hot Topics in Visualization*, National Cheng Kung University, Tainan, Taiwan, May 19, 2010
162. *Visualization: An Emerging Discipline*, National Kaohsiung Normal University, Kaohsiung, Taiwan, May 18, 2010.
163. *Multivariate Data Visualization*, **Keynote** speech, MADAI Sandia Workshop, Sandia National Laboratory, New Mexico, May 12, 2010
164. *Large Data Visualization*, IS&T Colloquium, NASA/GSFC, Baltimore, Maryland, April 21, 2010
165. *Visualizing Large, Complex Data*, Keio University, Yokohama, Japan, December 14, 2009
166. *Introduction to Visuaization*, Nara Women University, Nara, Japan, December 11, 2009
167. *Visualizing Social Networks*, Nara Women University, Nara, Japan, December 10, 2009
168. *Uncertainty-Aware Data Transformations for Collaborative Reasoning*, NSF FODAVA Review Meeting, Georgia Tech, Atlanta, GA, December 3, 2009
169. *Recent Advances in Volume Visualization*, invited lecture, Tsinghua University, Beijing, China, November 26, 2009
170. *Visualizing Large, Complex Data*, Microsoft Research in Asia, Beijing, China, November 25, 2009
171. *Recent Adavnces in Information Visualization*, invited lecture, Tsinghua University, Beijing, China, November 25, 2009
172. *Recent Advances in Large Data Visualization*, invited lecture, Tsinghua University, Beijing, China, November 24, 2009
173. *In Situ Data Reducation and Visualization*, Panel on Challenges on Large Data Visualization: A Visualization Community Call to Action, Visualization 2009 Conference, Atlantic City, NJ, October 15, 2009

174. *Uncertainty-Aware Visualization of Networks*, invited talk, Forum FODAVA, VisWeek 2009, Atlantic City, NJ, October 11, 2009
175. *Space for Visualization*, **Keynote** speech, Pacific Graphics 2009, Jeju, Korea, October 7-9, 2009
176. *Next Generation Visualization Technology for Computational Sciences*, plenary speech, 10th International Computational Accelerator Physics Conference (ICAP 2009), San Francisco, September 2, 2009
177. *Information Visualization*, invited seminar, National Taipei University of Technology, Taipei, Taiwan, August 25, 2009
178. *Parallel Visualization*, invited lectures, Peking University, China, August 17-18, 2009
179. *Recent Advances in Visualization*, invited seminar, National Chiao Tung University, Hsinchu, Taiwan, July 30, 2009
180. *VIDi Research Overview*, invitaed talk, National Taiwan University, Taipei, Taiwan, July 14.
181. *Scientific Visualization at Extreme Scale*, invited lecture, National Cheng-Kung University, Taiwan, June 1, 2009
182. *Scientific Visualization at Extreme Scale*, invited lecture, National Taiwan University of Science and Technology, Taiwan, May 27, 2009
183. Advanced Concepts and Techniques for Medical Image Data Visualization, invited talk, ASNR (American Society of Neuroradiology) 2009, Vancouver, Canada, May 19, 2009
184. Ultravis Institute Accomplishments, SciDAC Midterm Review meeting, DC, April 27, 2009
185. Space for Visualization, Neyman seminar, University of California at Berkeley, April 8, 2009
186. VIDI Research Overview, the Exploratorium, San Francisco, March 13, 2009
187. Visualization in the Right Space, Invited Talk, Statistical Computation and Visualization 2008, Academic Sinica, Taipei, Taiwan, December 1-3, 2008
188. *Ultrascale Visualization,* **Distinguished Lecture**, Brown University, November 6, 2008
189. **Keynote** speech, Chinagraph, Changsha, China, September 26-28, 2008
190. Invited Speech, Information Visualization Workshop, Taiwan, September 24-25, 2008
191. *Ultrascale Visualization*, ACM SIGGRAPH 2008 Conference, Los Angeles, August 15, 2008
192. *Novel Transfer Functions for Volume Visualization*, **Keynote** Speech, Computer Graphics Workshop, Taiwan, July 24-25, 2008
193. **Keynote** speech, Visualization Workshop, Peking University, Beijing, June 24, 2008
194. *Novel Transfer Functions for Volume Visualization*. **Keynote** Speech, Computer Graphics Workshop, Taiwan, July 24-25, 2008
195. Depicting beyond Terascale, CSE, Georgia Institute of Technology, March 14, 2008
196. *Parallel Visualization Technology*, **Plenary Speech**, SIAM Conference on Parallel Processing for Scientific Computing, Atlanta, GA, March 12-14, 2008
197. VIDi Research, WesternGeco, Houston, TX, February 18, 2008
198. *Visualizing Extreme-Scale Data*, Invited talk, Visualization and Data Analysis 2008 Conference, San Jose, January 28, 2008
199. *Advanced Visualization Technology for Gyrokinetics Particle Simulations*, invited talk, SciDAC GPS project meeting, Irvine, January 24, 2008
200. *Data to Knowledge: A Visual Approach*, Nokia Research Center, Palo Alto, CA, December 13, 2007

201. **Keynote** Speech, 3rd International Symposium on Visual Computing (ISVC 2007), Lake Tahoe, Nevada, November 26-28, 2007
202. *Visualizing Ultra-Scale Data*, Invited Talk, IIC, Harvard University, October 24, 2007
203. *Ultrascale Visualization*, **Keynote** speech, , Computer Graphics Workshop, Taiwan, October 18, 2007
204. *In-Situ Visualization for Ultra-Scale Simulations,* National Center for High-Performance Computing, Taiwan, October 15, 2007
205. *Key Challenges in Computational Science at the Petascale***, Plenary Speech**, , 2007 Fall Creek Falls Conference, ORNL, Tennessee, September 24-25, 2007
206. *Information Visualization*, invited Lecture, National Chiao-Tong University, Taiwan, August 16
207. *Scientific Visualization*, National Chiao-Tong University, Taiwan, August 16, 2007
208. *In-Situ Visualization for Ultra-Scale Simulations*, SciDAC 2007 Conference, June 24-28, 2007
209. *Tired of Parallel Coordinates*?, Dagstuhl Seminar on Information Visualization, May 29-June 1, 2007
210. *Multidimensional Particle Data Analysis and Visualization*, DOE Computer Graphics Forum, May 1, 2007
211. *SciDAC Institute for Ultrascale Visualization: Mission and Strategic Plan*, DOE Computer Graphics Forum, April 30, 2007
212. *Envisioning Scientific Data: Challenges and Research*, invited Lecture, UCLA, April 23, 2007
213. *Simulation-Time Visualization,* Workshop on Ultra-Scale Visualization, Supercomputing 2006 Conference, November 13, 2006
214. *Ultrascale Visualization,* Invited Seminar, Institute of Applied Physics and Computational Mathematics, Beijing, China, October 23, 2006
215. *Ultrascale Visualization,* Invited Seminar, Chinese Academy of Sciences, Beijing, China, Oct 22, 2006
216. *Ultrascale Visualization,* Invited Seminar, National Taiwan University, Taipei, October 16, 2006
217. *Information Visualization***, Keynote** Speech, 2006 Chinese CAD&CG Conference, Shandong, China, Oct 18-20, 2006
218. *Information Visualization for Security*, Invited Seminar*,* National Taiwan University, July 11, 2006
219. *Ultra-Scale Visualization*, Invited Lecture, National Center for High Performance Computing, Taiwan, July 6, 2006
220. *Advanced Volume Visualization Technologies*, Invited Lecture, Chang Gung Hospital, Taiwan, July 5, 2006
221. *Future Visualization Technologies*, Invited Lecture, Kyoto University, Japan, June 22, 2006
222. *High-Performance Visualization*, Invited Lecture, Nara Women University, Japan, June 19, 2006
223. *Visual Analysis of Complex Networks*, Invited Lecture, Ochanomizu University, Japan, June 16, 2006
224. *Ultrascale Visualization***, Keynote** Speech, 2006 Transdisciplinary Fluid Integration Symposium, Sendai, Japan, June 12
225. *Visual Analysis of Large, Heterogeneous Social Networks*, Invited Lecture, University of Konstanz, Germany, May 31, 2006
226. *Visual Analysis of Large, Heterogeneous Social Networks*, Invited Lecture, University of Zurich, Switzerland, May 30, 2006

227. *Parallel Rendering Algorithms for Large-Scale Data Visualization*, Invited Lecture, ETH Zurich, Switzerland, May 29, 2006
228. *Ultra-Scale Visualization*, Invited Lecture, UCLA Institute for Digital Research and Education, May 15
229. *Cyber Security through Visualization*, **Keynote** Speech, 2006 Asia-Pacific Symposium on Information Visualization, Tokyo, Japan, February 1, 2006
230. *Visualization Technologies for Combustion Science*, NSF Workshop on Cyber-based Combustion Science, Arlington, VA, April 19, 2006
231. *Illustrative Visualization*, Panel on Illustrative Visualization, Visualization 2005 Conference, Minneapolis, MN, October 23-28, 2005
232. Expressive Line Selection By Example, Pacific Graphics 2005 Conference, Macau, October 12-14, 2005
233. Next Generation Visualization Interfaces, Invited Seminar, HKUST, Hong Kong, October 10, 2005.
234. Visualizing Supernova Simulations, Invited Talk, Terascale Supernova Initiate (TSI) Review Meeting, San Diego, September 10, 2005.
235. Next Generation Visualization Interfaces, Invited Talk, Tsinghua University, China, July 14, 2005.
236. Next Generation Visualization Interfaces, Invited Talk, Zhejiang University, China, July 11, 2005.
237. Next Generation Visualization Interfaces, Invited Talk, Fudan University, China, July 8, 2005.
238. Introduction To Visualization. 2) Volume Visualization. 3) High- Quality Volume Visualization. 4) Large Data Visualization. Invited Lectures, Fudan University, China, July 6-7, 2005.
239. Scientific Discovery Through Advanced Visualization, Invited Talk, DOE SciDAC 2005 Conference, San Francisco, CA, June 26-29, 2005.
240. Panel presentation, Panel on Volume Graphics: What in the Cards, International Workshop on Volume Graphics 2005, Stony Brook, NY, June 20-21.
241. Information Interfaces, Invited Talk, Nissan Motor Co., Japan, June 15, 2005.
242. Visualization And Computational Science & Engineering, Invited Talk, NIH-NSF Workshop on Visualization Research Challenges, Salt Lake City., Utah, May 1-3, 2005
243. Advanced Visualization Techniques For Complex Biomedical Data, Invited Talk, UC Davis Cancer Center, November 30, 2004.
244. Visualization For Security, Invited Talk, Lawrence Berkeley National Laboratory, September 14, 2004.
245. Large Volume Data Visualization, Invited Talk, DOE VIEWS Workshop, Salt Lake City, July 20, 2004.
246. Advanced Volume Visualization Technologies, Invited Talk, National Taiwan University, Taiwan, July 9, 2004.
247. An Efficient Pre-Integrated Volume Rendering Algorithm, Invited Talk, National Chiao Tung University, Taiwan, July 7, 2004.
248. Volume Visualization. High Quality Volume Rendering Techniques. Future Research Directions In Data Visualization, Invited Lectures, National Cheng Kung University, Taiwan, July 6, 2004.
249. Advanced Visualization Technologies, Invited Talk, Nissan Motor Co., Japan, June 24, 2004.
250. Visualizing Large-Scale Earthquake Simulations, Supercomputing 2003 Conference, November 15-21.

251. Emerging Interface Technologies for Data Visualization, Iwate Prefectural University, July 18, 2003.
252. Emerging Interface Technologies for Data Visualization, Invited Talk, the Yamanashi University, Japan, July 16, 2003.
253. An Interactive Volume Visualization System for Transient Flow Analysis, the International Workshop on Volume Graphics, Tokyo, Japan, July 7-8, 2003.
254. Interactive Visualization of Transient Flow, Invited Talk presented at Nissan Motor Co., Japan, July 4, 2003.
255. Emerging Interactive Visualization Technologies, University of Tokyo, Japan, June 30, 2003
256. New Technologies for Interactive Visualization, Invited Talk, ARMY AHPCRC Workshop on Graphics Modeling, Simulation and Visualization, Tallahassee, FL, June 23-24, 2003.
257. Emerging Interface Technology for Data Visualization, DIMACS Workshop on Visualization and Data Mining, October 24-25, 2002
258. Interactive Visualization Techniques for Terascale Particle Accelerator Simulations, Invited talk, the DoE SciDEC Visualization Workshop, Salt Lake City, UT, September 10, 2002.
259. Next-Generation Visualization Technologies, Invited Talk, Los Alamos National Laboratory, Los Alamos, NM, August 13, 2002.
260. New Technologies for Data Visualization, **Keynote** Speech, Annual Computer Graphics Workshop, Tainan, Taiwan, June 26-27, 2002
261. Hardware-Accelerated Volume Rendering, Invited Talk, the National Center for High Performance Computing, HsinChu, Taiwan, June 31, 2002
262. Visualization Techniques for Time-Varying Volume Data, invited talk, the CAD/Graphics 2001 Conference, Kunming, China, August 22-24.
263. Large-Scale Scientific Data Visualization, Invited Talk, Tokyo University, Tokyo, Japan, July 9, 2001
264. A Multi-Resolution Interactive Previewer for Volumetric Data on Arbitrary Meshes, invited talk, the Workshop on Computer Graphics and Virtual Reality, Chiayi, Taiwan, December 6-8, 2000.
265. Compression and Accelerated Rendering of Time-Varying Volume Data, invited talk, the Workshop on Computer Graphics and Virtual Reality, Chiayi, Taiwan, December 6-8, 2000
266. Large-Scale Medical Data Visualization, Invited Talk, the National Institutes of Health, Bethesda, MD, October 25, 2000.
267. Scientific Visualization Research, Invited Talk, CIPIC, Biotechnology Seminar, University of California, Davis, November 17, 2000
268. User Interface Technology for Data Visualization, Invited talk, Tamkang University, Tamsui, Taiwan, May 16, 2000
269. Parallel Volume Visualization, Invited talk, Tamkang University, Tamsui, Taiwan, May 15, 2000
270. Large-Data Visualization, Invited talk, Tamkang University, Tamsui, Taiwan, May 14, 2000
271. Parallel Scientific Visualization, Invited talk, Bay Area Scientific Computing Day, Berkeley, CA, February 26, 2000
272. Plasma Physics Data Visualization, Invited Talk, General Atomics, San Diego, CA, August 22, 2000
273. Large-Scale Data Visualization, Invited Talk, Chevron Petroleum Technology Company, June 5, 2000

274. Visualizing Large-Scale 3-D Irregular Grid Data, Invited talk, Lawrence Berkeley National Laboratory, May 8, 2000.
275. Parallel Rendering, Invited talk, Presented at the Parallel and Distributed System Software Laboratory, Real World Computing Partnership, Japan, February 14-16, 2000
276. Massively Parallel Visualization Systems, Invited talk, Mitsubishi Electronic Corporation, Japan, December 10, 1999.
277. Massively Parallel Visualization Systems, Invited talk, Mitsubishi Precision Co., Ltd., Japan, December 9, 1999.
278. Massively Parallel Visualization Systems, Invited lecture, Ochanomizu University, Japan, December 8, 1999.
279. Massively Parallel Visualization Systems, Invited talk, Electrotechnical Laboratory, Japan, December 7, 1999.
280. Scientific Visualization, invited talk, the University of California, Davis, Medical Informatics, Davis, CA, November 16, 1999.
281. Parallel Visualization Systems, the ACM SIGGRAPH '99 Conference, Course 9: System Designed for Visualizing Large-Scale Scientific Data, August 8, 1999.
282. Image Graphs - A Novel Approach to Visual Data Exploration. IEEE Visualization '99 Conference, October 27.
283. Image Graphs - A Novel Approach to Visual Data Exploration. Invited talk, the Department of Computer Science, University of California, Davis, March 1, 1999.
284. Parallel Rendering of 3d AMR Data on The Cray T3e, the 7th Symposium on the Frontiers of Massively Parallel Computation, February 24, 1999.
285. Image Graphs - A Novel Approach to Visual Data Exploration. Invited talk, the Department of Computer and Information Science, Ohio State University, February 10, 1999.
286. Image Graphs - A Novel Approach to Visual Data Exploration. Invited talk, the Department of Computer Science, Purdue University, January 25, 1999.

EXTERNAL FUNDINGS

- PI: Holly Doremus (Co-Investigator: K.-L. Ma), Just Transitions In Large Socioecological Systems: Drought, Sea-level Rise & Salinity In the Delta, UC MRPI, $2,455,739, 2023-2027
- PI: Shin-Ping Tu (Co-PI: K.-L. Ma), SMART Cancer Care Teams: Enhancing EHR Communication to Improve Interprofessional Teamwork, National Institute of Health, $3,255,908, 2022-2027
- PI: K.-L. Ma, Co-PI: Shin-Ping Tu, Smart EHR Data Analytics to Enhance Cancer Care Multiteam Systems, National Institute of Health, $810,171, 2022-2024
- PI: Laura Marcu (Co-Investigator: K.-L. Ma), The National Center for Interventional Biophotonic Technologies, National Institute of Health, $6.3M, 2022-2027
- PI: Beatriz Martinez Lopez, Co-PI: Xin Liu (Co-Investigator: K.-L. Ma), Track-D: Data-Driven Disease Prevention and Control in Animal Health, Convergence Accelerator Research Program, National Science Foundation, $4,990,591, 2021-2023
- PI: K.-L. Ma, Visual and Predictive Analysis of Error Logs in HPC, Argonne National Laboratory, $88,470, 2022-2023
- PI: K.-L. Ma, Visual and Predictive Analysis of Error Logs in HPC, Argonne National Laboratory, $89,259, 2021-2022

- PI: K.-L. Ma, Visualization-Guided Technical Language Processing for Machine Maintenance Logs, NIST $89,607, 2021-2022
- PI: K.-L. MA, Callflow Visualization, LLNL, $62,275, 2020-2021
- PI: K.-L. Ma, Visual and Predictive Analysis of Error Logs in HPC, Argonne National Laboratory, $89,038, 2020-2021
- PI: K.-L. Ma, Visualization-Guided Technical Language Processing for Machine Maintenance Logs, NIST $89,505, 2020-2021
- PI: K.-L. MA, Callflow Visualization, LLNL, $60,275, 2019-2020
- PI: K.-L. Ma, A Visual Analytics Framework for Analysis, Presentation, and Prognostics of Machine Maintenance Logs, NIST $124,314, 2019-2020.
- PI: K.-L. Ma, New Patient-centered Visualization Methods for Predictive Learning Algorithms: A Pilot Study in Heart Failure Decision Support, CITRIS $60,000, 2019-2020.
- PI: K.-L. Ma, In Situ Visual Analytics Technologies for Extreme Scale Combustion Simulations, DOE ASCR $796,746.00, 2018-2021
- PI: K.-L. Ma, Critical Visualization Technologies for Analyzing and Understanding Big Network Data NSF IIS $550,000.00, 2017-2020
- PI: K.-L. Ma, Technologies for Creating Explanatory and Exploratory Animations from Scientific Data, NSF IIS $499,996.00, 2015-2018
- PI: K.-L. Ma, Supporting Co-Design of Extreme-Scale Systems with In Situ Visual Analysis of Event-Driven Simulations, DOE ASCR $632,589.00, 2015-2018
- PI: K.-L. Ma, XVis: Visualization for the Extreme-Scale Scientific Computation Ecosystem, DOE ASCR $524,000.00, 2014-2017
- PI: K.-L Ma, Full-Scale Development: Living Liquid: Creating Interactive Visualization Tools to Explore Large Ocean Datasets, NSF $329,598.00, 2013-2016
- PI: K.-L. Ma, A General Framework for Expressing, Navigating, and Querying Uncertainty in Data Analysis and Visualization Tasks, NSF $498,196.00, 2013-2016
- PI: K.-L. Ma (with one Co-PI), Scalable Data Management, Analysis, and Visualization Institute, DOE $2,125,000.00, 2012-2017.
- PI: K.-L. Ma, Interactive Correlation Analysis and Visualization of Climate Data, DOE $550,000.00, September 2010 – August 2012.
- PI: K.-L. Ma (with one Co-PI), Modeling the Uncertainty due to Data/Visual Transformation using Sensitivity Analysis, NSF FODAVA $316,918.00, September 2010 – August 2012.
- PI: K.-L. Ma, Pervasive Parallel Processing Framework for Data Visualization and Analysis at Extreme Scale, DOE $460,116.00, September 210-August 2013.
- PI: K.-L. Ma (and three Co-PIs), Algorithms, codes and data analysis in quantum simulations of materials for renewable energy applications, DOE $1,091,118.00, July 1, 2010 – September 2011.
- PI: K.-L. Ma (and one Co-PI), In Situ Processing and Visualization for Peta- and Exascale Simulations, NSF, $425,000.00, July 1, 2009- June 30, 2012.
- PI: K.-L. Ma, Visual Characterization of I/O System Behaviors, NSF HECULA, $470,600.00, September 15, 2009- September 14, 2012.
- PI: K.-L. Ma, Advanced Visual Analytics Technology, HP $75,796.00, June 2009 – May 2012.
- PI: K.-L. Ma, Uncertainty-Aware Data Transformations for Collaborative Reasoning, NSF FODAVA, $300,000.00, June 1, 2009 – May 31, 2010.
- PI: Francois Gygi, Co-PI: K.-L. Ma, First-Principles Molecular Dynamics for Petascale Computers, NSF PetaApps, $1,100,000.00, 2007 – 2011
- PI: Jacob Bielak, Co-PI: K.-L. Ma, Towards Petascale Simulation of Urban Earthquake Impacts, NSF PetaApps, $1,200,000.00, 2007 – 2011
- PI: K.-L. Ma (and seven Co-PIs), Institute on Ultra Scale Visualization, Department of Energy, $8,400,000.00, September 2006 - September 2011.

- PI: K.-L. Ma, Intelligence Augmented Visualization, NSF 325,000.00, July 2008 – June 2011.
- PI: K.-L. Ma, CRI: A Cluster Infrastructure for High Performance Visualization and Interface Research, National Science Foundation, $155,978.00, March 2006 - March 2007.
- PI: K.-L. Ma, Intelligent Visualization Interface, National Science Foundation, $98,423.00, November 2005 - November 2006.
- PI: K.-L. Ma, Workshop on Visualization for Computer Security, NSF $9,980.00, September 2005 - May 2006.
- PI: K.-L. Ma (and three Co-PIs), ITR for Gleaning Insights in Large Time-Varying Scientific and Engineering Data, Co-PI: Amenta, N., National Science Foundation, $2,000,000.00, October 2003 - September 2008.
- PI: K.-L. Ma, Network Security Visualization, Lawrence Livermore National Laboratory, $50,000, 2004-2005
- PI: K.-L. Ma, Large Graph Visualization, Lawrence Livermore National Laboratory, $50,000, 2004-2005
- PI: K.-L. Ma, Advanced Visualization Technology for Accelerator Modeling, Department of Energy, $220,000.00, October 2004 - September 2006.
- PI: K.-L. Ma, Advavnced Visualization Technology for Gyrokinetic Particle Simulations, Department of Energy, $120,000.00, Janurary 2005 - December 2006.
- PI: K.-L. Ma, A Metadata-Driven Visualization Interface Technology for Scientific Data Exploration, Co-PI: Gertz, M., National Science Foundation, $265,000.00, October 2002 - September 2005.
- PI: K.-L. Ma, Interactive Visualization of Large Mixed-Resolution Volume Data, Department of Energy, ASCI VIEWS Program, $450,000.00, June 2002 - May 2005.
- PI: F. Wu, An Interactive Visual Anomaly Detection System for Faults and Intrusions on Network Protocols, Co-PI: K.-L. Ma, National Science Foundation, ITR, $400,172.00, October 2002 - September 2005.
- PI: K.-L. Ma, Parallel Visualization & Interaction Techniques for Exploring Large-Scale Volume Data, PECASE Award, National Science Foundation, $521,000, January 2000 - July 2005.
- PI: K.-L. Ma, Visualization Thrust of the SciDAC project: Advanced Computing for 21st Century Accelerator Science and Technology Department of Energy, $261,500.00, January 2001 - December 2004.
- PI: B. Hamann, Visualization of Adaptive Mesh Refinement Data, Co-PIs: K. Joy, K.-L. Ma, and N. Max, Lawrence Berkeley National Laboratory, $62,500, October 2001 - September 2002.
- PI: B. Kutter, A NEES Geotechnical Centrifuge Facility, Co-PI: R. Boulanger, B. Hamann, B. Jeremic, K.-L. Ma, J. C. Santamarina, S. Velinsky, D. Wilson, and B. Yoo., National Science Foundation, NEES Program, Division of Civil and Mechanical Systems, $4,614,294, October 2000-September 2004.
- PI: E. Jones, Information of Human and Monkey Brain Atlases, Co-PIs: M. Gertz, F. Gorin, B. Hamann, M. Hogarth, K. Joy, H. Karten, P. Kelly, K.-L. Ma, N. Max, J. Meyer, B. Olshausen, G. Popken, J. Wagner, and R. Walters, National Institutes of Health, The Human Brain Project, $6,905,744, July 2001 - June 2006.
- PI: B. Hamann, Multiresolution and Topology Based Visualization of Large Scientific Data Sets in Parallel and Distributed Computing Environments, Co-PIs: R. Algazi, M. Gertz, K. Joy, K.-L. Ma, and N. Max, LSSDSV Program, National Science Foundation, $750,000, June 2000 - May 2003.
- PI: K.-L. Ma, Schlumbeger Foundation Technical Award, Schlumbeger Foundation, $30,000, June 2000 - May 2003.
- PI: Valerio Pascucci (LLNL), ViSUS: Visualization Streams for Ultimate Scalability, Co-PIs: M. Duchaineau, B. Hamann, K. Joy, P. Lindstrom, K.-L. Ma, and S. Uselton, LLNL, Department of Energy, $300,000, October 2001 - September 2004.
- PI: B. Hamann, Multiresolution-based Volume Visualization Supporting Interactive Data Viewing,

Co-PIs: K. Joy, K.-L. Ma, and N. Max, National Science Foundation NPACI (through UCSD). $75,000, October 2001 - September 2002; $75,000, October 2000 - September 2001; $75,447, October 1999 - September 2000.

- PI: K. Joy, Multiresolution Methods for the Representation and Exploration of Terascale Data, Co-PIs: B. Hamman and K.-L. Ma, Department of Energy, $100,035, October 2001-January 2002.
- PI: B. Hamann, Hierarchical Methods for the Representation and Visualization of Terascale Data on Arbitrary Grids, Co-PIs: K. Joy, K.-L. Ma, and N. Max, ASCI, Department of Energy, $322,000, July 2000- June 2001.
- PI: K.-L. Ma, Interactive Data Analysis and Visualization Technology for Plasma Physics Data, Co-PIs: B. Hamann, K. Joy, and N. Max, General Atomics and UC DiMI program, $87,991, June 2000 - May 2001.
- PI: B. Hamann, A Study of Multiresolution Methods and Visualization in Immersive Environment, Co-PIs: K. Joy, K.-L. Ma, and N. Max, LLNL, Department of Energy, $154,558, April 2000-March 2001.
- PI: N. Max, Image-Based Rendering for Interactive TV Viewpoint Choice, Co-PIs: B. Hamann, K. Joy, and K.-L. Ma, ST Microelectronics and DiMI, $115,307, May 2000 - May 2001.
- PI: K.-L. Ma, New Faculty Research Grant, Academic Senate, UC Davis, $3,000.00, January 2000 - June 2000. PI: K.-L. Ma, Equipment Donation, Chevron Petroleum Technology Company, $95,000, February 2000.
- PI: K.-L. Ma, NSF Workshop on Large-scale Visualization and Data Management, Co-PI: C. Johnson (Utah), National Science Foundation, $39,600, May-October 1999.
- PI: K.-L. Ma, Massively Parallel Rendering Algorithms for Large-Scale Unstructured-grid Data, ASCI Level 3, LANL, Department of Energy, $55,000, April 1998 - March 1999.

In addition, Professor Ma has also received a total of over half a million dollars of research donations from industry.

MAJOR PROFESSIONAL SERVICES (2022 – 2023)

- **Chair, Data Science Faculty Recruitment Committee,** Computer Science Dept., UC Davis, 2023
- **GGCS Chair Nomination Committee**, UC Davis, 2022
- **GGCS Admission Committee,** UC Davis, 2022
- **Review Committee,** Energy and Efficiency Institute, UC Davis, 2022
- **VIS Steering Committee, IEEE VGTC** (Visualization and Graphics Technical Committee)
- **Chair, Steering Committee,** IEEE Pacific Visualization Symposium
- **Associate Editor,** IEEE Transactions on Interactive Intelligent Systems, 2021-present
- **Associate Editor,** Journal of Visualization, 2011 — present
- **Associate Editor,** Journal of Computational Visual Media, 2015 — present
- **Associate Editor,** Journal of Visual Informatics, 2016 – present
- **Area Co-Chair,** ACM/IEEE Supercomputing Conference (SC) 2023
- **Program Committee**: IEEE LDAV 2022, IEEE PacificVIS 2022 & 2023, ACM IUI 2023, EuroVis 2023, IEEE VIS 2022 & 2023

GRADUATE STUDENTS SUPERVISED

Current Students

Yun-Hsin Kuo, PhD Student
Shilpika, PhD Candidate
Xiaoyu Zhang, PhD Candidate
Yiran Li, PhD Candidate
Hsiao-Ying Lu, PhD Student
Seyed Mak Ahmad, PhD Student
Qi Wu, PhD Candidate
David Bauer, PhD Candidate
Keshav Dash, PhD Candidate
Yuay Kawakami, PhD Student
Oleg Igouchkine, PhD Student
Xiwei Xuan, PhD Student
Suraj Kesavan, PhD Candidate
Namitha Benjamin, PhD Student
Yu-Te Lee, MS Student

Ph.D. Students

1. Tyson Neuroth, PhD, 12-2022
2. Fei Xue, PhD Education, 09-2022 (UC Davis)
3. Takanori Fujiwara, PhD, 12-2021 (Linköping University)
4. Oh-Hyun Kwon, PhD 12-2020 (Apple)
5. Chuan Wang, PhD 12-2020 (Splunk)
6. Jianping Li, PhD 8-2020 (Databricks)
7. Annie Preston, PhD 12-2019 (ClimateCheck)
8. Tarik Crnovrsanin, PhD 6-2019 (Northeastern University)
9. Chris Bryan, PhD 8-2018 (Arizona State University)
10. Min Shih, PhD 8-2018 (Google)
11. Chris Yucong Ye, PhD 8-2018 (Google)
12. Franz Sauer, PhD 06-2017 (Disney)
13. Lin Zheng, PhD 12-2017 (GE)
14. Jinrong Xie, PhD 03-2016 (e-Bay)
15. Yuzuru Tanahashi, PhD 6-2015 (Google)
16. Yubo Zhang, PhD 12-2014 (NVIDIA)
17. Jishang Wei, PhD 9-2014 (HP Lab)
18. Yu-Hsuan Chan, PhD 12-2014
19. Nathan Fout, PhD 8-2012 (Providence Regional Medical Center Everett)
20. Anna Tikhonova, PhD 12-2012 (Apple)
21. Michael Ogawa, PhD 3-2011 (Youtube)
22. Chris Muelder, PhD 9-2011 (Google)
23. Cheng-Kai Chen, PhD 12-2011 (Apple)
24. Zeqing Shen, PhD 8-2009 (TikTok)
25. Hongfeng Yu, PhD 6-2008 (University of Nebraska-Lincoln)
26. Hiroshi Akiba, PhD 8-2008 (Intel)
27. Runzhen Huang , PhD 6-2007 (Microsoft)
28. Fan-Yin Tzeng, PhD 12-2006 (NVIDIA)
29. Brett Wilson, PhD 9-2005 (Google)

30. Eric Lum, PhD 6-2004 (NVIDIA)
31. Soon Tee Teoh, PhD 9-2004 (Google)
32. T.J. Jankun-Kelly, PhD 6-2003 (Mississippi State University)
33. Greg Schussman, PhD 12-2003 (Kontagent)

MS Students

1. Lukas Masopust, M.S., 09-2022
2. Amy Woods, M.S., 06-2022
3. Celine Shenny, M.S., 12-2021
4. Shidi Yu, M.S., 12-2021
5. Dingheng (Bruce) Zhang, M.S. ECE, 12-2021
6. Michael Sun, M.S. 6-2021
7. Po-Wei Chi, M.S., 6-2021
8. Xinlin Shuai, M.S. ECE, 06-2021
9. Maksim Gomov, M.S., 06-2020
10. Sandra Bae, M.S., 06-2020
11. Zhiyi Xu, M.S., 06-2019
12. Joseph Kotlarek, M.S., 06-2019
13. Tan Huu Nguyen, M.S., 08-2017
14. Jacqueline Chu, M.S., 08-2016
15. Ramyar Ghods, M.S., 08-2016
16. Chien-Hsin Hsueh, M.S., 08-2016
17. Tsai-Ling Fung, M.S., 03-2016
18. Hendrik Schroots, M.S., 09-2015, Intel
19. Yuqi Yang, M.S., 6-2015
20. Chun-Fu Wang, M.S., 12-2014
21. Shu-Wei Hsu, M.S., 12-2014
22. Yeseul Park, M.S., 9-2013,
23. Guo-Xun Yuan, M.S., 6-2013,
24. Yelena Wu, M.S., 6-2013,
25. Carmen Sigovan, M.S., 6-2012
26. Dan Potter, M.S., 12-2011
27. Wei-Hsien Hsu, M.S., 8-2011
28. Yu-Hsin Shih, M.S., 12-2011
29. Yue Wang, M.S., 6-2008
30. Jonathan Strasser, M.S., 3-2007
31. Lei Chen, M.S., 12-2007
32. Eric Sunalp, M.S., 6-2005
33. Jonathan McPherson, M.S., 6-2004
34. Ian Bowman, M.S., 6-2004
35. Aleksander Stompel, M.S. 9-2003
36. Conrad Tse, M.S. 9-2002
37. David Camp, M.S. 6-2000