
Michael Paul Neff

Curriculum Vitae (updated September 2019)

APPOINTMENTS.....

- **Professor**, University of California, Davis, 2017 - . Cross-appointed to the Department of Computer Science and the Department of Cinema and Digital Media.
- **Chair**, Department of Cinema and Digital Media, University of California, Davis, 2016-2018
- **Co-Director**, Program in Cinema and Digital Media (named Cinema and Technocultural Studies until April, 2015), University of California, Davis, 2013-2016
- **Associate Professor**, University of California, Davis, 2011-17. Cross-appointed to the Department of Computer Science and the Program in Cinema and Technocultural Studies.
- **Assistant Professor**, University of California, Davis, 2006-2011.
- **Post-Doctoral Fellow**, 2005-6. Max Planck Institut für Informatik (MPII), Saarbrücken, Germany.

ACADEMIC HISTORY.....

- Certified Laban/Bartenieff Movement Analyst (**CLMA**), 2009.
- **Ph.D.**, 2005. Research Area: computer graphics, tools for expressive character animation. Department of Computer Science, University of Toronto, Canada. (Advisor: Eugene Fiume).
- **M.Sc.**, 1998. Research Area: computer graphics models for explosions and brittle fracture. Department of Computer Science, University of Toronto, Canada. (Advisor: Eugene Fiume)
- **B. Engineering and Society**, 1996. Completed the five year Computer Engineering and Society program which included a full technical computer engineering program, a set of courses that explored social and environmental impacts of technology and a minor in drama. McMaster University, Hamilton, Ontario, Canada. *Summa Cum Laude*

ACADEMIC AWARDS AND HONOURS.....

Honourable Mention Award, CHI (2018)
Best Paper Award, Motion in Games (2015)
NSF CAREER Award (2009-2014)
UC Davis Faculty Development Award (2009)
Isadora Duncan Award for Visual Design (2009)
Best Paper Award, Intelligent Virtual Agents (2007)
Alain Fournier Award for the top Canadian Ph.D. dissertation in computer graphics (2005)
Catherall Grant (2004, 2005)
Junior Fellow, Massey College (2001- 2005)
NSERC Graduate Fellowship (PGS-A 1996-1998, PGS-B 1998-2000)
Ontario Graduate Scholarship (declined, 1998)
Valedictorian, Faculties of Engineering, Kinesiology and Social Work, McMaster U.(1996)
Governor General's Canada Scholarship in Environmental Engineering (95-96)
Canada Scholarship 1991-1995
McMaster Chancellor's Entrance Scholarship, 1991

- Harrison Jesse Smith, Chen Cao, Michael Neff and Yingying Wang, “Efficient Neural Networks for Real-time Motion Style Transfer”, Proceedings of the ACM in Computer Graphics and Interactive Techniques (PACMCGIT), vol. 2, no. 2, 2019 (SCA 2019).
- Simon Alexanderson, Carol O’Sullivan, Michael Neff and Jonas Beskow, “Mimebot - Investigating the Expressibility of Non-Verbal Communication Across Agent Embodiments”, ACM Transactions on Applied Perception, 2017.
- Harrison Jesse Smith and Michael Neff. “Understanding the Impact of Animated Gesture Performance on Personality Perceptions”, ACM Transactions on Graphics, SIGGRAPH 2017.
- Funda Durupinar, Mubbasir Kapadia, Susan Deutsch, Michael Neff and Norman I. Badler. "PERFORM: Perceptual Approach for Adding OCEAN Personality to Human Motion using Laban Movement Analysis", ACM Transactions on Graphics, Vol. 36, Issue 1, 2016.
- Yingying Wang, Kerstin Ruhland, Michael Neff and Carol O’Sullivan, “Walk the Talk: Coordinating Gesture with Locomotion for Conversational Characters”, Journal of Computer Animation and Virtual Worlds (Special Issue, CASA ’16 – Computer Animation and Social Agents), 2016.
- Yingying Wang, Jean E. Fox Tree, Marilyn Walker and Michael Neff, “Assessing the Impact of Hand Motion on Virtual Character Personality”, ACM Transactions on Applied Perception, Vol. 13, Issue 2, March 2016.
- Kris Liu, Jackson Tolins, Jean E. Fox Tree, Michael Neff and Marilyn A. Walker, “Two Techniques for Assessing Virtual Agent Personality”, IEEE Transactions on Affective Computing, Vol. 7, Issue 1, 2016.
- Wheatland, Nkenge; Wang, Yingying; Song, Huaguang; Neff, Michael; Zordan, Victor; Jörg, Sophie. “State of the Art in Hand and Finger Modeling and Animation”, Computer Graphics Forum, 2015. (presented at Eurographics 2015)
- Yejin Kim, Myunggyu Kim, and Michael Neff. “Temporal Transfer of Locomotion Style”, ETRI Journal, vol. 37, no. 2, pp. 406-416, Apr. 2015.
- Yuanfeng Zhu, Ajay Sundar Ramakrishnan, Bernd Hamann and Michael Neff. “A System for Automatic Animation of Piano Performances”, Computer Animation and Virtual Worlds, 2012.
- Yejin Kim and Michael Neff. “Automating Expressive Locomotion Generation”, (CASA 2011) Transactions on Edutainment VII, LNCS 7145, pp. 48-51, 2012.
- Michael Neff, Dawn Sumner, Gerald W. Bawden, Ellen Bromberg, James P. Crutchfield, Della Davidson, Louise H. Kellog and Oliver Kreylos. “Blending Art and Science in the Production *Collapse (suddenly falling down)*”, Leonardo Journal, Vol. 43, No. 3, pp.274-281, 2010. (Extended version of the paper below.)

- Michael Neff, Dawn Sumner, Gerald W. Bawden, Ellen Bromberg, Della Davidson, Louise H. Kellog and Oliver Kreylos. “Blending Art and Science to Create *Collapse (suddenly falling down)*”, Leonardo Transactions, Leonardo Journal - Transactions, Vol. 43, No. 2, 2010.
- Michael Neff, Michael Kipp, Irene Albrecht, Hans-Peter Seidel. “Statistical Reconstruction and Animation of Specific Speakers’ Gesturing Styles”, ACM Transactions on Graphics, Vol. 27, No. 1, pp. 5:1-24, 2008.
- Michael Kipp, Michael Neff and Irene Albrecht. “An Annotation Scheme for Conversational Gestures: How to economically capture timing and form”, Journal on Language Resources and Evaluation - Special Issue on Multimodal Corpora , Vol. 47, No. 3-4, pp. 325-339, 2007.
- Michael Neff, Irene Albrecht and Hans-Peter Seidel. “Layered Performance Animation with Correlation Maps”, Computer Graphics Forum 26 (3) (EUROGRAPHICS 07), pp.675-684, 2007.
- Joseph Laszlo, Michael Neff and Karan Singh. “Predictive Feedback for Interactive Control of Physics-based Characters”, Computer Graphics Forum 24(3) (EUROGRAPHICS 05), pp. 257-266, 2005.
- Michael Neff and Eugene Fiume. “Methods for Exploring Expressive Stance”, Graphical Models, Volume 68, Issue 2, March 2006, pp. 133-157.

Refereed Conference Papers

- Harrison Jesse Smith, Brian Riley, Lena Reed, Vrindavan Harrison, Marilyn Walker and Michael Neff, “The Impact of Multi-Character Story Distribution and Gesture on Children’s Engagement”, ICIDS (International Conference on Interactive Digital Storytelling), 2019.
- Nicholas Toothman and Michael Neff, “Spring Rigs for Skinning”, ACM SIGGRAPH Conference on Motion, Interaction and Games, 2019.
- Ylva Ferstl, Michael Neff and Rachel McDonnell, “Multi-objective Adversarial Gesture Generation”, ACM SIGGRAPH Conference on Motion, Interaction and Games, 2019.
- Gabriel Castillo and Michael Neff , “What do we Express without knowing? Emotion in Gesture”, AAMAS 2019.
- Nicholas Toothman and Michael Neff, “The Impact of Avatar Tracking Errors on User Experience in VR”, IEEE VR, 2019.
- Pardos, Z.A., Hu, C., Meng, P., Neff, M., and Abrahamson, D. Classifying Learner Behavior from High Frequency Touchscreen Data Using Recurrent Neural Networks. In *Adjunct Proceedings of the 26th Conference on User Modeling, Adaptation and Personalization (UMAP'18)*. Singapore. ACM. 6 pages, 2018.
<https://doi.org/10.1145/3213586.3225244>

- Harrison Jesse Smith and Michael Neff, “Communication Behavior in Embodied Virtual Reality,” CHI '18, Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, 2018.
- Ahsan Abdullah, Mohammad Adil, Leah Rosenbaum, Miranda Clemmons, Mansi Shah, Dor Abrahamson and Michael Neff, “Pedagogical Agents to Support Embodied, Discovery-based Learning,” Proceedings of Intelligent Virtual Agents (IVA'17), Springer Lecture Notes in Computer Science, 2017.
- Zhichao Hu, Michelle Dick, Chung-Ning Chang, Kevin Bowden, Michael Neff, Jean E. Fox Tree, Marilyn Walker, “A Corpus of Gesture-Annotated Dialogues for Monologue-to-Dialogue Generation from Personal Narratives”, LREC 2016.
- Jackson Tolins, Kris Liu, Michael Neff, Marilyn Walker, Jean E. Fox Tree, “A Verbal and Gestural Corpus of Story Retellings to an Expressive Embodied Virtual Character”, LREC 2016.
- Jackson Tolins, Kris Liu, Yingying Wang, Jean E. Fox Tree, Marilyn Walker, Michael Neff, “A Multimodal Corpus of Matched and Mismatched Extravert-Introvert Conversational Pairs”, LREC 2016.
- Yingying Wang and Michael Neff, “Deep Signatures for Indexing and Retrieval in Large Motion Databases”, ACM SIGGRAPH Conference on Motion in Games 2015 (MIG 2015). (*Best Paper Award*)
- Chao Hu, Marilyn A. Walker, Michael Neff and Jean E. Fox Tree, “Storytelling Agents with Personality and Adaptivity”. In WP Brinkman, J. Broekens and Dirk Heylen (Eds.), Proceedings of Intelligent Virtual Agents, 2015.
- Flood, V. J., Neff, M., & Abrahamson, D. “Boundary interactions: resolving interdisciplinary collaboration challenges using digitized embodied performances”. In T. Koschmann, P. Häkkinen, & P. Tchounikine (Eds.), Exploring the material conditions of learning: opportunities and challenges for CSCL, the Proceedings of the Computer Supported Collaborative Learning (CSCL) Conference Gothenburg, Sweden: International Society of the Learning Sciences, 2015.
- “Data-driven Glove Calibration for Hand Motion Capture”, Yingying Wang and Michael Neff. ACM SIGGRAPH/Eurographics Symposium on Computer Animation, 2013.
- “The Influence of Prosody on the Requirements for Gesture-Text Alignment”, Yingying Wang and Michael Neff. Proceedings of Intelligent Virtual Agents (IVA'13), Springer Lecture Notes in Computer Science, Vol. 8108, Aylett, R.; Krenn, B.; Pelachaud, C.; Shimodaira, H. (Eds.), 2013.
- “An Examination of Whether People Prefer Agents Whose Gestures Mimic Their Own”, Pengcheng Luo, Victor Ng-Thow-Hing and Michael Neff. Proceedings of Intelligent Virtual Agents (IVA'13), Springer Lecture Notes in Computer Science, Vol. 8108, Aylett, R.; Krenn, B.; Pelachaud, C.; Shimodaira, H. (Eds.), 2013.

- “Judging IVA Personality Using an Open-Ended Question”, Kris Liu, Jackson Tolins, Jean E. Fox Tree, Marilyn Walker, Michael Neff. Proceedings of Intelligent Virtual Agents (IVA'13), Springer Lecture Notes in Computer Science, Vol. 8108, Aylett, R.; Krenn, B.; Pelachaud, C.; Shimodaira, H. (Eds.), 2013.
- C. Kang, N. Wheatland, M. Neff, V. Zordan . “Automatic Hand-Over Animation for Free-Hand Motions from Low Resolution Input”, Proceedings of Motion in Games, 12 pages, 2012.
- Pengcheng Luo and Michael Neff . “A Perceptual Study of the Relationship Between Posture and Gesture for Virtual Characters”, Proceedings of Motion in Games, 12 pages, 2012.
- Tyler Martin and Michael Neff. “Interactive Quadruped Animation”, Proceedings of Motion in Games, 12 pages, 2012.
- Yejin Kim and Michael Neff. “Component-Based Locomotion”, ACM/Eurographics Symposium on Computer Animation (SCA 2012), 9 pages, 2012.
- Michael Neff, Nicholas Toothman, Robeson Bowmani, Jean E. Fox Tree, and Marilyn Walker. “Don't Scratch! Self-adaptors Reflect Emotional Stability”, Proceedings of Intelligent Virtual Agents (IVA'11), Springer LNAI, 14 pages, 2011. (long paper, 19.6%)
- Brian F. Allen, Michael Neff and Petros Faloutsos, “Analytic Proportional-Derivative Control for Precise and Compliant Motion”, International Conference on Robotics and Automation (ICRA), May 2011.
- Brian F. Allen, Michael Neff, and Petros Faloutsos, “Pose Control in Dynamic Conditions”, R. Boulic, Y. Chrysantou, and T. Komura (Eds.): Motion in Games (MIG) 2010, LNCS 6459, pp. 48--58. Springer, Heidelberg (2010).
- Michael Neff, Yingying Wang, Rob Abbott and Marilyn Walker. “Evaluating the Effect of Gesture and Language on Personality Perception in Conversational Agents”, Proceedings of Intelligent Virtual Agents (IVA'10), Springer LNCS, pp.222-235, 2010. (long paper, 19% accepted)
- Alexis Heloir, Michael Neff and Michael Kipp. Exploiting Motion Capture for Virtual Human Animation: Data Collection and Annotation Visualization. In: Proc. of the LREC Workshop on "Multimodal Corpora: Advances in Capturing, Coding and Analyzing Multimodality", ELDA, 2010.
- Pengcheng Luo, Michael Kipp, Michael Neff. “Augmenting Gesture Animation with Motion Capture Data to Provide Full-Body Engagement”, Proceedings of Intelligent Virtual Agents (IVA'09), Springer LNCS, pp.405-417, 2009. (long paper, 19% acceptance rate)
- Michael Neff and Yejin Kim. “Interactive Editing of Motion Style Using Drives and Correlations”, ACM SIGGRAPH/Eurographics Symposium on Computer Animation, 10 pages, 2009.

- Michael Kipp, Michael Neff, Kerstin Kipp and Irene Albrecht “Towards Natural Gesture Synthesis: Evaluating gesture units in a data-driven approach to gesture synthesis”, Proceedings of Intelligent Virtual Agents (IVA’07), Springer LNAI 4722, pp. 15-28, 2007. (long paper, 19% acceptance rate, *Best Paper Award*)
- Michael Neff and Hans-Peter Seidel. “Modeling Relaxed Hand Shape for Character Animation”, Articulated Motion and Deformable Objects (AMDO 2006), volume 4069 of Springer LNCS, pp. 262-70, 2006.
- Michael Kipp, Michael Neff and Irene Albrecht. “An Annotation Scheme for Conversational Gestures : How to economically capture timing and form”, Proceedings of the Workshop on "Multimodal Corpora" at LREC 2006, pp. 24-27.
- Michael Neff and Eugene Fiume. “AER: Aesthetic Exploration and Refinement for Expressive Character Animation”, SIGGRAPH/Eurographics Symposium on Computer Animation 2005.
- Michael Neff and Eugene Fiume. “Methods for Exploring Expressive Stance” ACM SIGGRAPH/Eurographics Symposium on Computer Animation, pp. 49-58, 2004.
- Michael Neff and Eugene Fiume. “Artistically Based Computer Generation of Expressive Motion” AISB Symposium: Speech, Language & Gesture for Expressive Characters, pp. 29-39, 2004.
- Michael Neff and Eugene Fiume. “Aesthetic Edits for Character Animation” ACM SIGGRAPH/Eurographics Symposium on Computer Animation, pp. 239-244, 2003.
- Michael Neff and Eugene Fiume. “Modelling Tension and Relaxation for Computer Animation” ACM SIGGRAPH Symposium on Computer Animation, pp. 81-88, 2002.
- Michael Neff and Eugene Fiume. “A Visual Model for Blast Waves and Fracture” in Proceedings of Graphics Interface ’99. pp. 193-202, 1999.

Edited Volumes

- Yukiko Nakano, Michael Neff, Ana Paiva, and Marilyn Walker (Eds.). “Intelligent Virtual Agents (IVA 2012)”, Lecture Notes in Computer Science 7502, Springer, Heidelberg, 2012.

Refereed Book Chapters

- Michael Neff. “Hand Gesture Synthesis for Conversation” in Handbook of Human Motion, edited by Bertram Müller and Sebastian I. Wolf, Springer (invited, 2016).
- Nicholas Toothman, Tyler Martin and Michael Neff. “Embodying Digital Creativity:

Designing Computer Tools to Support Spontaneity and Creative Work in the Arts”, in *Digital Movement: Essays in Motion Technology and Performance*, ed. Sita Popat and Nick Salazar, Palgrave MacMillan, 2014.

- Michael Neff. “Lessons from the Arts: What the Performing Arts Literature Can Teach Us about Creating Expressive Character Movement”, in *Nonverbal Communication in Virtual Worlds*, ETC Press, 2014.
- Michael Neff and Eugene Fiume. “Chapter 24: From Performance Theory to Character Animation Tools” in *Human Motion – Understanding, Modelling, Capture and Animation, Computational Imaging and Vision (36)*, eds. B. Rosenhahn, R. Klette and D. Metaxas, Springer, pp. 583-612, 2007.

Refereed Posters, Oral-only Papers and Short Contributions

- Momoko Tsuchiya, Takayuki Itoh, Michael Neff, Yuhan, Liu, “A Virtual and Interactive Light-Art-Like Representation of Human Silhouette”, *Cyberworlds 2019*, Kyoto, Japan. (4 page poster paper)
- Nicholas Toothman and Michael Neff, “Attachment-based character deformation,” *Proceedings of the ACM SIGGRAPH/Eurographics Symposium on Computer Animation*, 2017. (Poster)
- Huaguang (Chad) Song and Michael Neff, “A Parameterized Schema for Representing Complex Gesture Forms”, *Intelligent Virtual Agents 2016*. (Poster)
- Virginia J. Flood, Michael Neff & Dor Abrahamson . “Animated-GIF libraries for capturing pedagogical gestures: An innovative methodology for virtual tutor design and teacher professional development”, *7th Conference of the International Society for Gesture Studies*, Paris, 2016. (Oral Paper)
- “Analysis in Support of Realistic Timing in Animated Fingerspelling”, Nkenge Wheatland, Ahsan Abdullah, Michael Neff, Sophie Joerg, Victor Zordan, *IEEE VR*, 2016. (Poster)
- Evaluating personality trait attribution based on gestures by virtual agents, Kris Liu, Jackson Tolins, Jean Fox Tree, Marilyn Walker, Michael Neff. *CogSci 2014*. July 25, 2014. (Poster)
- Sievers, E., Pokorny, J., Neff, M., and Rivera, S. Development of the Neural Correlates of Gesture Processing in Adolescence. Poster Presentation, *Society for Research in Child Development Biennial Meeting*, Seattle, WA, April 2013.
- “Gestural Adaptation in Extravert-Introvert Pairs and Implications for IVAs”, Jackson Tolins, Kris Liu, Yingying Wang, Jean E. Fox Tree, Marilyn Walker, Michael Neff. *Proceedings of Intelligent Virtual Agents (IVA'13)*, Springer Lecture Notes in Computer Science, Vol. 8108, Aylett, R.; Krenn, B.; Pelachaud, C.; Shimodaira, H. (Eds.), 2013.

- “Segmentation of hand gestures using motion capture data”, Ajay Sundar Ramakrishnan and Michael Neff. AAMAS '13 Proceedings of the 2013 international conference on Autonomous agents and multi-agent systems. pp 1249-1250.
- Tyler Martin and Michael Neff, “Interactive Quadruped Animation”, ACM SIGGRAPH/Eurographics Symposium on Computer Animation, Poster, 2012.
- Michael Neff, “Automatic Torso Engagement for Gesturing Characters”, Intelligent Virtual Agents 2008, Lecture Notes in Computer Science, LNCS 5208, pp. 522-23.
- Sageev Oore and Michael Neff, Modeling Ambient Lower Body Motion, ACM SIGGRAPH/Eurographics Symposium on Computer Animation Poster Session, 2004.

Other Publications

- Michael Neff and Catherine Pelachaud, “Animation of Natural Virtual Characters,” IEEE Computer Graphics and Applications 37 (4), 14-16, 2017.
- Liu, K., Tolins, J., Fox Tree, J. E., Walker, M. & Neff, M. (2014). Evaluating personality trait attribution based on gestures by virtual agents. In P. Bello, M. Guarini, M. McShane, & B. Scassellati (Eds.), Proceedings of the 36th Annual Conference of the Cognitive Science Society (p. 3340). Austin, TX: Cognitive Science Society.
- Michael Neff, Michael Kipp, Irene Albrecht, Hans-Peter Seidel. “Gesture Modelling and Animation by Imitation”, Technical Report, MPI Informatik, 2006.
- Michael Neff. 2005. “Aesthetic Exploration and Refinement: A Computational Framework for Expressive Character Animation”. Ph.D. Thesis. University of Toronto.
- Michael Neff. 1998. “A Visual Model for Blast Waves and Fracture”. Master’s Thesis. University of Toronto.

PATENTS.....

- Coordinated gesture and locomotion for virtual pedestrians. CA O'Sullivan, K Ruhland, M Neff, Y Wang, US Patent 9,811,937 (issued 2017).

PRODUCTIONS.....

- “*Intangible Body*”, Animation Supervisor, 2015-16. Short movie exploring the presentation of the body in Persian dance. Directed and edited by Emelie Mahdavian. I supervised the motion capture, development of character rig, visual design of character and final animation.
 - Exhibitions:
 - *Focus on Iran 2: Contemporary Photography & Video*, Craft and Folk Art Museum, Los Angeles, CA, Jan 29-May 7, 2017
 - *Time and Space*, Czong Institute of Contemporary Art, Gyeonggi, Korea, Feb 17-March 5, 2017

- Festival Screenings:
 - Farhang Film Festival in Los Angeles (2016)
 - Greensboro Dance Film Festival (Sept. 16-17, 2016)
 - 40 North Dance Film Fest, San Diego (2016)
 - Fem Tour Truck, an itinerant feminist video and performance festival, Spain (2016)
 - Bideodromo, Bilbao (2016)
 - Twisted Oyster, Chicago (Nov. 18, 2016)
 - Flip book Animated Film Festival in Little Rock, Arkansas (Nov. 28, 2016)
 - Códex: Festival de Vídeo y Creaciones Sonoras, Mexico (Dec. 1-3, 2016)
 - Dance on Camera, Lincoln Center, New York (Feb. 3-7, 2017)
 - Multiplié Dance Film Festival in Trondheim, Norway, Jan 25-29, 2017
 - Boomtown Film & Music Festival, Beaumont, TX, Feb 23-26, 2017
 - *Dallas Medianale*, Dallas Contemporary, April 29, 2017
 - *Index Art Center*, Newark, NJ, April 29, 2017
 - Argenta Draffhouse Film Series, Little Rock, AR, May 1, 2017
- Finalist:
 - Finalist in Colorlab “Summer Shorts 2016 Film Contest” (12 selections out of 1800 entries)

- Animation Designer for fencing animation backdrop to accompany Monteverdi (arr. Pablo Ortiz): *Il combattimento di Tancredi e Clorinda*, presented by the Empyrean Ensemble, Stage Director Deirdre Morris, Vanderhoef Studio, Mondavi Center, April 21, 2013.
- Della Davidson (Director) and Sideshow Physical Theater, “*Collapse (suddenly falling down)*”, premiered at the Mondavi Center for the Performing Arts, Oct. 27 – Nov. 4, 2007. My main contribution was to integrate a motion capture system into the production that allowed the dancers to manipulate imagery projected onto the stage during the performance. I was part of the design team that received the Isadora Duncan Award for Visual Design (2009)

INVITED TALKS.....

- “Computational Approaches to Nonverbal Communication: Personality Synthesis and Interaction in Embodied VR,” Ecole Polytechnique, Paris (Palaiseau), France, January 29, 2019.
- “Computational Approaches to Nonverbal Communication: Personality Synthesis and Interaction in Embodied VR,” Univeristy of Augsburg, Augsburg, Germany, December 10, 2018.
- “Communication Behavior in Embodied Virtual Reality,” UC Berkeley Design Institute, November 27, 2018.
- “Computational Approaches to Nonverbal Communication: Personality Synthesis and

Interaction in Embodied VR,” Istituto di Scienza e Tecnologie dell'Informazione "A. Faedo", Pisa, Italy, November 5, 2018.

- “The Role of Gesture in the Perception of Character Personality,” Disney Research, Zurich, November 2, 2018.
- “Computational Approaches to Nonverbal Communication: Personality Synthesis and Interaction in Embodied VR,” Max Planck Institute for Informatics, Saarbruecken, Germany, October 31, 2018.
- “The Role of Gesture in the Perception of Character Personality,” University of Rennes/INRIA/ISRRIA, Rennes, France, October 29, 2018.
- “The Role of Gesture in the Perception of Character Personality,” Sorbonne University, Paris, October 26, 2018.
- “Computational Approaches to Nonverbal Communication: Personality Synthesis and Interaction in Embodied VR”, Army Research Lab West, Los Angeles, June 21, 2018.
- “Don't Scratch and Keep Your Hands High: The Impact of Movement on Perceived Character Personality,” KAIST, Korea, Nov. 22nd, 2017.
- “Don't Scratch and Keep Your Hands High: The Impact of Movement on Perceived Character Personality,” Seoul National University, Korea, Nov. 20th, 2017.
- “Reading Personality Through Gesture”, Dept. of Communication, UC Davis, May 4th, 2017.
- “Understanding How Virtual Characters Convey Personality”, Instituto Superior Tecnico (IST), University of Lisbon, Lisbon, Portugal, May 6, 2016.
- “Modeling Expressive Movement to Create Memorable Characters”, University of Pennsylvania, Oct. 13, 2014.
- “Wow, You're Pretty Outgoing: Modelling Personality Generation in Virtual Characters”, Clemson University, Aug. 22, 2014.
- “Well, You're Pretty Outgoing: Modelling Personality Generation in Virtual Characters”, Disney Research Los Angeles, July 10, 2014.
- “The Gap Between: Computational and Artistic Models of Movement”, UC Davis LASER (Leonardo Art Science Evening Rendezvous), June 2, 2014.
- “Using Animated Agents to Help Understand Human Gesture”, UCSC, Psychology Department Colloquium Series, Oct. 30, 2013.
- University of Twente, The Netherlands, “Expressive Characters: controlling the Perception of Virtual Agent Personality Through Verbal and Nonverbal Channels”, Sept. 9, 2011.
- Center for Information Technology Research in the Interest of Society (CITRIS), broadcast live from UC Berkeley to UC Santa Cruz, UC Davis and UC Merced, “Animating People You Know: Building Character Systems with Personality”, April 6, 2011.
- Stanford University, “Laban Movement Analysis and Character Animation”, Nov. 9, 2010.
- IGT-University of Nevada, Reno Engineering Symposium, “Emerging Technologies in Games and Gaming”, May 14, 2010.
- UC Santa Cruz, “Animating the Gesture Style of Particular Individuals”, Feb. 12, 2010.
- HHMI Interdisciplinary Speaker Series, Grinnell College, “Designing Computational Representations of Movement”, April 24, 2009.
- Cognitive Animation 2008, “Modeling and Animating the Gesture Style of Particular Individuals”, June 4, 2008.
- Honda Research Inc., “Modeling and Animating the Gesture Style of Particular Individuals”, May 9, 2008.
- Stanford University, “Modeling and Animating the Gesture Style of Particular Individuals”,

March 14, 2008.

- Pixar Animation Studios, “From Performance Theory to Character Animation Tools”, Dec. 2006
- University of California, Davis, Computer Science Colloquium, “Gesture Modeling and Animation By Imitation”, Oct. 2006.
- INRIA Rhone-Alpes, Grenoble, France, “From Performance Theory to Character Animation Tools”, June 2006
- Trinity College, Dublin, Ireland, “From Performance Theory to Character Animation Tools”, May 2006
- University of California, Davis, “A Framework for Expressive Character Animation”, May 2005

PRESENTATIONS.....

- “CreativeAI – AI meets Graphics – Challenges and Opportunities Ahead”, Think Tank panel (speaker), Eurographics, Genoa, Italy, May 7, 2019.
- “The Future of Avatar-Human Interaction in VR, AR and Mixed Reality Applications”, Think Tank panel (speaker), Eurographics, Genoa, Italy, May 8, 2019.
- “Deep Signatures for Indexing and Retrieval in Large Motion Databases”, Motion In Games (MiG) 2015, May 9, 2016. (joint work with Yingying Wang)
- Chao Hu, Marilyn A. Walker, Michael Neff and Jean E. Fox Tree, “Storytelling Agents with Personality and Adaptivity”. In WP Brinkman, J. Broekens and Dirk Heylen (Eds.), Proceedings of Intelligent Virtual Agents, 2015.
- Liu, K., Tolins, J., Fox Tree, J. E., Walker, M. & Neff, M. (2014, July). Evaluating personality trait attribution based on gestures by virtual agents. Poster presented at the 36th Annual Conference of the Cognitive Science Society. Quebec City, Canada. (presented by Kris Liu).
- “An Examination of Whether People Prefer Agents Whose Gestures Mimic Their Own”, Intelligent Virtual Agents (IVA'13), Edinburgh, Sept. 2013.
- “Exploring the capacity of embodied, spontaneous interfaces to support creativity”, Corporeal Computing: A Performative Archaeology of Digital Gesture, Institute for Advanced Studies, University of Surrey, Sept. 2013.
- Panelist discussing gesture modelling at “ICMI-2012 Workshop on Speech and Gesture Production in Virtually and Physically Embodied Conversational Agents”, Santa Monica, CA, Oct. 26, 2012.
- Motus Humanus Roundtable “Creative Uses of Laban Theory”, Panel speaker on “Teaching Animation with Laban Movement Analysis”, Pomona College, June 2012.
- SIGGRAPH 08, “Gesture Modeling and Animation Based on a Probabilistic Recreation of Speaker Style”. TOG Paper Session. Aug. 2008.
- Epicentre 07, UC DARNET (Digital Art Research Network) Symposium. Jan. 2007
- Dagstuhl Seminar “Human Motion - Understanding, Modeling, Capture and Animation”. June 2006

GRANTS.....

- EAGER: Collaborative Research: Interactive Dialog Agents for Social Language Development and Listening Comprehension, PI (in collaboration with Marilyn Walker, UCSC, and Emily Solari, UCD), \$300,000, 2017-18.
- Democratizing Civic Expression Video Games, CITRIS, Co-PI, \$60,000, 2017-18.

- Play the Knave: An Interactive Digital Game about Shakespeare and Theatrical Performance, University of California Humanities Research Institute grant, (co-applicant, PI: Gina Bloom), \$15,000, 2016-17.
- IFHA (Interdisciplinary Frontiers in the Humanities and Arts): Gamification and Innovation in the Digital Humanities, (Cluster Faculty, PI: Colin Milburn), UC Davis, \$750,000, 2013-2016.
- EXP: Collaborative Research: Gesture Enhancement Of Virtual Agent Mathematics Tutors, PI, NSF Cyberlearning, (in collaboration with Dor Abrahamson at UC Berkeley), \$575k, 2013-2016.
- Mellon Research Initiative Grant in the Humanities for Digital Culture, (PIs: Kriss Ravetto and Colin Milburn), Collaborator, \$450, 000, 2012-2015.
- Research Experience for Undergraduates, PI, NSF, 2012, \$16,000.
- IMMERSe: The Interactive & Multi-Modal Experience Research Syndicate, (PI: N. Randall, U. of Waterloo), Collaborator, \$5.8 million total funding, \$2.55 million from the Social Science and Humanities Research Council (SSHRC) of Canada. This is a large research consortium studying games and new media. July 2012 – June 2018.
- Gestural and Linguistic Expressivity and Entrainment in Dialogue, PI, NSF, ~\$500k, Sept. 2011 to Aug. 14. (This is a collaborative research grant with Jean E. Fox Tree and Marilyn Walker at UCSC. My portion of the grant is \$249,899)
- Social Agents to Support Long Term Healthcare Interventions, PI, CITRIS, July 2011 – June 2012, \$74,962.
- Research Experience for Undergraduates, PI, NSF, 2011, \$16,000.
- CITRIS Student Support Grant, PI, Jan. 2011, \$6,000.
- Research Experience for Undergraduates, PI, NSF, 2010, \$16,000.
- CAREER: Generative Models for Character Animation & Gesture in the New Age of Art and Electronic Interaction, PI, Sept. 09 to Aug. 14, \$581,276.
- Increasing Creative Exploration with Computer Tools That Support Spontaneity & Embodiment, PI, NSF CreativeIT, Oct. 09 to Sept. 12, \$245,367.
- Davis Social Links, Co-PI (PI: F. Wu, UC Davis), NSF NeTS, Oct. 08 to Sept. 12, \$700,000.
- UC Davis, Small Grant in Aid of Research, PI, July 08 to June 10, \$2,000.
- Autodesk, Inc. Software Donation, PI, Jan. 2008, ~\$70,000.

CURRENT GRADUATE STUDENT SUPERVISION.....

- Nicholas Toothman (2010-), PhD Student
- Jesse Smith (2014-), PhD Student
- Ahsan Abdullah (2014-), PhD Student
- Gabriel Castillo Cortes (2015-) PhD Student
- Tara Hariri (2017-), MSc Student
- Yuhan Liu (2017-), MSc Student
- Kalin Hershey (2018-), MSc Student

FORMER GRADUATE STUDENTS.....

- Huaguang (Chad) Song, MSc, 2017
- YingYing Wang, PhD, 2017

- Adil Mohammad, MSc, 2016
- Xinhai Jiang, 2016, MSc
- Conghao Jiang, 2014, MSc
- Yejin Kim (2007- 2013), PhD
- Pencheng Luo (2007- 2013), PhD
- Yuanfeng Zhu (2013), MSc, co-advised with Bernd Hamann
- Tyler Martin (2008-2012), MSc
- Ajay Ramakrishnan (2010-2011), MSc

UNDERGRADUATE STUDENT INDEPENDENT STUDY SUPERVISION.....

- Dylan Woods (TCS 199), 2015-16
- Bobby Kwong (TCS 199), 2015-16.
- Amy Leong (TCS 199), 2015-16
- Michael Rea (ECS 192), 2015
- Bree Hernandez (TCS 199), 2014
- Jesse Ikawa (ECS 192), 2014
- LaRoy Jones (TCS 199), 2014
- Sonali Dujari (Honors Challenge), 2012
- Kyler McLaughlin (TCS 199), 2012
- Karen Kuo and Pei-Chia Hsu (TCS 199), 2011
- Mikaela Watson, (TCS 199), 2011
- Miles Sebesta, (TCS 199), 2010
- Zach Margolis, (CS 199s) 2009-10
- Zachary Graham (EEC 193) 08-09
- Hein Kirin Grewal (EEC 193) 08-09
- Henna Huang (EEC 193) 08-09
- Sonia Contreras, (CS 199), 2009
- Alfredo Gimenez, (CS 192), 2009
- Johanna Su, (CS 199), 2008
- Julie Mao, (CS 199), 2008
- Jacob Saur, (CS 199), 2007

UNDERGRADUATE STUDENT RESEARCH ASSISTANTS.....

- Quan Pham, CS, 2015 – 2016
- Kalin Hershey, CS, 2016
- Jessica Sheu, CS, 2015 (NSF REU)
- Austin Berbereia, CS, 2015 (NSF REU)
- Gregory Moore, CS, 2015 (NSF REU)
- Rhea Feng, CS, 2015 – 2016 (NSF REU)
- Arman Kapbasov, CS, 2014 – 2016 (NSF REU)
- Charlyn Gonda, CS, 2013 - 2014 (NSF REU)
- Sameer Khatri, CS, 2013 – 2014 (NSF REU)
- Suzanne Freedman, CS, 2012 – 2013 (NSF REU)
- Marco Garcia, CS, 2012 – 2013 (NSF REU)
- Barney Hsaio, CS, 2012 (NSF REU)
- Jon Graham, CS, 2010 – 2013 (NSF REU)

- Eric Chen, CS, 2010-11 (NSF REU)

TEACHING.....

Professor for ECS 12/CTS 12 (ECS 89 on first offering): Introduction to Media Computation. This introduces mostly non-computer science students to both programming and methods for representing and manipulating digital imagery in computers. University of California, Davis (Winter 2013, Winter 2014, Winter 2015, Winter 2016, Winter, 2017, Spring 2018, Winter 2019)

Professor for ECS 279: Character Animation. This graduate course in computer science surveys current research on character animation tools. University of California, Davis (Spring 2011, Spring 2013, Fall 2014, Winter 2017, Winter 2019)

Professor for ECS 60: Data Structures and Algorithms. This is a core computer science undergraduate course that introduces students to Abstract Data Types, and related algorithmic analysis, including lists, trees, graphs, hash tables, and sorting. University of California, Davis (Spring 2008, Spring 2010, Spring 2012, Summer 2016)

Professor for TCS 198, TCS 131: Character Animation. An undergraduate course that covers the core principles of character animation and movement analysis, including an introduction to Laban Movement Analysis and applied assignments in Maya. University of California, Davis (Spring 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2016, 2018)

Professor for ECS 289: Topics in Character Animation. This graduate seminar in computer science surveys current research on character animation tools. University of California, Davis (Winter 2007, Fall 2007, Spring 2009)

Professor for TCS 198, TCS 130: Introduction to 3D Computer Animation. An undergraduate course that covered the fundamentals of computer graphics and allowed students to obtain practical experience through projects in Maya. University of California, Davis (Spring & Fall 2007, Winter 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016)

Lecturer for CSC 148 Introduction to Computer Science. The main intake course for the computer science program introduces abstract data types, encapsulation, program analysis and object oriented programming with exercises done in Java. University of Toronto. (Summer 2005)

Lecturer for Engineering and Society 3y3: Technology and Culture. This course provides a critical examination of how technology and culture interact. Faculty of Engineering, McMaster University. (Fall 2004)

Lecturer for Engineering and Society 3z3: Preventive Engineering: Environmental Perspectives, a course on how technology can be designed to reduce environmental impacts. Co-taught with Richard Hendriks, Faculty of Engineering, McMaster University. (Spring 2003, 2004, 2005)

Lecturer for CSC 418/2504 Introduction to Computer Graphics, the senior undergrad/graduate course in computer graphics, Dept. of Computer Science, U. of T. Approximately 100 students and four teaching assistants. (Fall 2002)

Teacher, St. Anne's Girls High School, Kiriari, Kenya. Taught mathematics and computer science to high school students. (Spring 2002)

Teaching Assistant (U of T, except where noted) CSC A02 The How and Why of Computers (2003-4), CSC 300 Computers and Society (1997,99), Inquiry in an Engineering Context I (McMaster, 1995), CSC468/2204 Operating Systems (1996), CSC 270 Data Structures (twice, 1997), CSC 148 Introduction to Programming (98)

TEACHING RELATED ACTIVITIES

- Nominated by the College of Engineering and accepted as a delegate to the National Academy of Engineering symposium on "Frontiers of Engineering Education (FOEE)", National Academies Beckman Center, Oct. 14-17, 2012.

SERVICE.....

UC Davis:

- **External Reviewer**, Graduate Program in Communication, UC Davis, 2017.
- PAC and working group committees for renovations of Cruess Hall, 2015-2018
- **Chair** of ad-hoc committee that conducted the Graduate Council review for the School of Education (2016)
- Computer Science new faculty mentor (2017-18)
- Graduate Student Recruitment Committee, Graduate Group in Computer Science (2018-19)
- LAUNCH Committee Member for new faculty member Xiadong Li (Statistics)
- Hiring committee for Games Production candidate, Cinema and Digital Media, 2017-18.
- Hiring committee for Film Production candidate, Cinema and Digital Media, 2016-17.
- Hiring committee for Technical Games candidate, Computer Science & Cinema and Digital Media, 2016-17.
- Hiring committee for Natural Language Processing candidate, Computer Science, 2015-16.
- Hiring committee for Digital Humanities HIP (2014-16); five new faculty successfully recruited.
- **Co-Director, Cinema and Digital Media** (formerly Cinema and Technocultural Studies) (2013-16)
- **Chair, Cinema and Digital Media (2016-2018)**
- GGCS Membership Committee (2014-)
- Graduate Admissions Chair, Graduate Group in Computer Science (2013-2014)
- Cinema and Technocultural Studies Computer Working Group (2012-)
- Cinema and Technocultural Studies Space Committee (2011-)
- Computer Science Colloquium Series Coordinator (2011-12)
- Member of the UC Davis delegation sent to the Cyprus Institute (Nicosia, Cyprus) in order to develop potential long term research collaborations between the institute and UC Davis (2010).
- Technocultural Studies Program Committee, 2006-2016
- Course development in TCS and Computer Science (four new courses, 2006-2008)
- Computer Science Information Technology Committee, 2006-2008
- College of Engineering Research and Library Committee, 2008-2009, 2012-2014
- College of Engineering Student Appeals Committee, 2008-2009
- Computer Science Undergraduate Advisor (2008-2012)
- Computer Science Undergraduate Affairs Committee (2008-2012)

External:

- External Reviewer, new graduate program in Digital Media, York University, 2017.
- External Reviewer, new undergraduate program in Intermedia, York University, 2017.
- Journal Editor:
 - **Editorial Board**, Computer Animation and Virtual Worlds (CAVW), 2015-
 - **Associate Editor**, IEEE Computer Graphics and Applications (CG&A), 2014-2018
 - Editorial Board of Human-Computer Interaction (specialty section of Frontiers in ICT and Frontiers in Psychology), 2014-
 - Guest editor, Computer and Graphics, Special Issue on Motion in Games 2016. (2017)
 - Guest editor, IEEE Computer Graphics and Applications Special Issue on Animation of Natural Virtual Characters (expected publication July/August 2017)
 - **Guest Editor**, Journal of Multimodal User Interfaces special issue on “Nonverbal Behavior Synthesis for Embodied Agents” (2010).
- Conference Chair
 - **Chair**, Computer Animation and Social Agents, July 1-3, Paris, 2019.
 - **Chair**, Motion in Games 2016, San Francisco, Oct. 10-12, 2016.
 - **Co-chair**, Intelligent Virtual Agents 2012, Sept. 12-14, Santa Cruz, CA.
- Grant Reviewer:
 - NSERC grant reviewer (Canada), 2015.
 - MITACS grant reviewer (Canada), 2015.
 - French National Research Agency grant reviewer, 2018.
 - US ARL Grant Reviewer, 2014.
 - NSF Grant Reviewer, 2013, 2016 (2 panels), 2018.
 - Grant Reviewer, Icelandic Research Fund, 2016.
 - Grant reviewer for NWO, Netherlands.
- Respondent for the Alliance for Arts in Research Universities Review Panel
- Judge, Big Ideas@Berkeley competition, 2012.
- **External Ph.D. Examiner**
 - Herwin van Welbergen, University of Twente, The Netherlands, 2011.
 - David Huang, University of Merced, Nov. 2012.
- **Paper reviewer** for:

SIGGRAPH, Eurographics, Graphics Interface, Symposium for Computer Animation, Journal of Virtual Reality, Computer Graphics Forum, ACM Transactions on Graphics, IEEE Computer Graphics and Applications, VLDB, Computational Intelligence, IEEE Transactions on Visualization and Computer Graphics, Intelligent Virtual Agents, AAMAS, LREC Workshop on Multimodal Corpora, Computers and Graphics, The Visual Computer, SIGGRAPH Asia, International Journal of Human Computer Studies, Leonardo, Speech Communication (journal), SIGCHI, IEEE Transactions on Affective Computing, ACM Transactions on Applied Perception, Elsevier Artificial Intelligence, ACM Transactions on Interactive Intelligent Systems, Transactions on Audio, Speech and Language Processing, IEEE VR, Frontiers, Computer Animation and Virtual Worlds.
- **Program Committees**
 - SIGGRAPH Technical Papers Committee, 2019.
 - IEEE AIVR 2018

- American Psychological Association Technology, Mind and Society Conference, Review Committee, 2017-8.
- Eurographics STAR Committee, 2015.
- Pacific Graphics, 2013.
- ACM International Conference on Multimodal Interaction, 2012.
- Symposium on Computer Animation (SCA) 2011, 2012, 2013, 2015, 2018, 2019.
- Motion in Games 2011, 2012, 2014, 2015-19.
- AAMAS (Virtual Agents Track) 2010, 2012, 2013-16, 2019.
- AAMAS (Socially Interactive Agents Track) Senior Program Committee, 2018
- LREC Workshop on Multimodal Corpora (MMC) 2010.
- Graphics Interface 2009.
- Intelligent Virtual Agents 2008, 2009, 2010, 2011, 2016, 2019.
- Senior Program Committee, Intelligent Virtual Agents, 2013, 2014, 2015, 2017, 2018.
- Computer Animation and Social Agents (CASA), 2016.
- 2nd Workshop for Human Motion Understanding, Modeling, Capture and Animation, 2007.
- Demos Jury, AAMAS 2010
- Board of Reviewers, 8th International Gesture Workshop (GW 2008).
- Indiana University-Purdue University Indianapolis, Junior Faculty Review, 2019.
- Tenure Review, 2019 (European school).
- Tenure Review, 2019 (American school).
- Advisory Board, DGPis40 conference. Conference in celebration of the 40th anniversary of the University of Toronto's computer graphics and interaction lab. 2006-8.
- Engineers without Borders, National Conference Speaker Coordinator and member of the Education Committee, 2003-04.
- Board of Directors, Shauri Yako Community Youth Support Centre. 2002- 2013
This community-based organization supports the development of street kids, orphans and other impoverished youth living in a slum community in Kenya by providing access to education, food, housing and AIDS education, among other programs.