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# Michael Paul Neff

Curriculum Vitae (updated June 2011)

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## APPOINTMENTS.....

- **Assistant Professor** (tenure track), University of California, Davis, 2006- . Cross-appointed to the Department of Computer Science and the Program in Technocultural Studies.
- **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. *Summa Cum Laude*

## ACADEMIC AWARDS AND HONOURS.....

**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

PAPERS.....

*Refereed Journal Papers*

- Yejin Kim and Michael Neff. “Automating Expressive Locomotion Generation”, Transactions on Edutainment (CASA 2011), 14 pages, 2011.
- 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 Book Chapters*

- 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, 2012. (*Accepted*)
- 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.

- 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% accepted)
- 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.

*Refereed Posters and Short Contributions*

- 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, 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.

PRODUCTIONS.....

- 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.....

- 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.....

- 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.....

- Gestural and Linguistic Expressivity and Entrainment in Dialogue, PI, NSF, ~\$500k, Sept. 11 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, 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.

#### GRADUATE STUDENT SUPERVISION.....

- Yejin Kim (2007- ), PhD Candidate, passed qualifying exam
- Pencheng Luo (2007- ), PhD Candidate, passed qualifying exam
- Tyler Martin (2008- ), MSc Candidate
- YingYing Wang (2009- ), PhD Candidate, passed qualifying exam
- Yuanfeng Zhu (2009- ), PhD Candidate, co-advised with Bernd Hamann
- Nicholas Toothman (2010-), PhD Candidate
- Ajay Ramakrishnan (2010-), MSc Candidate

#### UNDERGRADUATE STUDENT INDEPENDENT STUDY SUPERVISION.....

- 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.....

- Jon Graham, CS, 2010 – present (NSF REU)
- Eric Chen, CS, 2010-11 (NSF REU)

#### TEACHING.....

**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)

**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)

**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)

**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)

**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)

SERVICE.....

**UC Davis:**

- **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, ongoing).
- Technocultural Studies Program Committee, 2006-present
- 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
- College of Engineering Student Appeals Committee, 2008-2009
- Computer Science Undergraduate Advisor (and CSUGA committee) (2008-present)
- Computer Science Undergraduate Affairs Committee (2008-09)

**External:**

- External PhD Examiner for Herwin van Welbergen, University of Twente, Netherlands, 2011.
- **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.
- **Program Committees**
  - Symposium on Computer Animation (SCA) 2011
  - Motion in Games 2011
  - AAMAS 2010
  - LREC Workshop on Multimodal Corpora (MMC) 2010.
  - Graphics Interface 2009.
  - Intelligent Virtual Agents 2008, 2009, 2010 and 2011.
  - 2nd Workshop for Human Motion Understanding, Modeling, Capture and Animation, 2007.
- Demos Jury, AAMAS 2010
- **Guest Editor**, Journal of Multimodal User Interfaces special issue on “Nonverbal Behavior Synthesis for Embodied Agents” (2010).
- Grant reviewer for NWO, Netherlands.
- **Board of Reviewers**, 8th International Gesture Workshop (GW 2008).
- **Advisory Board**, DGPis40 conference. Conference in celebration of the 40<sup>th</sup> 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- 2011  
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.