Michael Lee Gleicher

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Positions

2009 – present – Professor, Department of Computer Sciences, University of Wisconsin-Madison. Madison, WI.

2004 – 2009 – Associate Professor, Department of Computer Sciences, University of Wisconsin-Madison. Madison, WI.

1998 - 2004 – Assistant Professor, Department of Computer Sciences, University of Wisconsin-Madison. Madison, WI.

1997 - 1998 – Research Scientist, Vision Technology Center, Autodesk, Inc, Mountain View, CA

1994 - 1997 – Research Scientist, Apple Research Laboratories, Apple Computer, Cupertino, CA.

Education

Ph. D. in Computer Science, Carnegie Mellon University, December 1994.
Thesis: *A Differential Approach to Graphical Interaction*.
Advisor: Andrew Witkin.
Committee: Andrew Witkin (CMU), Brad Myers (CMU), Paul Heckbert (CMU), Robert Sproull (Sun Labs)
M.S. in Computer Science, Carnegie Mellon University, May 1991.
B.S.E. in Electrical Engineering and Computer Science, Duke University, May 1988.

Recent Honors

Best paper award nominee (best in track selection) ACM Multimedia 2007

Best paper award (2nd place) Eurographics 2006

Exemplary paper at 2003 ACM Symposium on Interactive 3D Graphics

NSF Career Award (2000-2004)

Schlumberger Graduate Fellowship (1991-1994)

Publications

Co-Authors noted as (s) for student under my direction, (p) for post-doctoral associate under my direction, (o) for students or post-docs under the direction of others, and (a) for my thesis Advisor.

Journal Publications

Note: recent SIGGRAPH conference proceedings are published as an issue of *ACM Transactions on Graphics*, recent Eurographics conference proceedings are published as an issue of *Computer Graphics Forum*.

Gregory Cipriano[(s)], George N. Phillips, Jr. and Michael Gleicher. Multiscale Surface Descriptors. *IEEE Transactions on Visualization and Computer Graphics*. 15(5), 2009. Proceedings IEEE Visualization 2009.

Yanwen Guo, Feng Liu[(s)], Jian Shi, Zhihua Zhou and Michael Gleicher. Image Retargeting Using Mesh Parametrization, *IEEE Transactions on Multimedia*, 11(5), August 2009, 856-867.

Feng Liu[(s)], Michael Gleicher, Hailin Jin and Aseem Agarwala, Content-Preserving Warps for 3D Video Stabilization, **SIGGRAPH '09**, *ACM Transactions on Graphics*, August 2009. (acceptance rate 78/439)

Feng Liu[(s)], Jinjun Wang, Shenghuo Zhu, Michael Gleicher and Yihong Gong. Visual-Quality Optimizing Super Resolution. *Computer Graphics Forum.* 28(1) 2009, 127-140.

Gregory Cipriano[(s)] and Michael Gleicher. Text Scaffolds for Effective Surface Labeling. *IEEE Transactions on Visualization and Computer Graphics*. 14(5), 2008. Proceedings IEEE Visualization 2008. (acceptance rate 50/196).

Michael Gleicher and Feng Liu[(s)]. Re-Cinematography: Improving the camerawork of casual video. *ACM Transactions on Multimedia Computing Communications and Applications (TOMCCAP)*. 5(1) , 2008

Gregory Cipriano[(s)] and Michael Gleicher. Molecular Surface Abstraction. *IEEE Transactions on Visualization and Computer Graphics*. 13(5), 2007. Proceedings IEEE Visualization 2007. (acceptance rate 56/216).

Frank Pollick, Phil McAleer, Michael Gleicher, Joris Vangeneugden and Rufin Vogels. Human recognition of action blends. *Journal of Vision*. 7(9), 2007.

Rachel Heck[(s)], Michael Wallick[(s)], and Michael Gleicher. Virtual Videography. *ACM Transactions on Multimedia Computing Communications and Applications (TOMCCAP)*, 3 (1) 2007.

Rachel Heck[(s)], Lucas Kovar[(p)], and Michael Gleicher. Splicing Upper-Body Actions with Locomotion. *Computer Graphics Forum*, 25 (3), 2006. Eurographics '06. (acceptance rate 46/246). **2nd place Best Paper Award**.

Mankyu Sung[(s)], Michael Gleicher, and Stephen Chenney. Scalable Behaviors for Crowd Simulation. Computer Graphics Forum, 23 (3) 2004. Proceedings of Eurographics 2004. (acceptance rate 44/243)

Lucas Kovar[(s)] and Michael Gleicher. Automated Extraction and Parameterization of Motions in Large Data Sets. **SIGGRAPH '04**. *ACM Transactions on Graphics*, August 2004. (aceptance rate 83/478)

Alex Mohr[(s)] and Michael Gleicher. Building Efficient, Accurate Character Skins from Examples. **SIGGRAPH '03**. *ACM Transactions on Graphics*, July 2003. (aceptance rate 81/424)

Michael Gleicher, Hyun-Joon Shin[(p)], Lucas Kovar[(s)], and Andrew Jepsen[(s)]. Snap-Together Motion. **SIGGRAPH '03**. *ACM Transactions on Graphics*, July 2003. (Reprise selection from Symposium on Interactive 3D Graphics, 3 papers chosen from 27/102 at conference)

Lucas Kovar[(s)], Michael Gleicher, and Frederick Pighin[(o)]. Motion Graphs. **SIGGRAPH '02**. *ACM Transactions on Graphics*, July 2002. (acceptance rate 67/358)

Michael Gleicher. Comparing Constraint-based Methods for Motion Editing. *Graphical Models* 63, 107-134 2001.

Hyun-Joon Shin[(o)], Jehee Lee[(o)], Michael Gleicher, and Sung-Yong Shin. Computer Puppetry: An Importance-based approach. *ACM Transactions on Graphics*. April 2001.

Michael Gleicher and Peter Litwinowicz. Constraint-based Motion Adaptation. *The Journal of Visualization and Computer Animation*, 9(3): 66-94, 1998**.**

Michael Gleicher and Andrew Witkin[(a)]. Drawing With Constraints. *The Visual Computer*, 11(1):39-51, 1994.

Refereed Conference Publications

Feng Liu[(s)], Yuzhen Niu[(s)] and Michael Gleicher, Using Web Photos for Measuring Video Frame Interestingness. International Joint Conference on Artificial Intelligence (IJCAI), July 2009. (acceptance rate 331/1290)

Feng Liu[(s)] and Michael Gleicher, Learning color and locality cues for moving object detection and segmentation. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2009. (acceptance rate 383/1464)

Feng Liu[(s)] and Michael Gleicher. Texture-Consistent Shadow Removal. *Proc. ECCV 2008 (European Conf. on Computer Vision)*. October, 2008.(acceptance rate 203/871)

Feng Liu[(s)] and Michael Gleicher. Discovering Panoramas in Web Videos. *Proc. ACM Multimedia 2008*. September, 2008. (acceptance rate 15/86)

Feng Liu[(s)], Jinjun Wang, Shenghuo Zhu, Michael Gleicher and Yihong Gong. Noisy video super-resolution. *ACM Multimedia 2008*, Vancouver, Canada, October 2008. (short paper,acceptance rate 31/107)

Patrick Coleman[(o)], Jacobo Bibliowicz[(o)], Karan Singh, and Michael Gleicher. Staggered Poses: A Character Motion Representation for Detail–Preserving Editing of Pose and Coordinated Timing. *2008 Symposium on Computer Animation*. (acceptance rate 24/60)

Michael Gleicher and Feng Liu[(s)]. Re-Cinematography: Imrpoving the dynamics of casual video. Proc. ACM Multimedia 2007, September 2007. **Best in-track award, best paper in conference nominee**. (acceptance rate in track 18/90)

Aneesh[(s)] Karve and Michael Gleicher. Glyph-based Overviews of Large Datasets in Structural Bioinformatics. *Proc. 11th Intl. Conf. on Information Visualization (IV 2007)*, July 2007. (acceptance rate 54%)

Rachel Heck[(s)] and Michael Gleicher. Parameterized Motion Graphs. *2007 Symposium on Interactive 3D Graphics (SI3D)*. (acceptance rate 24/75)

Feng Liu[(s)] and Michael Gleicher. Video Retargeting: Automating Pan and Scan. *ACM Multimedia 2006*. (acceptance rate 16%)

Feng Liu[(s)] and Michael Gleicher. Region Enhanced Scale-Invariant Saliency Detection. Proceedings IEEE Conference on Multimedia and Expo (ICME 2006), July 2006. (acceptance rate 475/932)

Thomas Brunet [(s)], K. Evan Nowak[(s)], and Michael Gleicher. Integrating Dynamic Deformations into Interactive Volume Visualization. *Proceedings EuroVIS 2006, the Eurographics/IEEE Symposium on Visualization.* May, 2006. (acceptance rate 43/98)

Vidya Setlur[(o)], Saeko Takagi[(o)], Ramesh Raskar, Michael Gleicher, and Bruce Gooch. Automatic Image Retargeting. *International Conference on Mobile and Ubiquitous Multimedia (MUM) 2005*. Selected as one of the 3 best papers at conference. (acceptance rate 32%)

Feng Liu[(s)] and Michael Gleicher. Automatic Image Retargeting with FisheyeView Warping. *Proceedings of UIST 2005*. (acceptance rate 31/159)

Mankyu Sung[(s)], Lucas Kovar[(p)], and Michael Gleicher. Fast and accurate goal-directed motion synthesis for crowds. *2005 Symposium on Computer Animation*. (acceptance rate 35/100)

Michael Wallick[(s)], Rachel Heck[(s)], and Michael Gleicher. Chalkboard and Marker Regions. *Proceedings of Mirage 2005.* March 2005.

Hyun Joon Shin[(p)], Lucas Kovar[(s)], and Michael Gleicher. Physical Touchup of Human Motion. *Pacific Graphics 2003*. (acceptance rate 36/182)

Lucas Kovar[(s)] and Michael Gleicher. Flexible Automatic Motion Blending with Registration Curves. *2003 Symposium on Computer Animation*. (acceptance rate 23 long papers/100)

Yin Li[(o)], Michael Gleicher, Ying-Qing Xu, and Hyung-Yuen Shum.. Example-based Stylization of Motion Capture Data. *2003 Symposium on Computer Animation*. (acceptance rate 23 long papers/100)

Michael Gleicher, Hyun-Joon Shin[(p)], Lucas Kovar[(s)], and Andrew Jepsen[(s)]. Snap-Together Motion. 2003 Symposium on Interactive 3D Graphics. (acceptance rate 27/102)

Alex Mohr[(s)], Lucas Tokheim[(s)], and Michael Gleicher. Direct Manipulation of Interactive Character Skins. *2003 Symposium on Interactive 3D Graphics*. (acceptance rate 27/102)

Lucas Kovar[(s)], Michael Gleicher and John Schreiner[(s)]. Footskate Cleanup for Motion Editing. *2002 Symposium on Computer Animation*. (acceptance rate 22/53)

Michael Gleicher, Rachel Heck[(s)], and Michael Wallick[(s)]. A Framework for Virtual Videography. *Smart Graphics '02*. (13 of 26 accepted, ours was one of only 3 long papers)

Michael Gleicher and Nicola Ferrier. Evaluating Video-Based Motion Capture. *Computer Animation '02*. (acceptance rate 20/46)

Alex Mohr[(s)] and Michael Gleicher. HijackGL: Reconstructing from Streams for Stylized Rendering. *Proceedings NPAR (Non-Protorealistic Animation and Rendering) '02*. (acceptance rate 18/40)

Lucas Kovar[(s)] and Michael Gleicher. Simplicial Modeling of Families of Drawings. *Proceedings UIST '01*. (acceptance rate 19%)

Michael Gleicher. Motion Path Editing. *Proceedings of 2001 ACM Symposium on Interactive 3D Graphics.March, 2001*. (acceptance rate 33/100)

Alex Mohr[(s)] and Michael Gleicher. Non-Invasive, Interactive, Stylized Rendering. *Proceedings of 2001 ACM Symposium on Interactive 3D Graphics.*March, 2001. (acceptance rate 33/100)

Michael Gleicher and James Masanz[(s)]. Towards Virtual Videography. *Proceedings of ACM MultiMedia* 2000, November 2000. (acceptance rate 36/108 for short papers)

Michael Gleicher. Retargetting Motion to New Characters. Proceedings of **SIGGRAPH '98**. *Computer Graphics Annual Conference Series*, July, 1998. (acceptance rate 45/303)

Michael Gleicher. Projective Registration with Difference Decomposition. 1997 *IEEE Conference on Computer Vision and Pattern Recognition.* June, 1997. (acceptance rate for oral presentations: 62/544)

Michael Gleicher. Motion Editing with Spacetime Constraints. *Proceedings of the 1997 Symposium on Interactive 3D Graphics.* April, 1997. (accepatance for long papers 15/ 85)

Michael Gleicher. Image Snapping. Proceedings of **SIGGRAPH '95**. *Computer Graphics Annual Conference Series*, August, 1995. (acceptance rate 56/257)

Michael Gleicher. A Graphics Toolkit Based on Differential Constraints. *Proceedings UIST '93*, November, 1993.

Michael Gleicher and Andrew Witkin[(a)]. Supporting Numerical Computations in Interactive Contexts. *Proceedings Graphics Interface '93*, pages 138-145, May 1993.

Michael Gleicher. Practical Issues in Graphical Constraints. Proceedings PPCP-93: Workshop on the Principles and Practice of Constraint Programming, Newport, RI, April, 1993. (acceptance rate 37/94)

Michael Gleicher and Andrew Witkin[(a)]. Through-the-Lens Camera Control. *Computer Graphics*, 26:2, pages 331-340, July 1992. Proceedings of **SIGGRAPH '92**. (acceptance rate 44/213)

Michael Gleicher and Michael Kass. An Interval Refinement Technique for Surface Intersection. *Proceedings Graphics Interface '92*, pages 242-249, May 1992.

Michael Gleicher. Integrating Constraints and Direct Manipulation. *Proceedings of the 1992 Symposium on Interactive 3D graphics*, pages 171-174, March, 1992. (acceptance rate 24/69)

William Welch, Michael Gleicher, and Andrew Witkin[(a)]. Manipulating Surfaces Differentially. *Proceedings Compugraphics '91*, September, 1991.

Michael Gleicher and Andrew Witkin[(a)]. Differential Manipulation. *Proceedings Graphics Interface '91*, pages 61-67, June, 1991.

Michael Gleicher and Andrew Witkin[(a)]. Snap Together Mathematics. In Edwin Blake and Peter Weisskirchen, editors, *Advances in Object Oriented Graphics 1*. Springer-Verlag, 1991.

Andrew Witkin[(a)], Michael Gleicher and William Welch. Interactive Dynamics. *Computer Graphics*, 24(2):11-21, March 1990. Proceedings 1990 Symposium on Interactive 3D Graphics. (acceptance rate 24/82)

Refereed Abstracts

Aaron Bryden[(s)], George Phillips and Michael Gleicher. M. Illustrations of Molecular Flexibility. IEEE Visualization 2009 Poster Proceedings, 2008.

Aaron Bryden[(s)], George Phillips and Michael Gleicher. M. Interactive Exploration of Protein Flexibility Using Coarse Grained Normal Modes. IEEE Visualization 2008 Poster Proceedings, 2008.

Gregory Cipriano[(s)], George Phillips Jr., and Michael Gleicher. Molecular Surface Abstraction. 3D SIG 2008 - Structural Bioinformatics and Computational Biophysics (an ISMB 2008 satellite meeting).

Rachel Heck[(s)] and Michael Gleicher. Parametric Motion Graphs. 2006 Symposium on Computer Animation Poster Session.

F. E. Pollick, V. Lestou, Z. Kourtzi, L. Kovar, M. Gleicher, J. Vangeneugden, R. Vogels. Using movement blends to study action recognition. Program No. 390.20.2005. *Society for Neuroscience*.

Michael Wallick[(s)] and Michael Gleicher. Magic Boards. SIGGRAPH 2005 Posters.

F. E. Pollick, Y. Ma, J. Vangenuegden, Z. Kourtzi, L. Kovar[(p)], M. Gleicher. Perceptual Catgeorization of Movement Blends. *2005 Symposium on Computer Animation Poster Session.*

Michael Gleicher and Lucas Kovar[(s)]. Automated Construction of Parameterized Motions from Motion Databases. 2005 SAE Digital Human Modeling For Design and Engineering Symposium, June 14-16, 2005.

Michael Gleicher and Lucas Kovar[(s)]. Methods for Motion Databases: Automated Search and Parameterization. 2005 Game Developers Conference. (acceptance rate 125/800)

Michael Gleicher, Tom Brunet[(s)], Evan Nowak[(s)], Elizabeth Osten[(s)], Matt McElwee[(o)], Kevin Tanty[(o)], Adam Gepner[(o)], and Garet Lahvis. Capillary Histology Imagery Visualization and Exploration. IEEE Visualization 2004 Poster Session. (acceptance rate 35/39)

Vidya Setlur[(o)], Saeko Takagi[(o)], Michael Gleicher, Ramesh Raskar, Bruce Gooch. Automatic Image Retargeting. SIGGRAPH 2004 Technical Sketch. (acceptance rate 153/423)

Michael Gleicher, Adam Hupp[(s)], Matthew McElwee[(o)], Elizabeth Osten[(s)], Brian Ries[(s)], and Garet Lahvis. Imaging Vascular Structures. Meeting of the Society of Molecular Imaging, 2003.

Book Chapters

Michael Gleicher. More Motion Capture in Games — Can We Make Example-Based Approaches Scale? *Motion in Games*. Lecture Notes in Computer Science 5277/2008. Springer, 2008.

Michael Gleicher. Curves. In P. Shirley et al. *Fundamentals of Computer Graphics*, 2nd edition. AK Peters, 2005.

Michael Gleicher. Practical Issues in Graphical Constraints. In V. Saraswat and P. Van Hentenryck, eds. *Principles and Practice of Constraint Programming*. MIT Press, 1994.

Invited Publications

Michael Gleicher. More Motion Capture In Games - Can we make example-based approaches scale? Motion in Games Workshop, 2008.

Michael Gleicher. Comparitive Analysis of Constraint-Based Motion Editing Methods. Symposium on Human Modeling and Animation, June 2000.

Michael Gleicher. Animation from Observation. *Computer Graphics*, November, 1999.

Kenneth Herndon, Andries van Dam, and Michael Gleicher. The Challenges of 3D Interaction: A CHI '94 Workshop. *SIGCHI Bulliten* 26(4):36-43, 1994.

Thesis

Michael Gleicher. *A Differential Approach to Graphical Manipulation.* Ph.D. Thesis, Carnegie Mellon University, 1994. Also appears as CMU School of Computer Science Technical Report CMU-CS-94-217.

Juried Animations

Spacetime Swing. 1998 SIGGRAPH Electronic Theater (acceptance rate approximately 50 out of 600 submissions). Also appears on *ACM SIGGRAPH Video Review*, 125, 1998. Also shown at several international film festivals.

Refereed Videos

Rachel Heck[(s)] and Michael Wallick[(s)] and Michael Gleicher. Virtual Videography. ACM Multimedia Video Program. (acceptance rate 6/12)

Michael Gleicher and Andrew Witkin[(a)]. Through-the-Lens Camera Control. *SIGGRAPH Video Review,* 86, 1992.

Michael Gleicher. Briar: A Constraint-Based Drawing Program. *SIGGRAPH Video Review*, 77, May 1992. CHI '92 formal video program.

Books Edited

Note: SIGGRAPH course proposals are peer reviewed. The notes from the one-day courses are books of approximately 300 pages and are distributed in soft cover to most of the several hundred attendies of the course, and distributed via CD-ROM to the thousands of conference attendies.

Michael Gleicher, Ed. Making Motion Capture Useful. SIGGRAPH Course Notes, 2001.

Michael Gleicher, Ed. Motion Editing: Principles, Practice, and Promise, SIGGRAPH Course Notes, 2000.

Michael Gleicher and Barton Gawboy, Eds. Motion Editing: Principles, Practice and Promise. SIGGRAPH Course Notes, 1999.

Technical Reports

Michael Gleicher and Andrew Witkin[(a)]. Creating and Manipulating Constrained Models. CMU School of Computer Science Technical Report CMU-CS-91-125, January, 1991.

Snap-Together Mathematics, Differential Manipulation, and A Differential Approach to Graphical Interaction also appear as technical reports.

Michael Gleicher and Peter Litwinowicz. Constraint-Based Motion Adaptation. Apple Computer, Technical Report TR 96-153.

Research Support (as PI on all, except where noted)

National Science Foundation. CDI-Type 1: Physical and Chemical Alignment of Multiple Protein Surfaces. (with George Phillips, co-I, and Julie Mitchell, co-I) 2010-2012, $630,000.

National Science Foundation. Eager: Comparative Visualization. 2009-2011. $178,000.

National Science Foundation. AutoMentor: Virtual Mentoring and Assessment in Computer Games for STEM Learning. As Co-Investigator. (with David Shaffer, PI, and other co-Is) 2009-2012, $2,000,000.

Adobe Systems Laboratories, Video Stabilization. $38K.

University of Wisconsin Graduate School Research Competition. Abstraction and Comparative Tools for Functional Surfaces of Proteins (with George Phillips, co-I) 2007-2008. $35K.

University of Wisconsin, Division of Information Technologies. Engage (Phase 2) Grant. 2007. $5K.

National Science Foundation: SGER: Volume Comparisons. 2005-2006. $55K.

University of Wisconsin Graduate School Research Competition. Human Motion Synthesis-by-Example. 2005-2006. $26K.

National Science Foundation. Retargetable Images and Video (with Bruce Gooch, co-I). 2004-2007. $700K.

University of Wisconsin Graduate School Research Competition. Retargetable Images and Video. 2004-2005. $18K.

Wisconsin Interdisciplinary Molecular Imaging Center (WIMIC). Development of Software for Co-Registration of Micro-CT scans and Microscopy Data for Solid Tumors. Garet Lahvis, (PI), Michael Gleicher, Jamey Weichert, Rich Halberg (co-I). 2003, $50K.

National Science Foundation. Mix-n-Match Motion: Animating Virtual Experiences. (with Stephen Chenney co-I). 2002-2005, $510K.

University of Wisconsin Graduate School Research Competition. Vascular Visualization (with Garet Lahvis, co-I) 2003-2004, $35K.

National Science Foundation. Research Experience for Undergraduates, Geometry-Aware Motion Editing (2002), $12K.

University of Wisconsin-Madison Graduate School. Travel Grant. 2002. $1K.

University of Wisconsin-Madison Industrial and Economic Development Research (I&EDR) Program. Motion Editing for Interactive Entertainment. 2001. $29K.

University of Wisconsin Instructional Laboratory Modernization Grant. 2001 (with Stephen Chenney, co-PI). 30 workstations.

National Science Foundation. Virtual Videography. 2001-2004, $384K.

Microsoft Research. Graphics by Example. 2000-2001, $10K.

National Science Foundation. Research Experience for Undergraduates, Animation for Real-Time Characters (2001), $12K.

National Science Foundation. Career: Motion Transformations for Computer Animation. 2000-2004, $245K.

Microsoft Research. Animation from Observation.1999-2000, $40K.

Microsoft Corporation. Support for development of a graphics projects laboratory. 1999, $8K + 2 workstations..

Intel Corporation. Instructional facility for graphics instruction and course development. 1999. 16 workstations.

Hardware donations for research support from IBM (2000), Pinnacle Systems (1998), Microsoft (2004), Nokia (2004) and Nvidia (2001, 2002, 2004, 2008).

Software donations for research support from Kinetix division of Autodesk (2001), Alias (1998,1999,2000,2004), Pixar (1998, 2000,2001), Softimage (2000, 2001).

University Classroom Teaching

CS638/CS838 Advanced Computer Graphics – Developed new course. Taught Spring 2009.

CS559 Computer Graphics - Developed new course. Taught Fall 1999 (as CS638, Topics in Computing), Fall 2000, Fall 2001, Fall 2003, Fall 2005, Fall 2006, Fall 2007, Fall 2008.

CS679 Computer Game Technolgoies – Redesigned course. Taught Spring 2007, Spring 2008.

CS777 Computer Animation – Developed new course. Taught Spring 1999 (as CS838, Topics in Computing), Spring 2000 (as CS838), Spring 2001 (as CS838), Spring 2002 (as CS838), Spring 2003, Spring 2004, Spring 2006.

CS838 Special Topics: Projects in Graphics. Taught Fall 2002.

CS367 Data Structures. Taught Fall 1998.

Other Teaching Experience

Lecturer, SIGGRAPH ’08 Course Motion Planning and Autonomy for Virtual Humans.

Lecturer, SIGGRAPH ’02 Course Motion Capture: Pipeline, Applications, and Use.

Organizer and Lecturer, SIGGRAPH ’01 Course *Making Motion Capture Work.*

Organizer and Lecturer, SIGGRAPH '99 and SIGGRAPH ’00 course *Motion Editing: Principles, Practice and Promise.*

Advised indendent study projects (CS699 and 799).

Mentor and supervisor, Undergraduate Research Scholars program, (2000, 2001).

Taught CS838 Topics in Computer Animation (Spring, 1999, Spring 2000, Spring 2001, Spring 2002).

Teaching Assistant for Computer Graphics (Professor Andrew Witkin, Fall 1991).

Teaching Assistant for Software Engineering (Professor Jaime Carbonell, Spring 1989).

Advisor for several undergraduate research projects at CMU.

Invited Workshop Participation

2008 Motion in Games Workshop, Utrecht, Nethelands.

2007 Teaching Academy Summer Institute, University of Wisconsin, Madison, WI.

2004 Workshop on Image Processing and Related Issues, Zhejiang University, Hangzhou, China.

2003 Academia and Interactive Multi-Media Symposium. Sony Corportation. San Diego, CA.

2002 Workshop on Algorithmic Issues in Motion. DIMACS (Institute for Discrete Mathematics and Computer Science), New Brunswick, NJ.

2002 Workshop on Intelligent Human Augmentation and Virtual Environments, Chapel Hill, NC.

2002 Midwest Mechanical Motion Meeting. Urbana, IL.

2001 Institute for Mathematics and its Applications Workhop on Computer Graphics, Minneapolis, MN.

2000 Workshop on Human Modeling and Animation, Seoul, Korea.

1993 Workshop on Automatic Differentiation, Argonne, IL.

Professional Activities: Editorships

Associate Editor, ACM Transactions on Graphics, 2002-present.

Associate Editor, Computer Graphics Forum, 2009-present.

Associate Editor, Open Virtual Reality Journal, 2009-present.

Associate Editor. Foundations and Trends in Computer Graphics and Computer Vision, 2004-present.

Associate Editor, IEEE Transactions on Vizualization and Computer Graphics, 2003-2007.

Professional Activities: Conference Organization

General Chair, 2007 Symposium on Computer Animation.

Steering Committee, Symposium on Computer Animation 2001-present.

Steering Committee, 2005 Symposium on Interactive 3D Graphics.

Professional Activities: Program Committees (selected)

Program Committee for SIGGRAPH 2008, 2009

Program Committee for 2009, 2008, 2007, 2006, 2003, 2001 Symposium on Interactive 3D Graphics.

Program Committee 2009, 2008, 2007, 2006, 2005, 2004, 2003, 2002 Eurographics/SIGGRAPH Symposium on Computer Animation

Program Committee for GRAPP 2008, 2007 (International Conference on Computer Graphics Theory and Applications)

Program Committee for MIRAGE 2009, 2008, 2007 (international conference on image synthesis applications)

Program Committee 2006, 2004 SIGGRAPH Symposium on Non-Photorealistic Rendering (NPAR)

Program Committee V-Crowds 2005.

Program Committee Eurographics 2004, 2002.

Program Committee Pacific Graphics 2003, 2002.

Program Committee 2003 International Workshop on Multimedia Technologies in E-Learning and Collaboration.

Program Committee Computer Animation 2000 and 2002.

Program Committee Smart Graphics 2001 and 2002.

Program Committee for 2001 Eurographics Workshop on Computer Animation and Simulation.

Program Committee for CVPR 2000, 1998 (IEEE Conference on Computer Vision and Pattern Recognition)

Program Committee for FG2000 (2000 IEEE Conference on Face and Gesture Recognition)

Jury (Program Committee) for SIGGRAPH '99 Technical Sketches.

Program Committee for the 1995 International Workshop on Constraints for Graphics and Visualization.

Professional Activities: Other (selected)

Panelist, NSF Graphics Program 2005, NSF HCI Program 2003, NSF ITR Program 2002.

Panel Moderator, Symposium on Computer Animation in Fast Forward, at SIGGRAPH 2002.

Lecturer and contributor to SIGGRAPH courses in 2008, 2002.

Organizer and Lecturer, SIGGRAPH 2001 Course *Making Motion Capture Work*. (course proposal was refereed).

Organizer and Lecturer, SIGGRAPH 2000 Course Motion Editing: Principles, Practice and Promise. (course proposal was refereed).

Organizer and Lecturer, SIGGRAPH 1999 Course Motion Editing: Principles, Practice and Promise. (course proposal was refereed).

Co-organizer (with Kenneth Herndon and Andries van Dam of Brown University) of the CHI ’94 Workshop on the Challenges of 3D Interaction.

Reviewer for numerous journals, conferences and symposia.

Reviewer for KISTEP (Korean Science and Technology Evaluation Program), Ohio Eminent Scholars Program, Ohio Incentive Fund, Austrian Science Foundation.

Member ACM, SIGGRAPH

Departmental and University Service

2008-2010 External Advising Chair

2009-2010 Departmental Awards Committee

2009 Faculty Senator

2000, 2009 Admissions Committee.

2005-2008 Undergraduate Advising Committee Chair.

2003-2004 Curriculumn Committee

2002-2007 Qualifying Exam Committee

Organizer, Departmental Distinguished Lecture Series, Fall, 2001.

1999-2001, Computational Sciences Executive Committee.

2000-2001, 2001-2002 Undergraduate Advising Committee.

2000-2001, 2001-2002 Colloquium Chair.

Other University Activities

Member, Eye Research Institute

Advisory Board Member, Living Environments Laboratory, Wisconsin Institute for Discovery

Faculty Trainer, Computation and Informatics in Biology and Medicine (CIBM) Training Program

Faculty Trainer, Clinical Neuroengineering Training Program

Faculty Trainer, Bringing Advanced Computational Techniques to Energy Research (BACTER) Training Program

Relevant Consulting

IMS Services, Pensicola/New York, 2008-2009. Consultation on facial animation technologies.

Morgan, Lewis, Bockius, New York, 2007-2008. Consultation on graphics technologies.

Rockstar Games, Vienna, 2004-2005 . Consultation on animation methods for games.

House of Moves Studios, August 2004. Consultation on motion capture tools.

Electronic Arts, Canada, April 2004. Consultation on animation methods for games.

Lambsoft, Inc, July, 1999. Consultation on the design of numerical methods for interactive animation tools.

Square USA Studios, November, 1998. Consultation to evaluate approaches for tools to edit motion styles.

Ph. D. Theses Supervised

Rachel Heck-Rose. *Automated Authoring of Quality Human Motion for Interactive Environments*. Ph. D. Dissertation. August 2007.

Michael Wallick. *Automatic Organization of Large Collections of Photographs.* Ph. D. Dissertation. June 2007.

Rajarathinam Arangarasan. *Guided Trace and Stitch Modeling.* Ph. D. Dissertation. May 2007.

Mankyu Sung. Scalable, *Controllable, Efficient and Convincing Crowd Simulation.* Ph. D. Dissertation 2005.

Lucas Kovar. *Data-Driven Methods for Automated, Controllable Synthesis of Realistic Human Motion.* Ph. D. Dissertation 2004.

Other Theses Supervised

Aneesh Karve. *Glyph-based Overviews of Large Datasets in Structural Bioinformatics.* Masters Thesis. May 2007.

Cody Robson. *Labeling a Molecular Triangle Mesh.* B.S. Honors Thesis, May 2007.

Brian Byrne. *Vision Algorithms on GPUs.* B.S. Honors Thesis, May 2007.

K. David Lee. Collision Dection and Response. B. S. Honors Thesis, August 2006.

Andrew Selle. Motion Editing with Paths and Tiles. B. S. Honors Thesis, May 2003.

John Schreiner. Fast Inverse Kinematics for Motion Editing. B.S. Honors Thesis, May 2002.

Graduate Students and Associates

Post Doctoral Associates: Hyun Joon Shin (2002-2003), Lucas Kovar (2004-2005).

Pre-Doctoral Trainees: Adam Hupp (2003 research intern), K. Evan Nowak (2005 research intern).

Current Ph. D. Students under supervision: Feng Liu, Gregory Cipriano, Aaron Bryden (co-advisor).

Selected Ph. D. Thesis Committees served on:, Igor Ivanesevic, Horea Illies, Liang-Yin Yu., Yong Lu, Stephen Parker, Chunmei Lu, Shaohua Fan, Guodong Guo, Russel Manning, Lucas Kovar, Mankyu Sung, Shaohua Fan, Chris Weaver, Michael Wallick, Rachel Heck (Rose), Rajarathinam Arangarasan.

Selected former students (all previously involved in research, first employment listed): Rachel Heck-Rose (ILM), Michael Wallick (JPL), Aneesh Karve (Nvidia), Cody Robson (UBC), Brian Byrne (Google), Mankyu Sung (ETRI), Lucas Kovar (ILM), Alex Mohr (Pixar), J. Robert Iverson (Sandia National Labs), Min Zhong (Microsoft), Andrew Gardener (Institute for Creative Technologies), Marcin Szymanski (Ensemble Studios), Andrew Selle (Stanford University), John Schreiner (University of Utah), Rajarathinam Arangarasan (Purdue University), Aaron San Filippo (Raven).

Invited Talks (selected)

Motion Synthesis By Example: Data driven approaches to animating characters. Invited Seminar, IRISA / University of Rennes I, Rennes, France, March, 2009.

Motion Synthesis By Example: Data driven approaches to animating characters in games. Distinguished Lecture, School of Computer Science,University of Utah, 2008.

Will Synthesis-By-Example Scale? Invited presentation at corporate sites, 2008.

More Motion in Games? Will Synthesis-By-Example Scale? Invited presentation, 2008 Motion in Games Workshop, Utrecht.

*Motion Synthesis By Example.*Department of Computer Science, Utrecht University, 2008.

Animating by Example (Tutorial): Invited presentation, 2005 Game Technologies Summit.

Animation by Example: Influence on Production. Invited presentation at IMAGINA 2004.

Animation by Example: Zejiang University (2004), Chinese Academy of Sciences Institute for Computing Technology (2004), Microsoft Research Asia (2004), University of Brittish Columbia (2004), INRIA Sophia-Antipolis (2004), MIT (2004), University of Brittish Columbia (2004), Seoul National University (2004), Korean Advanced Institute for Science and Technology (KAIST) (2004).

Human Animation for Interactive Systems: Reconsiling High Quality and High Performance. University of Texas Austin (2003), University of California Berkeley (2003), Sony Academia and Interactive Media Symposium (San Diego, Califonia) 2003.

Animation by Example. IBM Research (2002), University of Illinois Urbana-Champaign (2002), Microsoft Asia Research Bejing (2002), Stanford University (2002), University of Michigan (2002), University of Pennsylvania (2002), Georgia Tech (2002), New York University (2002).

Quack! Quick! We Need A Dancing Duck: Tales of Motion Use and Re-Use. Institute for Mathematics and its Applications, Minneapolis, MN (2001), Academic Center for Computing and Design, Ohio State University (2001), USC Institute for Creative Technologies (2001), Electronic Arts (2001).

Animation by Adaptation. Distinguished Lecture Series. University of Virginia, Charlottesville, VA (2001). Also given as a 2 part tutorial at the Institute for Mathematics and its Applications, Minneapolis, MN (2001).

Animation by Adaptation. U.W. Computational Sciences Seminar (2000).

Temporally global methods for visual media. Sogang University (2000), Seoul National University (2000), Korean Advanced Institute for Science and Technology (KAIST) (2000).

*Motion Transformations with Spacetime Constraints.*Stanford University (1999), Microsoft Research (1999), Mathematics and Computational Engineering (MACE) at University of Wisconsin-Madison (1999), Xerox Palo Alto Research Center (1999), Sony Consumer Electronics R&D (1999).

Editing and Retargetting Animated Motion with Spacetime Constraints. California Institute of Technology (1998), University of Wisconsin-Madison (1998), University of California, Los Angeles (1998), Boston University (1998).

Animation for the Rest of Us. University of Pennsylvania (1997), Boston University (1997), and University of California, Berkeley (1997).

Differential Methods in Graphical Interaction. Theory Institute on Complexity Issues in Computational Differentiation. Argonne National Laboratories, May, 1993.

Invited seminars at Sun Microsystems (1990), Schlumberger Laboratory for Computer Science (1990), Apple Computer (1991, 1993), Xerox Palo Alto Research Center (1993), Silicon Graphics (1993), Industrial Light and Magic (1993), Carnegie Mellon University (1993), Interval Research (1995), Stanford University (1995), ATT Bell Labs (1995) and University of California, Santa Cruz (1995).

Presented seminars about thesis (1994) at M.I.T., Lotus Corp., Univ. of California, Davis, DEC Systems Research Center, Microsoft Corp, University of Maryland, University of Virginia, Washington University, Apple Computer, Univ. of California, Berkeley, University of Arizona, University of Minnesota, and Johns Hopkins University.