James F. Cremer — August 2019

1 Education

1989 Ph.D., Cornell University, Computer Science
"An Architecture for General Purpose Physical System Simulation." Adviser: J. E. Hopcroft

1988 M.S., Cornell University, Computer Science

1982 B.S., Cornell University, Computer Science

2 Professional History

August 2003 to present, Professor
University of Iowa, Computer Science Department

January 2013 to May 2013 VEF US Faculty Scholar
(also January 2011 to May 2011)
Hanoi University of Science and Technology, Vietnam

August 2002 to 2010, Chair/DEO
University of Iowa, Computer Science Department

August 1997 to present, Associate Professor
University of Iowa, Computer Science Department

March 1998 to present, Member,
University of Iowa, Interdisciplinary Program in Applied Mathematical and Computational Sciences

August 1992 to 1997, Assistant Professor
University of Iowa, Computer Science Department

May 1989 to July 1992, Research Associate
Modeling and Simulation Project, Cornell University, Computer Science Department

2011, co-founder and advisor, Tutor Universe, Inc.(now GotIt!)

2000, co-founder, Digital Artefacts, LLC

3 Technical Papers

Journal articles

1. Gamifying Accelerometer Use Increases Physical Activity Levels of Sedentary Office Workers. A. Gremaud, L. Carr, J. Simmering, N. Evans, J. Cremer, A. Segre, L. Polgreen, P. Polgreen. Journal of the American Heart Association. 7, e007735, 2018, doi: 10.1161/JAHA.117.007735

2. The effect of automated text messaging and goal setting on pedometer adherence and physical activity in patients with diabetes: A randomized controlled trial. Polgreen LA, Anthony C, Carr L, Simmering JE, Evans NJ, Foster ED, Segre AM, Cremer JF, Pogreen PM. (2018) PLoS ONE 13(5): e0195797. https://doi.org/10.1371/journal.pone.0195797

3. Using Computer Vision and Depth Sensing to Measure Healthcare Worker-Patient Contacts and Personal Protective Equipment Adherence within Hospital Rooms. J. Chen, J. Cremer, K. Zarei, A. Segre, and P. Polgreen. Open Forum Infectious Diseases. 3(1), 2016, doi: 10.1093/ofid/ofv200

4. How children and adults learn to intercept moving gaps. B. Chihak, T. Grechkin, J. Kearney, J. Cremer, J. Plumert. Journal of Experimental Child Psychology 122, 2014, p. 134–152. doi: 10.1016/j.jecp.2013.12.006

5. Mutations in extracellular matrix genes NID1 and LAMC1 cause autosomal dominant Dandy-Walker malformation and occipital cephaloceles. B. Dabro ... A. Bassuk (26 authors), Human Mutation, 34(8), 1075–1079, August 2013. doi: 10.1002/humu.22351

6. Manipulating Perception Versus Action In Recalibration Tasks. C. Ziemer, M. Branson, B. Chihak, J. Kearney, J. Cremer, and J. Plumert. Attention, Perception and Psychophysics, 75:1260–1274, 2013. DOI 10.3758/s13414-013-0473-6.

7. Perceiving and Acting on Complex Affordances: How Children and Adults Bicycle Across Two Lanes of Opposing Traffic. T. Grechkin, B. Chihak, J. Cremer, J. Kearney, and J. Plumert. Online First Publication, August 27, 2012. doi: 10.1037/a0029716. Journal of Experimental Psychology; Human Perception and Performance, 39(1), 2013, p. 23–36.

8. How Do Scale Changes Affect in Distance Perception in Virtual Environments. T. Nguyen, C. Ziemer, T. Grechkin, B. Chihak, J. Plumert, J. Cremer, and J. Kearney. ACM Transactions on Applied Perception of Applied Perception in Graphics and Visualization, 8(4), 26:1–18, 2011

9. Changes in children's perception-action tuning over short time scales: Bicycling across traffic-filled intersections in a virtual environment. J. Plumert, J. Kearney, J. Cremer, K. Recker, and J. Strutt. Journal of Experimental Child Psychology, 108, 2011, p322–337.

10. An immersive virtual peer for studying social influences on child road-crossing behavior. S. Babu, T. Grechkin, B. Chihak, C. Ziemer, J. Kearney, J. Cremer, and J. Plumert. IEEE Transactions on Visualization and Computer Graphics, 17(1), 2011 p.14–25.

11. How does presentation method and measurement protocol affect distance estimation in real and virtual environments? T. Grechkin, T. Nguyen, C. Ziemer, J. Cremer, J. Plumert, and J. Kearney. ACM Transactions on Applied Perception in Graphics and Visualization, 7(4), 2010, p.1–18.

12. Estimating distance in real and virtual environments: Does order make a difference? C. Ziemer, J. Plumert, J. Cremer, and J. Kearney, K. Attention, Perception, and Psychophysics, 71, 2009. p1095-01106.

13. Children's road crossing: A window into perceptual-motor development. J. Plumert, J. Kearney, and J. Cremer, Current Directions in Psychological Science, 16, 2007, p. 255–258.

14. Distance Perception in Real and Virtual Environments. J. Plumert, J. Kearney, J. Cremer, and K. Koson, ACM Transactions on Applied Perception, 2005 (extension of APGV04 paper), 2(3), p. 286–308.

15. Children's Perception of Gap Affordances: Bicycling across Traffic-Filled Intersections in an Immersive Virtual Environment. J. Plumert, J. Kearney, and J. Cremer, Child Development, 75(4), 2004, p. 1243–1253.

16. Refiner: A Problem Solving Environment for Scientific Simulator Creation. K. Hunt and J. Cremer. Simulation: Transactions of the Society for Computer Simulation, 78(11), 2002, 655–680 (Note: journal's date is Nov. 2002, but did not actually appear until mid-2003)

17. Geometrically-Aware Interactive Object Manipulation M. Choi, J. Cremer. Computer Graphics Forum, 19(1), p. 65-76, 2000

18. Directable Behavior Models for Virtual Driving Scenarios. J. Cremer, J.K. Kearney, and P. Willemsen, *Transactions of the Society for Computer Simulation*, special issue on Multiagent Systems, 14(2), p. 87-96, 1997

19. Creating Scientific Software. J. Cremer, R. Palmer, and R. Zippel, *Transactions of the Society for Computer Simulation*, 14(1), p. 37–49, 1997

20. Formulating 3D Contact Dynamics Problems. M. Anitescu, J. Cremer, and F. Potra, Mechanics of Structures and Machines, 24(4), p. 405–437, 1996

21. VRLOCO: Real-time Human Locomotion from Positional Input Streams. H. Ko and J. Cremer, PRESENCE: Teleoperators and Virtual Environments, 5(4), p. 367–380, 1996

22. Simulation and Scenario Support for Virtual Environments. J. Cremer, J. Kearney, and H. Ko, Computers and Graphics, 20(2), p. 199–205, 1996 (revised version of paper originally presented at the International Workshop on Virtual Reality and Scientific Visualization: Collaborative Environments, Hangzhou, China, April 1995.)

23. HCSM: A Framework for Behavior and Scenario Control in Virtual Environments. J. Cremer, J. Kearney, and Y. Papelis, ACM Transactions on Modeling and Computer Simulation, 5(3), p. 242–267, 1995

24. Programming Mechanical Simulations. J. Kearney, S. Hansen, and J. Cremer, *The Journal of Visualization and Computer Animation*, 4(2), p. 113–129, April-June 1993

Book

1. *Implementing Mathematics with the Nuprl Proof Development System.* R. Constable *et al* (there are 12 co-authors), Prentice-Hall, Inc., Englewood Cliffs,New Jersey, 1986

Technical column/article in journal

1. Driving Simulation: Challenges for VR Technology. J. Cremer, J. Kearney, and Y. Papelis, IEEE Computer Graphics and Applications, p. 16-20, September, 1996

Refereed conference papers

1. Effects of scene density and richness on traveled distance estimation in virtual environments. T. Nguyen, J. Cremer, J. Kearney, and J. Plumert. Proc. of the 8th ACM Siggraph Symp. on Applied Perception in Graphics and Visualization (APGV11), Toulouse, France, Aug. 27-28, 2011

2. Spam Detection in Online Classified Advertisements. H. Tran, T. Hornbeck, V. Ha-Thuc, J. Cremer, and P. Srinivasan. In Proceedings of the 2011 Joint WICOW/AIRWeb Workshop on Web Quality (WebQuality '11). ACM, New York, p. 35-41.

3. Facilitating Content Creation and Content Research in Building the "City of Lit" Digital Library. H. Hsieh, B. Draxler, N. Dudley, J. Cremer, L. Haldeman, D. Nguyen, P. Likarish and J. Winet. Submitted to ACM/IEEE Joint Conference on Digital Libraries, 2011.

4. Effects of Scale Change on Distance Perception in Virtual Environments. T. Nguyen, C. Ziemer, J. Plumert, J. Cremer, and J. Kearney. Proc. of the ACM Siggraph Symp. on Applied Perception in Graphics and Visualization (APGV09), Chania, Crete, Greece, Sep. 30-Oct. 2, 2009, p. 27–34.

5. A Virtual Peer for Studying Peer Influence in Children's Bicycling. S. Babu, T. Grechkin, C. Ziemer, B. Chihak, J. Cremer, J. Kearney, and J. Plumert, to appear in Proc. IEEE VR 2009, Lafayette, LA, March 14-18, 2009.

6. How Does Traffic Density Influence Cyclists Gap Choices? J. Plumert, J. Kearney, and J. Cremer. Proc. of the 2007 International Conference on Road Safety and Simulation, Rome, Nov. 2007.

7. Real-time Autonomous Pedestrian Navigation with Groups. Z. Wang and J. Cremer. Proc. Int'l Conf. on Graphics and Vis. In Eng. (GVE07), Jan. 3-5, 2007, Clearwater, FL, p. 117-124.

8. Traffic Generation for Studies of Gap Acceptance. J. Kearney, T. Grechkin, J. Cremer, and J. Plumert. Proc. of of DSC 2006 (Driving Simulation Conference), Paris, France, October 4-6, 2006, p.177–186.

9. Visual Exploration of Genetic Likelihood Space. J. W. Park, J. Cremer, A. Segre, M. Logue, V. Vieland, to appear in Proc. of Symp. on Applied Computing, Dijon, France, April, 2006, p. 1335-1340.

10. Steering Behaviors for Autonomous Vehicles in Virtual Environments. H. Wang, J. Kearney, J. Cremer, and P. Willemsen, Proc. of IEEE VR 2005, Bonn, Germany, March 12-16, 2005, p. 155–162.

11. Scientific Visualization of Multidimensional Data: Genetic Likelihood Visualization. J. W. Park, M. Logue, J. Ni, J. Cremer, A. Segre, V. Vieland. High Performance Computing and Applications (HPCA2004), Shanghai, China, August 8-10, 2004, (subsequently accepted for and published in "Current Trends in High Performance Computing and Its Applications", Zhang, W., Chen, Z., Glowinski, R., Tong, W., Eds., 2005, Springer)

12. LRZB, a Hybrid Algorithm of Local Ray-Casting and Z-Buffering for Large Geometric Datasets. X. Han, J. Cremer, Z. Wang, and J. Ni, International Workshop on Visualization and Visual Steering (VVS2004), Oct. 21-24, 2004. Springer Lecture Notes in Computer Science (LNCS) Vol. 3252, pp. 720-727.

13. Distance Perception in Real and Virtual Environments. J. Plumert, J. Kearney, and J. Cremer, Proc. of the Symp. on Applied Perception in Graphics and Visualization, Los Angeles, August 7-8, 2004, p. 27–34.

14. Steering Autonomous Driving Agents Through Intersections in Virtual Urban Environments. H. Wang, J.Kearney, J. Cremer, and P. Willemsen, MSV/AMCS 2004, p. 10-16.

15. Sound Modeling in a PC-based Virtual Bicycling and Driving Environment. S. Jezewski, J. Cremer, and J. Kearney. Proc. of the 2004 Image Society Conference, Phoenix, Arizona, July 12-16, 2004, p. 85-89

16. An Abstract Virtual Environment Tool To Assess Decision-Making in Impaired Drivers. M. Rizzo, J. Severson, J. Cremer, and K. Price. Proc. of the Second International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design. Park City, Utah, July 21-24, 2003, p. 40-47

17. "Exploring Virtual History at The National Museum of American History" J. Severson, J. Cremer, K. Lee, D. Allison, S. Gelo, J. Edwards, R. Vanderleest, S. Heston, J. Kearney, G. Thomas. Proc. of the 8th Intl. Conf. on Virtual Systems and Multimedia (VSMM2002), Gyeong-ju, Korea. September 25-27, 2002. p. 61-70

18. Real-time Extendible-resolution Display of On-line Dynamic Terrain. Y. He, J. Cremer, and Y. Papelis, Proc. of Graphics Interface 2002, May 27-29, Calgary, Alberta, Canada, p. 151-160

19. "This Old Digital City" One Year Later: Experience Gained, Lessons Learned, and Future Plans. J. Cremer, J. Severson, S. Gelo, J. Kearney, M. McDermott. Proc. of the 7th Intl. Conf. on Virtual Systems and Multimedia (VSMM2001), Berkeley, California, October 25-27, 2001. p. 49-56

20. An Appoach to Sweeping NURBS. J. Yang, K. Abdel-Malek, J. Cremer, 27th Design Automation Conference, Paper Number, DETC2001/DAC-21150, Pittsburgh, PA, Sept. 9-12, 2001, p. 1-13

21. "This Old Digital City": Virtual Historical Cedar Rapids, Iowa circa 1900. J. Cremer, J. Severson, J. Kearney, S. Gelo, M. McDermott, and R. Riccio. Proc. of the 6th Intl. Conf. on Virtual Systems and Multimedia (VSMM2000), Gifu, Japan, October 2000, Special session on Virtual Heritage. p. 27-34

22. Dynamic Terrain for Real-time Ground Vehicle Simulation. J. Cremer, Y. Papelis, Y. He. *The 2000 Image Society Conference*, Scottsdale, AZ, July 2000, p. 98-106

23. Geometric Geometric Awareness for Interactive Object Manipulation M. Choi, J. Cremer. *Proc. of Graphics Interface 99*, Kingston, Ontario, June 2-4, 1999. Selected as one of the four best papers at the conference

24. Interactive Manipulation of Articulated Objects with Geometry Awareness. M. Choi, J. Cremer. *Proc. of the 1999 IEEE International Conference on Robotics and Automation*, Detroit, MI, May 10-15, 1999

25. Virtual Proving Ground Simulation for Vehicle Design. E. Haug, J. Cremer, Y. Papelis, R. Ranganathan, D. Solis. Proc. (CD-ROM) of the 1998 ASME Design Automation Conference, Atlanta, September 13-16, 1998

26. Generation of Ambient Traffic for Real-time Driving Simulation. E. Bonakdarian, J. Cremer, J. Kearney, P. Willemsen. Proc. of the 1998 Image Society Conference, Scottsdale, July 1998

27. Embedding Scenarios in Ambient Traffic. O. Alloyer, E. Bonakdarian, J. Cremer, J. Kearney, and P. Willemsen, *Proc. of DSC 97 (Driving Simulation Conference)*, p. 75–84, Lyon, France, September, 1997

28. On the Existence of Solutions to Complementarity Formulations of Contact Problems with Friction. Mihai Anitescu, James Cremer and Florian Potra, *Complementarity and Variational Problems: State of the Art*, Michael C. Ferris and Jong-Shi Pang, Editors, SIAM Publications, Philadelphia, 1997, pp. 12-21

29. A Directable Vehicle Behavior Model for Virtual Driving Environments. J. Cremer, J. Kearney, and P. Willemsen, *Proc. of the 1996 Conference on AI, Simulation, and Planning in High Autonomy Systems*, La Jolla, CA, p. 18–25, March 1996

30. Real-time Human Locomotion for Virtual Environments. H. Ko and J. Cremer, *Proc. of the 3rd Eurographics Workshop on Virtual Environments*, Monte Carlo, p. 117–125, February, 1996

31. Contact Analysis in a Virtual Environment. J. Perry, P. Henning, J. Cremer, and G. Vanecek, *Proc. of the First ACM Workshop on Simulation and Interaction in Virtual Environments*, Iowa City, IA, p. 325-329, July, 1995

32. Scenario Authoring For Virtual Environments. J. Cremer and J. Kearney, *Proc. of the IMAGE VI Conference*, Tucson, AZ, p. 141–149, July 1994

33. Hierarchical, concurrent state machines for behavior modeling and scenario control. J. Cremer, J. Kearney, and S. Hansen, *Proc. of the 1994 Conference on AI, Simulation, and Planning in High Autonomy Systems*, Gainseville, FL, p. 36–42, December, 1994

34. Isaac: Building Simulations for Virtual Environments. J. Cremer and G. Vanecek, in *Virtual Prototyping — Virtual Environments and the Product Development Process*, Eds. J. Rix, S. Haas and J. Teixeira, Chapman & Hall, London, p. 213–227, 1995. Originally presented at the IFIP TC 5 WG 5.10 International Workshop on Virtual Environments, October, 1994, Coimbra, Portugal

35. Motion Control Through Communicating, Hierarchical State Machines. S. Hansen, J. Kearney, and J. Cremer, *Proc. of the 5th Eurographics Workshop on Animation and Simulation*, Oslo, p. 115–129, September, 1994

36. The Software Architecture for Scenario Control in the Iowa Driving Simulator. J. Cremer, J. Kearney, Y. Papelis, and R. Romano, *Proc. of the 4th Computer Generated Forces and Behavioral Representation Conference*, p. 373–381, May 4-6, 1994, Orlando, FL.

37. Experiment Authoring for Virtual Driving Environments. J. Cremer, J. Kearney, M. Bartelme, M. Booth, D. Evans, and R. Romano, in *Virtual Environments '95. Selected papers of the Eurographics Workshops in Barcelona, Spain, 1993, and Monte Carlo, 1995*, Springer-Verlag, p. 160-170, 1995. Originally presented at the First Eurographics Workshop on Virtual Environments, Barcelona, 1993

38. Scenario Control for Real-time Driving Simulation. J. Cremer, J. Kearney, and M. Booth, *Proc. of the 4th Eurographics Workshop on Animation and Simulation*, Barcelona, p. 103–119, September 4-5, 1993

39. SimLab: Automatically Creating Physical Systems Simulators. R. Palmer and J. Cremer, *Automated Modeling* DSC-Vol. 41, ASME, p. 67–82, 1992. Originally presented at the Automated Modeling Workshop of the ASME Winter Annual Meeting, November 1991, Anaheim, CA

40. Animation of 3D Human Locomotion: Climbing Stairs and Descending Stairs. A. J. Stewart and J. Cremer, *Proc. of the 3rd Eurographics Workshop on Animation and Simulation*, Cambridge, England, p. 152–168, September 5-6, 1992

41. Beyond Keyframing: An Algorithmic Approach to Animation. A.J. Stewart and J. Cremer, *Graphics Interface 92*, Vancouver, p. 213–218, May 11–15, 1992

42. Algorithmic Control of Walking. A.J. Stewart and J. Cremer, *Proc. of the 1989 IEEE International Conference on Robotics and Automation*, Scottsdale, AZ, p. 1806–1811, May 14-19, 1989

43. The Architecture of Newton, a General Purpose Physical System Simulator. J. Cremer and A.J. Stewart, *Proc. of the 1989 IEEE International Conference on Robotics and Automation*, Scottsdale, AZ, p. 1598-1603, May 14-19, 1989

44. Using the Newton Simulation System as a Testbed for Control. J. Cremer and A. J. Stewart, *Proc. of the Third IEEE International Symposium on Intelligent Control*, Arlington, VA, p. 399-404, August 24-26, 1988

Refereed and non-refereed conference poster session papers

1. Using Computer Vision and Depth Sensing to Measure Healthcare Worker-Patient Contacts and Personal Protective Equipment Adherence Within Hospital Rooms. J. Chen, J. Cremer, A. Segre, P.Polgreen. IDWeek 2014, Philadelphia, Oct. 8-12, 2014.

2. A Mobile Phone App to Enhance Communication between ID Physicians and Members of the Public Health Community. D. Murphy, M. Adamczyk, J. Cremer, S. Beekmann, P.Polgreen. IDWeek 2013, San Francisco, Oct. 2-6, 2013.

3. A Mobile Phone Application for Recording Vaccine Refusals. D. Murphy, J. Cremer, and P. Polgreen. International Meeting on Emerging Diseases and Surveillance 2013 (IMED 2013), Feb. 15-18, Vienna, Austria.

4. A Mobile Phone Application for Pertussis Classification Based on Machine Learning. M. Adamczyk, D. Parker, O. Chipara, J. Cremer, J. Picone, A. Harati, P. Polgreen. International Meeting on Emerging Diseases and Surveillance 2013 (IMED 2013), Feb. 15-18, Vienna, Austria.

5. The Iowa City UNESCO City of Literature Digital Library. H. Hsieh, J. Winet, B. Draxler, N. Dudley, J. Cremer, L. Haldeman, D. Nguyen, and P. Likarish. ACM/IEEE Joint Conference on Digital Libraries, 2011.

6. UCOL - Iowa City UNESCO City of Literature Mobile Application Resarch and Development, D. Andes, J. Cremer, B. Draxler, N. Dudley, L. Haldeman, H. Hsieh, P. Likarish, T. Nguyen, C. Sarnelli, J. Winet, iConference 2011, Seattle, Feb. 8-11

7. UCOL - Iowa City UNESCO City of Literature Mobile Application Resarchand Development, J. Winet, D. Andes, J. Cremer, B. Draxler, N. Dudley, L. Haldeman, H. Hsieh, P. Likarish, T. Nguyen, C. Sarnelli. 2010 Chicago Colloquium on Digital Humanities and Computer Science, Nov. 21-22

8. Effect of Measurement Setting in Judging Traveled Distance: Additional Evidence for Underestimation. T. D. Nguyen, T. Grechkin, J. Cremer, J. Kearney, and J. Plumert. Proc. of the 7th ACM Symp. on Applied Perception in Graphics and Visualization (APGV10), Los Angeles, July 23-24, 2010, p. 159.

9. Optic flow and effort as cues for the perception of the rate of self-produced motion in VE B. Chihak, H. Pick, J. Plumert, C. Ziemer, J. Cremer, and J. Kearney. Proc. of the ACM Symp. on Applied Perception in Graphics and Visualization (APGV09), Chania, Crete, Greece, Sep. 30-Oct. 2, 2009, p. 132.

10. How does a virtual peer influence s distance from the roadway when initiating crossing? T. Grechkin, S. Babu, C. Ziemer, B. Chihak, J. Cremer, J. Kearney, and J. Plumert Proc. of the ACM Symp. on Applied Perception in Graphics and Visualization (APGV09), Chania, Crete, Greece, Sep. 30-Oct. 2, 2009, p. 129.

11. How do Bicyclists Intercept Moving Gaps in a Virtual Environment? B. Chihak, S. Babu, T. Grechkin, C. Ziemer, J. Cremer, J. Kearney, and J. Plumert. Proc. of the ACM Symp. on Applied Perception in Graphics and Visualization (APGV08), Los Angeles, August 9-10, 2008, p.188.

12. How does 2-way traffic impact children's road crossing behavior in a virtual environment. C. Ziemer, J. Plumert, B. Chihak, J. Cremer, and J. Kearney. Biennial Meeting of the Cognitive Development Society, Santa Fe, New Mexico, October, 2007.

13. Perceptual adaptation to environmental scale. C. Ziemer, J. Plumert, J. Cremer, and J. Kearney. 2007 meeting of the Vision Sciences Society, Sarasota, FL, May 2007.

14. Studying children's road-crossing behavior using an immersive, interactive bicycling simulator: How does driver behavior impact gap choices? C. Ziemer, J. Plumert, J. Cremer, and J. Kearney. 2007 Biennial Meeting of the Society for Research in Child Development, Boston, MA, March 2007.

15. Exploiting Genetic Model Information to Identify Homogenous Pedigrees. M. Logue, J. Park, J. Cremer, A Segre, and V. Vieland. Abstracts: ASHG 56th Annual Meeting, American Society of Human Genetics, 1496 , New Orleans, October 2006.

16. Making Distance Judgments in Real and Virtual Environments: Does Order Make a Difference? C. Ziemer, J. Plumert, J. Cremer, J. Kearney. Proc. of the ACM Symp. on Applied Perception in Graphics and Visualization (APGV06), Boston, July 28-29, 2006, p.153.

17. Exploring Volume Rendering With Path Tracing. S. Davis, X. Jiang, G. Nichols, J. Cremer, Siggraph 2005, July 31 - Aug. 4, Los Angeles.

18. Interactive Visualization Tools for Genetic Data. J. Park, M. Logue, J. Ni, J. Cremer, A. Segre, B. Knosp,S. Beck, and V. Vieland. Abstracts: ASHG 54th Annual Meeting, American Society of Human Genetics, 2004. p 528.

19. Distance estimation in real and virtual environments. J. Plumert, J. Kearney, and J. Cremer. Poster presented at the meeting of The Psychonomic Society, Minneapolis, MN, November, 2004.

20. Virtual Environments as Laboratories for Studying Cognitive Development: Results from an Immersive, Interactive Bicycling Simulator. J. Plumert, J. Kearney, and J. Cremer. 2003 Cognitive Development Society Meeting, Salt Lake City, Utah, October 24-25, 2003.

21. Refiner: A Problem Solving Environment for ODE/DAE Simulations. K. Hunt and J. Cremer, ISSAC 97, Maui, Hawaii, July, 1997

4 Invited Presentations, Technical Reports, and Short Workshop Papers

- "Using Virtual Environments to Study Behavior, and Mobile and Social Applications for Computational Epidemiology", Can Tho University, Can Tho, Vietnam, March 1, 2013

- "Using Virtual Environments to Study Perception and Behavior", invited talk at Luther College, Computer Science Dept., Nov. 27, 2012.

- Presenter on "Linking Education to Research and Entrepreneurship" at Fourth Annual Education Conference: Strengthening U.S. - Vietnam Higher Education Ties, U.S. Embassy and Vietnam Ministry of Education and Training, Hanoi, Vietnam, April 9, 2011

- "Using Virtual Environments to Study Perception and Behavior," presented at 3rd National University of Singapore School of Computing – Vietnam Workshop, Hanoi University of Science and Technology, March 3-4, 2011, and at Ho Chi Minh University of Science, March 28, 2011.

- "Using virtual environments to study perception and behavior." presented at Hanoi University of Technology, 8/4/09, Ho Chi Minh City University of Industry, 8/6/09, and at International University, VNU-HCM, 8/7/09. "Virtual Bicycling and Other VR Approaches to Studying Perception and Behavior" presented at the Faculty of Information Technology, Ho Chi Minh City University of Natural Science, 8/22/08. "Virtual Environments Graphics, Graphics, and HCI Research at The University of Iowa" presented at Department of Information Technology, Hanoi University of Education, 8/8/07. "Graphics, Animation, and Virtual Environments for Studying Human Behavior", presented at Department of Information Technology, Hanoi University of Education, 9/11/06, Faculty of Information Technology, Hanoi University of Technology, 9/11/06, and Faculty of Computer Science and Engineering, University of Technology, Vietnam National University, Ho Chi Minh City, 9/15/06. "Virtual Environments as Laboratories for the Study of Human Behavior", Posts and Telecommunications Institute of Technology, Hanoi, Vietnam, 6/6/05.

- "Design Alternatives for Virtual Environment Systems", presented at The National Museum of American History, January 2002

- "Making History With Virtual Environments", featured dinner presentation (with Joan Severson), Midwest Solutions Conference, Cedar Rapids IEEE, Nov. 7, 2000

- Iterative Constraints for Contact Resolution. Talk presented at the Computer Game Developer's Hardcore Technical Seminar on Physics. December 6-7, 1999, San Francisco

- Virtual Environment and Simulation Research in The University of Iowa Computer Science Department. Talk presented at IRISA/University of Rennes, Rennes, France, September 1997.

- Scenario Control in Driving Simulation. Talk presented at Ford Motor Company, Advanced Research Laboratory, Dearborn, June, 1995

- Scenario Control in the Iowa Driving Simulator. Colloquium talk at the Carnegie-Mellon University Robotics Institute. April, 1995

- Scenario Authoring for Virtual Environments. J. Cremer, J. Kearney, and M. Booth, invited position paper for AAAI 1995 Spring Symposium on Interactive Story Systems: Plot and Character, Stanford, CA, March 1995

- Simulation for Virtual Environments. Colloquium talk at Sandia National Labs. February, 1994

- SimLab: Automatically Creating Physical Systems Simulators. J. Cremer and R. Palmer, Workshop on Intelligent Scientific Computation, AAAI Fall Symposium Series, October 1992, Boston, MA

- Generating Spectral Methods for Partial Differential Equations. G. Berkooz, P. Chew, J. Cremer, R. Palmer, and R. Zippel, Cornell Computer Science Department Technical Report, TR92–1308, October 1992

- Creating Simulators Directly From Models of Physics, talk presented at DARPA Manufacturing Technology Contractors Meeting, Salt Lake City, UT, January 26-28, 1992

- Control Strategies in Newton. Presented at the First SIAM Conference on Geometric Design, Tempe, AZ, November 6-10, 1989

- An Architecture for General Purpose Physical System Simulation — Integrating Geometry, Dynamics, and Control. *Ph.D. thesis, Cornell University*, May 1989, Cornell Computer Science Department Technical Report, TR89–987

5   Professional Activities

- **Associate Editor:** ACM Transactions on Modeling and Computer Simulation. 1995 - present

- **Co-organizer:** The Obermann Center/Spelman Rockefeller Symposium on Virtual Environments for Studying Human Behavior. April 5-6, 2002, Iowa City.

- **Co-organizer:** Workshop on Traffic and Scenario Generation for Driving Simulation, held December 6-7, 1996 in Orlando, Florida.

- **Conference Chair and Organizer:** First ACM Workshop on Simulation and Interaction in Virtual Environments, July 13-15, 1995, Iowa City.

- **Organizer:** Geometric and Control Modeling for Simulation of Virtual Environments, Minisymposium 12 of the Third SIAM Conference on Geometric Design, Tempe, 1993; Issues in Physical System Simulation — Integrating Physics Model Specification, Geometry, Symbolic Mathematics, and Control. Minisymposium 16 of the Second SIAM Conference on Geometric Design, Tempe, 1991.

- **Program committee:** ACM Siggraph Symposium on Computer Animation, 2002, 2003, 2004, and 2005; International Conference on Virtual Systems and Multimedia (VSMM), 2002, 2003, 2005, 2006, 2007, 2009; ACM Pacific Graphics, 1997, Intl. Multisymp. Computer and Computational Sciences (IMSCCS), 2006, 2007; IEEE VR, 2006, 2007; Intl. Symp. on Visual Computing (ISVC), 2006-14; Graphics and Visualization in Engineering (GVE), 2007; ACM Symp. on Applied Computing (SAC), 2009; SIMULTECH 2011; RIVF 2011-14; SoICT 2010-2014

- **Program committee and session chair:** 1st Human-Centered Transportation Simulation Conference, 2001

- **Application and Research Sketches chair:** IEEE VR 2006

- **Panel member:** "Synergistic Visual/Haptic Interfaces", NSF HCI Workshop, Orlando, FL, February 1999, "Toward a Discipline of Computer Simulation", Fifth Annual Conference on AI, Simulation, and Planning in High Autonomy Systems, Gainesville, FL, December 1994; "Tele-Immersion: Developing a Long-Term Research Agenda", NSF Interactive Systems Grantees Workshop, Stevenson, WA, August 1997.

- **Reviewer** for various journals and conferences: ACM Transactions on Graphics, ACM SIGRAPH I3D, IEEE Computational Science and Engineering, ACM Siggraph Annual Conference, ACM CHI Annual Conference, Presence, International Journal of Robotics Research, CAD, IEEE Visualization, Computers and Graphics, Graphical Models, Pacific Graphics, IEEE ICRA, Pacific Graphics, and others.

- **External promotion and tenure reviewer/letter writer:** 2003 (1), 2004 (2), 2006(1), 2009(1), 2010(1)

- **Member** of delegations that interviewed applicants for Vietnam Education Foundation PhD fellowships in Hanoi and Ho Chi Minh City, Vietnam, June 1-13, 2005, September 8-17, 2006, August 4-13, 2007, August 14-25, 2008, and August 1-8, 2009. Joint program of the Vietnam Education Foundation and The National Academy of Sciences.

- **Proposal reviewer:** NSF (many times), NAFOSTED (Vietnam's NSF-like National Foundation for Science and Technology Development), 2012, VEF (US Faculty Scholar proposals), 2013.

- **Programming contests:** Led or participated in organization, judging, and/or problem set creation for university and high-school (Hawkeye Challenge) programming contests held at The University of Iowa, many times in the 1990s faculty "coach" of UI teams at ACM Regional Programming contests, 1998, 2002.

6   Research Grants

1. awarded, (with P. Polgreen, A. Segre, and J. Cavanaugh) An m-health intervention to increase activity among patients at risk for type 2 diabetes, NIH, 2015-17, $419,375, Role: Co-investigator

2. awarded, (with E. Perencevich et al), Volume of Contamination and Nosocomial Infection Control, CDC, 2015-18, $2,191,922, Role: Co-investigator.

3. awarded (with P. Polgreen), The Infectious Diseases Society of America Emerging Infections Network (IDSA EIN), CDC, 2015-16, $300,000, Role: Co-investigator

4. awarded (but ultimately I declined the award due to other obligations), Vietnam Education Foundation U.S. Faculty Scholar 2014-15, for teaching, capacity development, and research with Hanoi University of Science and Technology, a top Vietnamese university. 2014-15, Role: PI

5. awarded, Vietnam Education Foundation U.S. Faculty Scholar 2012-13, for teaching, capacity development, and research with Hanoi University of Science and Technology, a top Vietnamese university. 2012-13, $22,500. Role: PI

6. awarded (with J. Plumert and J. Kearney) Learning to Link Decisions and Actions: How Child Pedestrians and Cyclists Cross Roads. NSF, 2013-15, $493,697. Role: Co-PI.

7. awarded, (with J. Plumert, M. Nikolas, J. Kearney, and G. Thomas) II-EN: Shared Virtual Environments for Studying Social Influences on Risky Cycling and Pedestrian Behavior. NSF, 2013-15, $356,337. Role: Co-PI.

8. awarded, (with J. Plumert and J. Kearney) How Do Immature Perceptual-Motor Skills Put Child Cyclists at Risk for Injury?, NIH, 2011-16, $6,045,669.00. Role: Co-PI.

9. awarded, Vietnam Education Foundation U.S. Faculty Scholar 2010-11, for teaching, capacity development, and research with Hanoi University of Technology, a top Vietnamese university. 2010-11, approx. $23,200. Role: PI

10. awarded, (with J. Kearney and J. Plumert) Advancing Virtual Environment Facilities for the Study of Human Behavior. NSF, $200,000, 2008-2010. Role: Co-PI.

11. awarded, (with J. Plumert and J. Kearney) How Do Child Cyclists Make Decisions About Crossing Traffic-Filled Intersections? National Center for Injury Prevention and Control/Centers for Disease Control and Prevention through the UI Injury Prevention Research Center (Corrine Peak-Asa, P.I.), $164,716 (direct costs), 2007-2012. Role: Co-PI.

12. awarded, (with J. Plumert and J. Kearney) How Do Immature Perceptual-Motor Skills Put Child Cyclists at Risk for Injury? NIH, $1,530,315, 2006-2011. Role: Co-PI.

13. awarded, (with J. Plumert and J. Kearney) Temperament as a Risk Factor for Bicycling Injuries. National Center for Injury Prevention and Control (Centers for Disease Control and Prevention) through the UI Injury Prevention Research Center. $219,291, 2003-2007. Role: Co-PI.

14. awarded, (with J. Severson, Digital Artefacts, LLC, and M. Rizzo, UI Department of Neurology) SBIR: Virtual Environment Tools for Assessing Fitness to Drive. National Institutes of Health, $100,000. Role: Co-investigator. 2003-2004

15. awarded, (with M. Logue, V. Vieland, A. Segre, B. Knosp, S. Beck, and J. Ni) Prototype Genetic Likelihood Visualization Utility. UI Iowa Informatics Initiative, $30,000, 2003. Role: Co-PI.

16. awarded, (with J. Kearney) Instrumentation for a Virtual Environment Laboratory to Study Human Behavior. National Science Foundation. $100,000 (UI 33,335 cost share), 2001-2004. Role: PI.

17. awarded, (with J. Kearney and J. Plumert) Virtual Environments as Laboratories for Studying Human Behavior: Modeling, Testing, and Validation. National Science Foundation. approximately $515,935, 2000-2003. Role: Co-PI.

18. awarded, This Old Digital City: Virtual Reconstruction of Cedar Rapids circa 1900. The Linn County Historical Society. $56,000 (UI 9/99-5/00 portion. The UI was instrumental in securing the 1999-2001 overall project funds of approximately $250,000 that covers equipment, installation, and other non-UI personnel costs.)

19. awarded, An Integrated Development for PC-Based Dynamic Terrain Management and Simulation (with D. Solis and Y. Papelis). $160,000. Diamond Visionics Company. 2000

20. awarded (with J. Kearney), $20,000, U.S.-France Cooperative Research (INRIA): Driving Simulation. National Science Foundation. 1998-2001. Role: Co-PI.

21. awarded, (with M. Fleck and J. Kearney), $241,295, Research Experience for Undergraduates at University of Iowa in Experimental Computer Science, National Science Foundation REU Site program. 1997-1999. Role: PI.

22. awarded, Multi-University NSF-Army Industry/University Cooperative Research Center (I/UCRC) (PI: E. Haug). National Science Foundation. 1997-1999. Role: Co-investigator.

23. awarded (with J. Kearney) $135,000 from Ford Motor for research on scenario control in driving simulation. 1996-1998. Role: co-PI.

24. awarded (with J. Kearney, J. Kuhl, and F. Potra), $333,000 (incl. UI match) from NSF for Research Instrumentation for Virtual Environments: Integrating Dynamics and Real-time Interactivity. 1996-1997. Role: co-PI.

25. awarded $269,000 from ONR in a continuation/amendment to previous ONR subcontract with Purdue. Now an Iowa-only contract. Simulation for Virtual Environments. 1996-1998. Role: PI.

26. awarded (with J. Kearney), $76,000 from NAWCTSD (US Navy) for a project in training applications of virtual environments. Simulation Support for Virtual Environment Training Applications. 1996. Role: PI

27. awarded (with J. Kearney), $346,000 from NSF: Behavior Modeling and Scenario Authoring for Virtual Environments. 1995-1998. Role: co-PI.

28. awarded $10,000 from ONR to support the First Workshop on Simulation and Interaction in Virtual Environments. 1995. Role: PI.

29. awarded approximately $250,000 from ONR in a joint project with George Vanecek of Purdue University on simulation for virtual environments. Initially administered as approx. $500,000 ONR contract for Purdue, with $250,000 subcontract to Iowa. 1994-1997. (NOTE: due to Vanecek's move to industry, this award was terminated in 1996 and replaced by the 3-year ONR grant above.) Role: PI

30. awarded (with M. Bonacina, T. Herman, S. Ghosh, F. Potra, and H. Zhang), $240,000 from NSF for research instrumentation grant from NSF. Experimental Parallel and Distributed Computing Research at the University of Iowa. 1994. Role: PI.

31. awarded (with T. Dingus and J. Kearney), $400,000 from NHTSA (National Highway Transportation Safety Administration) for research and development of scenario control for driving simulation. 1993-1994. Role: co-investigator (Dingus was PI).

32. awarded $91,000, NSF Research Initiation grant: A Problem Solving Environment for Mechanical System Simulation. 1993-1996. Role: PI.

7 Departmental and University Activities

- Department Chair, 2002 - 2010

- Associate Chair, 2000-2002

- Member of the Conflict of Interest in Research Committee, 2014-present

- Member of the Judicial Commission, 2007-2010

- Member of the Information Technology Advisory Committee, 2007-10, committee chair, 2009-10

- Member of the CLAS General Education Advisory Committee, 2007-08

- Member of the CLAS Educational Policy Committee, 2004-2007 (and EPC GECC liaison 2006-07), 2011-2013

- Ad hoc member of the advisory council for the Interdisciplinary Graduate Program in Informatics, 2005-2010

- Chair of: graduate committee, 2000, graduate recruiting committee, 2000-2003

- Chair of the review committee for the International Studies BA, 2011

- Member of the review committee for the Crossing Boarders program, 2011

- Member of review committee for the School of Library and Information Science, 1999.

- Member of faculty hiring committee for the School of Library and Information Science, 1999-2000.

- chair, departmental scholarships committee, 2011-present

- Member of the faculty hiring committee, many times.

- Member of the graduate curriculum committee, many times

- Member of the graduate admissions committee, many times

- colloquium chair, 1993-94, 1994-95

- PI of REU site program, 1997-2000. The program brought approximately 12 strong undergraduate to our department each summer for 8-9 weeks of intensive research. Our program has been very successful in attracting minority and women students. Faculty mentor for REU program, 1994-2000

- Organized (with J. Kearney) ten-day interactive demonstration of our Hank driving and bicycling simulator in the U. Iowa booth at the 1998 Iowa State Fair. More than 1000 fairgoers rode through a virtual Iowa City (or the "Biketown" environment used in our child bicycling experiments).

8   Completed PhD students:

Tien Dat Nguyen 2011, J. W. Park, 2009, A. Schaffer, 2005, X. Han, 2004, Y. He, 2000, E. Bonakdarian, 2000, Min Choi, 1999, P. Henning, 1999, K. Hunt 1998.