

ROBERT KOOIMA  
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## 1 EDUCATION

- Ph.D., Electronic Visualization Laboratory (EVL), Dept. of Computer Science, University of Illinois at Chicago (UIC), Chicago, IL 2004–2008  
Dissertation entitled “Planetary-scale Terrain Composition.”
- M.S., Computer Science, University of Iowa, Iowa City, IA 1997–2001  
Thesis entitled “A Framework for Tele-Immersive Application Development.”
- B.S., Computer Science and Mathematics, University of Iowa 1993–1997

## 2 PROFESSIONAL EXPERIENCE

- Assistant Professor, Dept. of Computer Science, Louisiana State University (LSU) 2011–present
- Adjunct Professor, Dept. of Computer Science, Louisiana State University (LSU) 2010–2011
- Post-doctoral Researcher, Center for Computation & Technology (CCT), LSU 2009–2011
- Graduate Research Assistant, EVL, UIC 2004–2008
- Research Associate, Center for Advanced Engineering Environments, Old Dominion University and NASA Langley Research Center, Hampton, VA. 2001–2004
- Research Assistant and Teaching Assistant, University of Iowa 1993–2001

## 3 RESEARCH

### *Articles in Refereed Journals*

1. Thomas A. DeFanti, Daniel Acevedo, Richard A. Ainsworth, Maxine D. Brown, Steven Cutchin, Gregory Dawe, Kai-Uwe Doerr, Andrew Johnson, Chris Knox, Robert Kooima, Falko Kuester, Jason Leigh, Lance Long, Peter Otto, Vid Petrovic, Kevin Ponto, Andrew Prudhomme, Ramesh Rao, Luc Renambot, Daniel J. Sandin, Jurgen P. Schulze, Larry Smarr, Madhu Srinivasan, Philip Weber, Gregory Wickham, “The Future of the CAVE,” *Central European Journal of Engineering*, vol. 1, no. 1, pp. 16–37, Springer-Verlag GmbH, November 2, 2010.

*Cited by: 53. Role: Developed applications and software infrastructure for several post-CAVE virtual reality environments including the Varrier, StarCAVE, NexCAVE, and REVE.*

2. Ge, J., Hutanu, A., Toole, C., Kooima, R., Hossain, I., Allen, G., “An Experimental Distributed Visualization System for Peta-scale Computing,” *Computing in Science & Engineering*, vol. 12, no. 5, pp. 78–82, September/October 2010.

*Cited by: 1. Role: Assisted in the development of the parallel volume rendering application.*

- Hutanu, A., Schnetter, E., Benger, W., Bentivegna, E., Clary, A., Diener, P., Ge, J., Kooima, R., Korobkin, O., Liu, K., Löffler, F., Paruchuri, R., Tao, J., Toole, C., Yates, A. and Allen, G., “Large Scale Problem Solving Using Automatic Code Generation and Distributed Visualization” In *Scalable Computing: Practice and Experience*, vol. 11, no. 2, pp. 205–220, June 2010.

*Cited by: 8. Role: Assisted in the development of the parallel volume rendering application.*

- Kooima, R., Leigh, J., Johnson, A., Roberts, D., Subbarao, M., DeFanti, T., “Planetary-scale Terrain Composition” In *IEEE Transactions on Visualization and Computer Graphics*, vol. 15, no. 5, pp. 719–733, September/October 2009.

*Cited by: 27. Role: Developed and implemented all algorithms, performed all analysis, wrote all text. This publication is the result of my dissertation work.*

- Gail W. Pieper, Thomas A. DeFanti, Qian Liu, Mason Katz, Phil Papadopoulos, Joseph Keefe, Greg Hidley, Greg Dawe, Ian Kaufman, Bryan Glogowski, Kai-Uwe Doerr, Jurgen P. Schulze, Falko Kuester, Peter Otto, Ramesh Rao, Larry Smarr, Jason Leigh, Luc Renambot, Alan Verlo, Lance Long, Maxine Brown, Dan Sandin, Venkatram Vishwanath, Robert Kooima, Javier Girado, Byungil Jeong, “Visualizing Science: The OptIPuter Project,” In *SciDAC Review*, Spring 2009, vol. 12, pp. 32–41, IOP Publishing in association with Argonne National Laboratory, for the US Department of Energy, Office of Science.

*Cited by: 6. Role: Developed software infrastructure for LambdaVision, LambdaTable, StarCAVE, and Varrier. Validated LambdaTable. Implemented the planetary visualization application shown.*

- Peterka, T., Kooima, R., Sandin, D., Johnson, A., Leigh, J., DeFanti, T., “Advances in the Dynalax Solid-State Dynamic Parallax Barrier Autostereoscopic Visualization Display System” In *IEEE Transactions on Visualization and Computer Graphics*, vol. 14, no. 3, pp. 487–499, May-June 2008.

*Cited by: 75. Role: Developed and implemented the real-time autostereoscopic interleaving algorithm.*

- Ge, J., Sandin, D., Johnson, A., Peterka, T., Kooima, R., Girado, J., DeFanti T., “Point-based VR Visualization for Large-scale Mesh Datasets by Real-time Remote Computation” In the *International Journal of Image and Graphics*, vol. 8, no. 2, pp. 189–207, April 2008.

*Cited by: 1. Role: Assisted in the development of the virtual reality visualization client.*

- Leigh, J., Renambot, L., Johnson, A., Jeong, B., Jagodic, R., Schwarz, N., Svistula, D., Singh, R., Aguilera, J., Wang, X., Vishwanath, V., Lopez, B., Sandin, D., Peterka, T., Girado, J., Kooima, R., Ge, J., Long, L., Verlo, A., DeFanti, T., Brown, B., Cox, D., Patterson, R., Dorn, P., Wefel, P., Levy, S., Tolandis, J., Reitzer, J., Prudhomme, T., Coffin, T., Davis, B., Wielinga, P., Stolk, B., Koo, G., Kim, J., Han, S., Kim, J., Corrie, B., Zimmerman, T., Boulanger, P., Garcia, M., “The Global Lambda Visualization Facility: An International Ultra-High-Definition Wide-Area Visualization Collaboratory” In the *International Journal of Future Generation Computer Systems*, Elsevier, 22.8 (2006), pp. 964–971.

*Cited by: 39. Role: Devised the real-time autostereoscopic interleaving algorithm and implemented the video conferencing application using it.*

- Peterka, T., Sandin, D., Ge, J., Girado, J., Kooima, R., Leigh, J., Johnson, A., Thiebaut, M., DeFanti, T., “Personal Varrier: Autostereoscopic Virtual Reality for Distributed Scientific Visualization” In the *International Journal of Future Generation Computer Systems*, Elsevier, 22.8 (2006), pp. 976–983.

*Cited by: 14. Role: Devised the real-time autostereo interleaving algorithm, implemented the software infrastructure driving the Varrier system, and implemented several of the applications shown.*

#### *Articles in Refereed Conference Proceedings*

1. Saeidi, S., Rizzuto, T., Zhu, Y., and Kooima, R., “Measuring the Effectiveness of an Immersive Virtual Environment for the Modeling and Prediction of Occupant Behavior.” *Proceedings of the First International Symposium on Sustainable Human-Building Ecosystems*, October 5–6, 2015, Pittsburgh, PA, pp. 159–167, American Society of Civil Engineers.

*Cited by: 0. Role: Mentored the design and implementation of the immersive virtual environment.*

2. Cherry, K., Kooima, R., “Multi-pass Gaussian Contact-Hardening Soft Shadows,” in the *Proceedings of the 10th International Conference on Computer Graphics Theory and Applications*, pp. 274–280, Berlin, Germany, March 11–14, 2015.

*Cited by: 0. Role: Mentored the design and implementation of the shadow generation algorithm. Cherry was my PhD student until graduation in December 2015.*

3. Smith, N., Cutchin, S., Kooima, R., Ainsworth, R., Sandin, D., Schulze, J., Prudhomme, A., Kuester, F., Levy, T., DeFanti, T., “Cultural Heritage Omni-Stereo Panoramas for Immersive Cultural Analytics—From the Nile to the Hijaz,” *8th International Symposium on Image and Signal Processing and Analysis (ISPA), 2013*, pp. 552–557, IEEE.

*Cited by: 7. Role: Implemented the software infrastructure to process and display high-resolution stereoscopic panoramic imagery.*

4. Kooima, R., Prudhomme, A., Schulze, J., Sandin, D., DeFanti, T., “A Multi-viewer Tiled Autostereoscopic Virtual Reality Display,” in the *Proceedings of the 17th ACM Symposium on Virtual Reality Software and Technology*, pp. 171–174, Hong Kong, China, Nov 22-24, 2010.

*Cited by: 16. Role: Role devised the multi-view autostereoscopic interleaving algorithm, implemented the software infrastructure driving the REVE display, wrote the majority of the text.*

5. Ullmer, B., Dever, Z., Sankaran, R., Toole, C., Freeman, C., Cassady, B., Wiley, C., Diabi, M., Wallace, A., Delatin, M., Tregre, B., Liu, K., Jandhyala, S., Kooima, R., Branton, C., Parker, R., “Cartouche: Conventions for Tangibles Bridging Diverse Interactive Systems” in *Proceedings of the Fourth International Conference on Tangible, Embedded and Embodied Interaction*, pp. 93-100, Cambridge, MA, January 25–27, 2010.

*Cited by: 14. Role: Developend and constructed the TacTile multitouch table, and implemented several of the applications running on it.*

6. Peterka, T., Ross, R., Yu, H., Ma, K. L., Kooima, R., and Girado, J. “Autostereoscopic display of large-scale scientific visualization” In *IS&T/SPIE Electronic Imaging*, pp. 723706-723706, International Society for Optics and Photonics, 2009.

*Cited by: 9. Role: Designed and implemented the real-time autostereoscopic interleaving algorithm*

7. Kooima, R., Roberts, D., SubbaRao, M., “Real-time Digital Dome Rendering Techniques and Technologies” in *Proceedings of IPS 2008*, 19th Biennial Conference of the International Planetarium Society, Chicago IL, June 27–July 2, 2008.

*Cited by: 0. Role: Wrote the text and developed all example software.*

8. Aguilera, J., Roberts, D., SubbaRao, M., Minerva, C., Nichols, M., Salgado, J.F., Kooima, R., “The SVL, a Working Laboratory Inside a Museum” in *Proceedings of IPS 2008*, 19th Biennial Conference of the International Planetarium Society, Chicago IL, June 27–July 2, 2008.

*Cited by: 0. Role: Co-founded the Space Visualization Laboratory and led the technology transfer effort for the University of Illinois at Chicago.*

9. Peterka, T., Kooima, R., Girado, J., Ge, J., Sandin, D., DeFanti, T., “Evolution of the Varrier Autostereoscopic VR Display: 2001–2007” in *Electronic Imaging 2007*, pp. 649004–649004. International Society for Optics and Photonics, 2007.

*Cited by: 12. Role: Designed and implemented the real-time autostereoscopic interleaving algorithm and assisted in the development and construction of all of the system described.*

10. Kostis, H., Kooima, R., Kannenberg, J., “Skin: an Interactive hyperstereoscopic electro installation” in *Electronic Imaging 2007*, p. 64901V. International Society for Optics and Photonics, 2007.

*Cited by: 5. Role: Implemented the software infrastructure underlying the application and assisted in the development of the application itself.*

11. Leigh, J., Johnson, A., Renambot, L., Sandin, D., DeFanti, T., Brown, M., Jeong, B., Jagodic, R., Krumbholz, C., Svistula, D., Hur, H., Kooima, R., Peterka, T., Ge, J., Falk, C., “Emerging from the CAVE: Collaboration in Ultra High Resolution Environments” in *Proceedings of the First International Symposium on Universal Communication*, pp. 96–99, Kyoto, Japan, June 14–15, 2007.

*Cited by: 7. Role: Developed software infrastructure for LambdaVision, LambdaTable, Dynallax, and Varrier. Validated LambdaTable. Implemented the Mars visualization shown.*

12. Ge, J., Peterka, T., Kooima, R., Vishwanath, V., Sandin, J., Johnson, A., “A Distributed Volume Rendering Pipeline for Networked Virtual Reality” in *Proceedings of the International Workshop on Network-based Virtual Reality and Tele-Existence (INVITE 2007)*, May 21–23, 2007.

*Cited by: 0. Role: Developed and implemented the real-time autostereoscopic rendering algorithm used in the display client.*

13. Kooima, R., Peterka, T., Girado, J., Ge, J., Sandin, D., DeFanti, T., “A GPU Sub-pixel Algorithm for Autostereoscopic Virtual Reality” in *Proceedings of IEEE Virtual Reality 2007*, pp. 131–137, Charlotte, NC, March 10–14, 2007.

*Cited by: 28. Role: Devised and implemented the algorithm and its example applications. Performed the analysis. Wrote the text.*

14. Peterka, T., Kooima, R., Girado, J., Ge, J., Sandin, D., Johnson, A., Leigh, J., Schulze, J., DeFanti, T., “Dynallax: Solid State Dynamic Parallax Barrier Autostereoscopic VR Display” in the *Proceedings of IEEE Virtual Reality 2007*, pp. 155–162, Charlotte, NC, March 10–14, 2007.

*Cited by: 27. Role: Devised the real-time autostereoscopic interleaving algorithm.*

15. Girado, J., Peterka, T., Kooima, R., Ge, J., Sandin, D., Johnson, A., Leigh, J., DeFanti, T., “Real Time Neural Network-based Face Tracker for VR Displays” in the *Workshop on Trends and Issues in Tracking for Virtual Environments* at IEEE Virtual Reality 2007, Charlotte, NC, March 11, 2007.

*Cited by: 3. Role: Implemented the applications using the presented tracking technology.*

16. Ge, J., Sandin, D., Johnson, A., Peterka, T., Kooima, R., Girado, J., DeFanti T., “Point-based VR Visualization for Large-scale Mesh Datasets by Real-time Remote Computation” in the *Proceedings of ACM Conference on Virtual Reality Continuum and its Applications*, pp. 43–50, Hong Kong, June 14–17, 2006.

*Cited by: 5. Role: Assisted in the development of the virtual reality visualization client.*

17. Krumbholz, C., Kooima, R., and Rao, A.. “Tangible User Interface Testing on the LambdaTable: A High Resolution Tiled LCD Tabletop” *Interaction*, vol. 14, no. 15, pp. 22–29, 2006.

*Cited by: 2. Role: Implemented the software infrastructure enabling the development of applications for the LambdaTable. Co-ran the user study and its analysis.*

18. Krumbholz, C., Leigh, J., Johnson, A., Renambot, L., Kooima, R., “Lambda Table: High Resolution Tiled Display Table for Interacting with Large Visualizations” at the Workshop on Advanced Collaborative Environments, Redmond, WA, September 8–9, 2005.

*Cited by: 31. Role: Implemented the software infrastructure enabling the development of applications for the LambdaTable. Co-ran the user study and its analysis.*

#### *Additional Publications*

1. J. Ge, R. Kooima, A. Hutanu, “High-Resolution Remote Visualization of Ray-Casted Volume Rendering on GPU Cluster,” Poster, International Conference of High Performance Computing, Network, Storage and Analysis 2010 (SC’10).
2. Sandin, D., Kooima, R., Spiegel, L., and DeFanti, T. “Particle dreams in spherical harmonics” In *Virtual Reality 2014*, p. 155, IEEE, Chicago, 2014.
3. Kooima, R., “Planetary Scale Terrain Composition” Doctoral Dissertation, ProQuest ID 304348751, 2008.
4. Chau, D.W., Johnson, A.E., Kahler, E.M., Kooima, R., Leigh, J., Reda, M.K., and Renambot, L., “Large format high resolution interactive display,” US 20100328306, Dec 30, 2010.
5. Cherry, K., Kooima, R., “Real-time Soft Shadows for Gigapixel Displacement Maps,” in preparation.

#### *Works Presented*

1. Kooima, R., “Exploration Flyover,” at the Louisiana Art and Science Museum, Baton Rouge, LA, June 2016–present.
2. Kooima, R., “Panoptic Mars,” at the New Museum Los Gatos, Los Gatos, CA, October 15, 2015–February 14, 2016.
3. Kooima, R., “Total Perspective Vortex,” at the New Museum Los Gatos, Los Gatos, CA, October 15, 2015–February 14, 2016.
4. Kooima, R., “Total Perspective Vortex,” at the Contemporary Jewish Museum, San Francisco, CA, June 18–September 20, 2015.

5. Sandin, D., Kooima, R., Speigel, L., DeFanti, T., “Particle Dreams in Spherical Harmonics,” at the Filmatic Festival, Minneapolis, MN, April 24–April 27, 2014.
6. Sandin, D., Kooima, R., Speigel, L., DeFanti, T., “Particle Dreams in Spherical Harmonics,” Calit2, University of California San Diego, San Diego, CA, January 13–March 11, 2011.
7. Kooima, R., Roberts, D., Aguilera, J., “MoonWall,” Adler Planetarium, Chicago, IL, 2009–present.
8. Tsoupikova, D., Kooima, R., “Passing ‘Place for Games,’” Information Aesthetics Showcase, SIG-GRAPH 2009, New Orleans, LA, August 3–7, 2009.
9. Kostis, H., Kooima, R., Kannenberg, J., “Skin” Installed at FILE 2007, So Paulo, Brazil.
10. Kooima, R., Roberts, D., SubbaRao, M., Aguilera, J., “Mars Transporter.” Installed at Adler Planetarium 2007–present, Chicago, IL.
11. Lopez Silva, B., Kooima, R., Schwarz, N., Wolf, L., Donaghy, T., Vanderlinde, K., Willis, S., Sweitzer, J., “Starflight.” Installed at Laboratorio Arte Alameda, Mexico City, Mexico Nov 2006–Feb 2007. Installed at Adler Planetarium, Chicago, IL 2007–present.

*Electronic Dissemination of Research*

1. <https://github.com/rlk/scm>  
Spherical cube map rendering library, GNU GPL v2 license, 2012–2016.
2. <https://github.com/rlk/thumb>  
Real-time 3D graphics research codebase, GNU GPL v2 license, 2006–2016.
3. <https://github.com/rlk/gigo>  
Gigapixel fast Fourier transform tool, GNU GPL v3 license, 2013.
4. <https://github.com/rlk/sht>  
Spherical harmonic transform tools, MIT license, 2013.
5. <https://github.com/rlk/envtools>  
Utilities to manipulate spherical images, MIT license, 2013.
6. <https://github.com/rlk/hippo>  
Spatial index for 3D stellar catalogs, GNU GPL v3 license, 2013.
7. <https://github.com/rlk/util3d>  
C language utility modules for 3D graphics using OpenGL, MIT license, 2010–2013.
8. <https://github.com/rlk/lightprobe>  
Interactive HDR lightprobe processing utility, GNU GPL v3 license, 2010–2011.
9. <https://github.com/rlk/electro>  
Lua application development environment for cluster-driven tiled displays and VR systems, GNU GPL v2 license, 2006–2011.
10. <https://github.com/rlk/snth>  
SSE polyphonic multitimbral MIDI synthesizer, GNU GPL v2 license, 2005–2013.

11. <http://csc.lsu.edu/~kooima/articles/genperspective>  
“Generalized Perspective Projection,” 2008.
12. <http://csc.lsu.edu/~kooima/articles/medianproj>  
“Median Distance Perspective Projection,” 2007.

*Funded proposals in the role of Principal Investigator:*

1. “Development of the Sensor Environment Imaging (SENSEI) Instrument,” PI Robert Kooima, University of Illinois at Chicago, 1 October 2015–1 October 2017, \$149,446, subaward of National Science Foundation, PI Maxine Brown, Co-PIs Robert Kenyon, Andrew Johnson, Tanya Berger-Wolf, 1 October 2014–1 October 2017, \$3,531,999.
2. “Lunar Reconnaissance Orbiter Camera,” PI Robert Kooima, NASA / Adler Planetarium, 16 March 2013–16 September 2013, \$10,000.
3. “Solar System Show Rendering,” PI Robert Kooima, NASA / Adler Planetarium, 1 October 2012–1 February 2013, \$10,000.
4. “Lunar Reconnaissance Orbiter Camera,” PI Robert Kooima, NASA / Adler Planetarium, 1 March 2012–1 October 2012, \$16,000.
5. “The Louisiana Sky,” PI Robert Kooima, Louisiana Board of Regents, 1 February 2012–1 February 2013, \$4,660.

*Funded proposals in role of Co-Principal Investigator:*

6. “Highway Work Zone Construction Safety Research and Training: A Driving Simulator Study,” PI Yimin Zhu, Co-PIs Robert Kooima, Sherif Ishak, Louisiana Transportation Research Center, 1 April 2016–1 October 2018, \$280,859.
7. “Temporal-Spatial Event-Driven Modeling of Occupant Behavior in Immersive Virtual Environments,” PI Yimin Zhu, Co-PIs Robert Kooima, Tracey Rizzuto, Louisiana Board of Regents, 1 June 2016–1 June 2017, \$20,000.
8. “CAVE for Millennial Learners,” PI Yimin Zhu, Co-PI Robert Kooima, LSU Student Technology Fee, November 2015, \$131,440.
9. “Digital Media Arts and Engineering Lab,” PI Marc Aubanel, Co-PIs Robert Kooima, Xin Li, Hye Yeon Nam, Frederick Ostrenko, Louisiana Board of Regents, 1 June 2015–1 June 2016, \$75,297.
10. “Many-Thread (GPU) and Many-Core (MIC) Accelerator Equipment for Research and Instruction on Next-Generation Graphics and Scientific Simulation,” PI David Koppelman, Co-PIs Gerald Baumgartner, Robert Kooima, Xin Li, Lu Peng, Ramachandran Vaidyanathan, Louisiana Board of Regents, 1 June 2015–1 June 2016, \$106,380.

*Funded proposals in the role of Senior Investigator.*

11. “CC-NIE Integration: Bridging, Transferring and Analyzing Big Data over 10Gbps Campus-Wide Software Defined Networks,” PI Seung-Jong Park, Co-PIs Lonnie Leger, Konstantin Kousoulas, Sean Robbins, Joel Tohline. National Science Foundation, January 2014–December 2015, \$947,860.
12. “CC-NIE Network Infrastructure: CADIS—Cyberinfrastructure Advancing Data-Interactive Sciences,” PI Joel Tohline, Co-PIs Lonnie Leger, James Lupo, Brygg Ullmer, Honggao Liu, National Science Foundation, October 2012–December 2014, \$499,758.
13. “MRI: Development of Melete: an interaction-oriented, software-rich compute cluster with tangible interface support for collaborative research and the classroom,” PI Brygg Ullmer, Co-PIs Rod Parker, Susanne Brenner, Leslie Butler, Mark Batzer, National Science Foundation, September 2011–August 2015, \$900,000.

*Pending proposals in role of Co-Principal Investigator.*

14. “Beyond Visualization: A Roadmap To The Next Generation Building Design Environment for Sustainability,” PI Yimin Zhu, Co-PIs Robert Kooima, 1 January 2017–1 January 2018, \$49,502.
15. “Science Learning + Building to Sustainability and Urban Resiliency via Immersive Virtual Environments (SURVIVE),” PI Yimin Zhu, Co-PIs Robert Kooima, Pamela Blanchard, Melissa Beck, 1 January 2017–1 January 2021, \$1,185,454.

*Pending proposals in the role of Senior Investigator.*

16. “The Brain STEM Program: Transforming STEM Training Using Neural and Artificial Intelligence Modeling,” PI Melissa Beck, Co-PIs Alex Cohen, Steven Greening, Jagannathan Ramanujam, 1 December 2017–1 December 2022, \$6,570,656.

*Professional Participation*

1. Technical Session Chair, “PANDA: Panoramas, Displays, and Acquisition,” ACM SIGGRAPH 2012, Los Angeles, CA, August 9, 2012.
2. Presentation of “Rendering Planetary Terrains Using Heterogeneous Data Sets” at IPS 2012, the International Planetarium Society Conference, Baton Rouge, LA, July 23, 2012.
3. Session Moderator of “International Planetariums,” IPS 2012, the International Planetarium Society Conference, Baton Rouge, LA, July 22–26, 2012.
4. Advisory Committee, IPS 2012, the International Planetarium Society Conference 2012, Baton Rouge, LA.
5. Delegate Submissions Committee, IPS 2012, the International Planetarium Society Conference 2012, Baton Rouge, LA.
6. Unified Jury member, Late Breaking Jury member, ACM SIGGRAPH 2012.
7. Discussion panelist at the “3D Creators Panel” at CineGrid’s 6th Annual International Workshop 2011, University of California San Diego, San Diego, CA, December 6, 2011.



8. Technical Session Chair, “Show Me the Pixels,” ACM SIGGRAPH 2011, Vancouver, BC, August 10, 2011.
9. Unified Jury member, Late Breaking Jury member, ACM SIGGRAPH 2011.
10. Discussion panelist at the opening of “Synthesis: Processing and Collaboration” with Dan Sandin, Tom DeFanti, and Sheldon Brown, gallery@Calit2, University of California San Diego, San Diego, CA, January 13, 2011.
11. Presentation of “A Multi-viewer Tiled Autostereoscopic Virtual Reality Display” at the 17th ACM Symposium on Virtual Reality Software & Technology, Hong Kong, China, November 22–24, 2010.
12. Presentation of “Interactive 3D: Displays, Devices and Applications” at the Information Science & Technology Colloquium Series, NASA Goddard Space Flight Center, Greenbelt, MD, October 13, 2010.
13. Presentation of “Planetary-scale Processing and Visualization,” a seminar at the LSU Department of Computer Science, Baton Rouge, LA, October 31, 2009.
14. Presentation of “Planetary-scale Terrain Composition,” a seminar at the LSU Center for Computation & Technology, Baton Rouge, LA, May 16, 2008.
15. Presentation of “Real-time Digital Dome Rendering Techniques and Technologies” at the International Planetarium Society 2008 Conference, Chicago, IL, July 2008.
16. Demonstration of the “Planetary Scale Terrain Composition” algorithm at SC07, Reno, NV, November 2007, and at the Annual Meeting of AAAS, Chicago, IL, January 2008.
17. Presentation of “The Varrier,” a seminar at the Adler Planetarium & Astronomy Museum, Chicago, IL, March 30, 2007.
18. Presentation of “A GPU Sub-pixel Algorithm for Autostereoscopic Virtual Reality” at IEEE Virtual Reality 2007, Charlotte, NC, March 2007.
19. Demonstration of Personal Varrier autostereoscopic display at SC05, Seattle, WA, November 2005
20. Demonstration of Personal Varrier at the iGrid 2005 Workshop, UCSD, September 2005.

#### 4 INSTRUCTIONAL ACTIVITIES

##### *Courses Taught*

<i>Course</i>	<i>Title</i>	<i>Semester</i>	<i>Enr.</i>
CSC 3102	Adv. Data Struct. & Alg. Analysis	Fall 2016	87*
CSC 4356	Interactive Computer Graphics	Fall 2016	37*
CSC 3102	Adv. Data Struct. & Alg. Analysis	Spring 2016	87
CSC 3102	Adv. Data Struct. & Alg. Analysis	Fall 2015	67
CSC 4356 / ME 4573	Interactive Computer Graphics	Fall 2015	36
CSC 2463	Programming with Digital Media	Spring 2015	23
CSC 3102	Adv. Data Struct. & Alg. Analysis	Spring 2015	66
CSC 4356 / ME 4573	Interactive Computer Graphics	Fall 2014	49

CSC 4357 / ME 4583	Applied Computer Graphics	Spring 2014	8
CSC 2700	Programming with Digital Media	Spring 2014	18
CSC 4356 / ME 4573	Interactive Computer Graphics	Fall 2013	16
CSC 4357 / ME 4583	Applied Computer Graphics	Spring 2013	6
CSC 2700	Programming with Digital Media	Spring 2013	20
CSC 4356 / ME 4573	Interactive Computer Graphics	Fall 2012	21
CSC 4263 / ART 4020	Video Game Design	Spring 2012	19
CSC 2700	Programming with Digital Media	Spring 2012	21
CSC 4356 / ME 4573	Interactive Computer Graphics	Fall 2011	14
CSC 4263 / ART 4020	Video Game Design	Spring 2011	19
CSC 4356 / ME 4573	Interactive Computer Graphics	Fall 2010	23
CSC 4700 / ART 4020	Video Game Design	Spring 2010	9
CSC 4700 / ART 4020	Video Game Design	Spring 2009	20

\* Enrollment as of Summer 2016

### Teaching Evaluations (0.0–4.0)

<i>Sem.</i>	<i>Course</i>	<i>Technique</i>	<i>Support</i>	<i>Effectiveness</i>	<i>Overall</i>
S16	CSC 3102	3.782	3.732	3.857	3.646
F15	CSC 3102	3.605	3.536	3.776	3.495
F15	CSC 4356	3.767	3.775	3.895	3.705
S15	CSC 2463	3.500	3.575	3.600	3.456
S15	CSC 3102	3.643	3.675	3.714	3.547
F14	CSC 4356	3.798	3.806	3.906	3.749
S14	CSC 4357	3.881	3.846	3.857	3.759
S14	CSC 2700	3.631	3.636	3.818	3.589
F13	CSC 4356	3.864	3.805	3.909	3.763
S13	CSC 4357	3.700	3.474	3.800	3.532
S13	CSC 2700	3.556	3.543	3.778	3.545
F12	CSC 4356	3.933	3.948	3.867	3.845

<i>Sem.</i>	<i>Course</i>	<i>Q1–8 (avg.)</i>		<i>Instructor (avg.)</i>		<i>Overall (avg.)</i>	
S12	CSC 4263	3.62	(3.39)	3.73	(3.16)	3.73	(3.15)
S12	CSC 2700	3.98	(3.50)	3.83	(3.35)	3.83	(3.30)
S11	CSC 4263	3.77	(3.51)	3.86	(3.30)	3.86	(3.32)
F10	CSC 4356	3.92	(3.52)	3.93	(3.28)	3.93	(3.40)
S10	CSC 4700	3.51	(3.46)	3.33	(3.24)	3.78	(3.35)
S09	CSC 4700	3.62	(3.49)	3.67	(3.27)	3.50	(3.26)

### Courses Developed

1. CSC 2463 Programming with Digital Media. Presented as CSC 2700 in Spring 2012, 2013, 2014, and 2015. Total enrollment: 59.

2. CSC 4263 Video Game Design. Presented in Spring 2011 through 2015. Presented as CSC 4700 in Spring 2009 and 2010. Cross-listed with ART 4020. Total enrollment (including cross-listing): 100+.

*Advising Committees*

1. Completed, as Major Advisor

<i>Name</i>	<i>Deg.</i>	<i>Title</i>	<i>Year</i>
Kevin Cherry	PhD	Real-Time Shadows using Gigapixel Displacement Maps	2015
Sean O'Connell	MS	A GPU Implementation of Connected Component Labeling	2009 (co-advised)

2. In progress, as Major Advisor

<i>Name</i>	<i>Deg.</i>
Job Champagne	PhD
Sirazum Munira Tisha	PhD

3. Completed, as Committee Member

<i>Name</i>	<i>Deg.</i>	<i>Title</i>	<i>Year</i>
Wuyi Yu	PhD	Large-scale Geometric Data Decomposition, Processing and Structured Mesh Generation	2015
Bidur Bohara	PhD	Visualization of Time-Varying Data from Atomistic Simulations and Computational Fluid Dynamics	2015
Farid Harhad	PhD	Evolving Time Surfaces and Tracking Mixing Indicators for Flow Visualization	2014
Chen Fang	MS	Maze Automatic Exploration—A practical video game that applies artificial intelligence	2014
Neha Manyá	MS	Cartographic Rendering of Surfaces Using Procedural Contour Lines	2014
Kevin Cherry	MS	An Intelligent Othello Player Combining Machine Learning and Game Specific Heuristics	2011

4. In progress, as Committee Member

<i>Name</i>	<i>Deg.</i>
Amol Patwardhan	PhD

Sanaz Saeidi          PhD

5. Completed, as Graduate Dean's Representative

<i>Name</i>	<i>Deg.</i>	<i>Title</i>	<i>Year</i>
Zachary Berkowitz	PhD	Music in Virtual Space: Theories and Techniques for Sound Spatialization and Virtual Reality-based Stage Performance	2016

6. In progress, as Graduate Dean's Representative

<i>Name</i>	<i>Deg.</i>
Asim Shreshtha	PhD

7. Undergraduate Research Advising

<i>Name</i>	<i>Deg.</i>	<i>Period</i>	<i>Program</i>
Kristen Barrett	BS	Fall 2016	Honors Committee Chair
Evan Preslar	BS	Fall 2016	Honors Committee Chair
Taylor Dottley	BS	Fall 2016	President's Future Leader
Philip Breland	BS	Spring 2016	Independant study
Marty Trosclair	BS	2015–2016	Senior Design
Benjamin Thomas	BS	2015–2016	Senior Design
David Duffy	BS	2015–2016	Senior Design
Mitchell Mason	BS	2015	Honors Committee Chair
Bruno Beltram	BS	2015	Honors Committee Member
Ryan Moon	BS	Fall 2014	Chancellor's Aide
Shakayla Harris	BS	Fall 2014	Independant study
Jackie Searcy	BS	Summer 2014	REU
Thomas Culotta	BS	2013–2014	Chancellor's Aide
Adam Fitzgerald	BS	2012–2013	Chancellor's Aide
Jacob Cobb	—	Fall 2012	High School Senior Project
Ayush Narayan	BS	Summer 2012	REU
Joshua Gorman	BS	2011	HHMI
Chad Thompson	BS	Summer 2010	REU

*Other Instructional Activities*

1. Guest speaker at the LSU Chapter of the American Institute for Aeronautics and Astronautics, October 21, 2015.
2. Guest speaker at the DMAE Film Series screen of *Revolution OS*, March 11, 2015.
3. Global Game Jam mentor, January 23–25, 2015.

4. iOS App Boot Camp, August 4–15, 2014.
5. Presenter, Red Stick Futurefest, May 9, 2014.
6. Guest lecture, CSC 4243 Interface Design and Technology, April 24, 2014.
7. Member of the Board of Directors of the Mentorship Academy of Science and Technology, Baton Rouge, LA, 2011–present.
8. Hosted visit of students from Scotlandville Pre-Engineering Magnet Academy, November 20, 2013.
9. Guest speaker, Cajun Clickers, September 5, 2013.
10. iOS App Boot Camp, August 5–15, 2013
11. Guest lecture, CSC 4101 Programming Languages, November 13, 2012.
12. Guest lecture, Mobile App | Art | Action Group (MAG), October 4, 2012.
13. Guest lecture, UC 0080 Advancing in Mentoring, Education and Research, March 24, 2011.
14. Presentation of “Video Game Development” at the LSU Computer Science Intensive Orientation for Students 2010 (CIOS), Baton Rouge, LA, August 10, 2010.

## 5 SERVICE

### *University Service*

1. Women in Computer Science (WICS) Game Jam, faculty coordinator, 2016.
2. Academic Showcase, CS department representative, February 5, 2016.
3. Traditions Scholarship Committee, Spring 2016.
4. Screen Arts Bachelor of Arts (SABA) Steering Committee, 2014–2015.
5. Academic Showcase, CS department representative, February 5, 2015.
6. Academic Showcase, CS department representative, February 7, 2014.
7. Academic Showcase, CS department representative, January 31, 2014.
8. Digital Media Arts & Engineering (DMAE) Faculty Review Committee, 2013.
9. Spring Invitational Advising, April 12, 2013.
10. Academic Showcase, CS department representative, February 21, 2013.
11. Academic Showcase, CS department representative, February 8, 2013.
12. enOvation Engineering Committee, 2012–2014.
13. CS Industrial Advisory Board, 2011–2012, Co-chair 2013–2014.
14. CS ABET Accreditation Committee, 2013–2014, 2012–2013.

15. CS Graduate Admissions / Assistantship Committee, 2015–2016, 2014–2015, 2013–2014.
16. CS Undergraduate Curriculum Committee, 2013–2014.
17. CS Undergraduate Activities Committee, 2015–2016, 2014–2015, 2013–2014, 2012–2013, 2011–2012.
18. Graphics & Visualization Exam Committee, 2015–2016.
19. Algorithms Exam Committee, 2015–2016.
20. Computer Architecture Exam Committee, 2014–2015, 2013–2014, 2012–2013, 2011–2012.
21. Programming Languages Exam Committee, 2014–2015, 2013–2014, 2012–2013, 2011–2012.
22. CS Intensive Orientation for Students Committee (CIOS), 2012–2013, Co-chair 2011–2012.
23. CS Newsletter and Web Committee, 2012–2013, 2011–2012.
24. CS department representative, Commencement, August 3, 2012.
25. AVATAR Curriculum Committee, 2010–2016.

#### *Recruitment Activities*

1. Interviewed for “LSUs digital media initiative coming of age after humble launch nine years ago,” Baton Rouge Business Report, November 5, 2015.
2. Recruited for AVARAR / DMAE at Penny Arcade Expo East, April 10–14, 2014.
3. Photo appears in *LSU Computer Science* brochure, LSU Office of Communications & University Relations, 2013–2014.
4. Interviewed for “LSU Computer Science,” recruiting video, Louisiana Economic Development, October 30, 2013.
5. Feature article “Assistant Professor Puts Students on the Moon,” Renee Barrow, *The Daily Reveille*, September 23, 2013.
6. Web feature “Computer Science Professor Combines Research Interest, Practical Application,” Cassie Thibeaux, <http://www.lsu.edu>, May 10, 2013.
7. Recruited for AVARAR / DMAE at Game Developer’s Conference, March 25–29, 2013.
8. Web feature “Inspiring Programming Interaction,” Cassie Thibeaux, <http://www.eng.lsu.edu/news/2013/4/inspiring-programming-interaction--/>, April 8, 2013.
9. Photo appears in *EQ: Louisiana Economic Quarterly*, Louisiana Economic Development, Q1 2013, p. 25.
10. Interviewed for “SEC Academic Showcase,” ESPNU, October 18, 2011.
11. Web feature “Game On: LSU Students Apply Cutting-Edge Creativity, Interactive Techniques to Develop Original Video Games,” Ashley Berthelot, LSU Media Relations, May 12, 2010.

12. Interviewed for “LSU at 150,” WBRZ Baton Rouge, April 16, 2010.
13. AVATAR recruitment seminar at SIGGRAPH 2009, New Orleans, LA, August 4, 2009.
14. Feature article “LSU Professor Takes Video Game Design Class to the Next Level,” Kristen Sunde, *LSU Today*, vol. 25, no. 20, June 26, 2009.

### *Reviewing*

1. Reviewer IEEE SciViz 2016
2. Reviewer International Planetarium Society (IPS) 2012
3. Reviewer ACM SIGGRAPH 2012
4. Reviewer ACM Southeast 2012
5. Reviewer ACM SIGGRAPH 2011
6. Reviewer ACM SIGCHI 2010
7. Reviewer Cloud-Mobile Convergence for Virtual Reality Workshop (CMCVR 2010)

### 6 AWARDS

1. Tiger Athletic Foundation Michael R. Mangham College of Engineering Memorial Undergraduate Teaching Award, 2015.
2. “Forty under 40,” 2012, Baton Rouge Business Report, Baton Rouge LA.
3. Rasmussen, M., Krumbholz, C., Kooima, R., Leigh, J., Fiscella, R., Ai, Z., Jin, B., Dixon, S., Hwang, K., Mer, E., Stevenson, A., Brady, A., Evenhouse, R., Parshall, R., “The Virtual Eye,” winner of the Dr. Frank H. Netter Award, 2007, The Vesalius Trust for Visual Communication in the Health Sciences.