

# *James Adam Jones*

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*Assistant Professor*  
*Computer & Information Science*  
*University of Mississippi*  
*E-mail: jadamj@acm.org*

## **SUMMARY:**

- ❖ PhD, MS, & BS degrees in Computer Science
- ❖ *Concentrations:* Cognitive Science, Visualization & Computer Graphics
- ❖ *Research Interests:* Augmented & Virtual Reality, Spatial Perception, Vision, Human-Computer Interaction, User Evaluation, Empirical Methods, Visualization Methods
- ❖ *Dissertation Topic:* Visual Perception in Augmented & Virtual Environments
- ❖ *Citizenship:* United States of America

## **EDUCATION:**

### **Doctor of Philosophy in Computer Science, Department of Computer Science Cognitive Science Graduate Certificate, Department of Psychology**

Mississippi State University, Starkville, Mississippi (December 2011)

*Concentration:* Cognitive Science, Visualization & Graphics, Virtual Environments

*Dissertation Title:* Peripheral Visual Cues and Their Effect on the Perception of Egocentric Depth in Virtual and Augmented Environments

*Advisor:* J. Edward Swan II

*Committee:* Carrick C. Williams, T.J. Jankun-Kelly, Philip Amburn

### **Master of Science in Computer Science**

Mississippi State University, Starkville, Mississippi (August 2007)

*Concentration:* Visualization & Graphics, Virtual Environments

*Thesis Title:* Egocentric Depth Perception in Optical See-through Augmented Reality

*Advisor:* J. Edward Swan II

*Committee:* Carrick C. Williams, T.J. Jankun-Kelly

### **Bachelor of Science in Computer Science**

Mississippi State University, Starkville, Mississippi (December 2004)

*Minor:* Software Engineering & Mathematics

*Advisor:* Donna Reese

## **EXPERIENCE:**

**University of Mississippi – Assistant Professor**, *Computer & Information Science*, August 2015 – Present.

**Clemson University - Postdoctoral Research Associate**, *Human Centered Computing, School of Computing*, February 2014 – Present. (Advisor: Larry F. Hodges, PhD)

**University of Southern California - Postdoctoral Research Associate**, *Institute for Creative Technologies*, February 2012 – February 2014. (Advisor: Mark Bolas)

**Mississippi State University - Instructor of Record**, *Department of Computer Science & Engineering*, January 2011 – December 2011. (Advisor: Donna Reese, PhD)

**Mississippi State University - Graduate Research Assistant**, *Augmented & Virtual Reality Perception Laboratory*, August 2005 – May 2007 & May 2008 – December 2011. (Advisor: J. Edward Swan II, PhD)

**Institute for Neurocognitive Science & Technology – fMRI & Research Systems Administrator**, *Mississippi State University*, May 2007 – May 2008 & April 2010 – October 2010. (Supervisor: Kirk H. Schulz, PhD)

**John C. Longest Health Center – Technical Assistant**, *Mississippi State University*, April 2003 – July 2005. (Supervisor: Robert Collins, MD)

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### HONORS & AWARDS:

1. Spirit of State - University Service Award (Highest Student Honor), *Mississippi State University*, 2010.
2. Bagley College of Engineering Outstanding Research Paper Award, received by J. Edward Swan II, for the paper *Egocentric Depth Judgments in Optical, See-Through Augmented Reality*, 2008.
3. Global Leadership Program Awardee - Korea & Hong Kong Study Abroad Program, *Kyungpook National University (Daegu, South Korea) & Mississippi State University*, 2010.
4. Global Leadership Program Awardee - Korea & Japan Study Abroad Program, *Kwangwoon University (Seoul, South Korea) & Mississippi State University*, 2009.
5. American Legion Outstanding Citizen Award, *Jones County, Mississippi*, 2000.
6. Eagle Scout, *Boy Scouts of America*.
7. Phi Theta Kappa Honor Society.

### TEACHING EXPERIENCE:

1. Instructor of Record, *CSci-391/581: Introduction to Computer Graphics*, University of Mississippi, Fall 2015.
2. Instructor of Record, *CSci-390: Special Topics in Programming - C/C++*, University of Mississippi, Fall 2015.
3. Instructor of Record, *CSE-1233: Introductory Computer Programming for Non-Computer Science Majors*, Mississippi State University, Spring 2011, Fall 2011.
4. Undergraduate Honors Projects Supervisor, *School of Computing Undergraduate Honors Projects in Virtual Environments*, Clemson University, Spring 2015.
5. Mentor, *Undergraduate Student Projects in Virtual Environments*, Clemson University, Fall 2014.
6. Aided in redesign of Computer Science & Engineering introductory curriculum, Mississippi State University, Fall 2010.
7. Guest Instructor, *CSE-3813: Formal Languages*, Mississippi State University, August 24-26, 2011.
8. Guest Instructor, *CSE-4413/8413: Computer Graphics*, Mississippi State University, October 25-28, 2010.
9. Guest Instructor, *CSE-3981: Computer Ethics*, Mississippi State University, October 13, 2010.

### FUNDED RESEARCH:

1. *Mapping the Field of View*, The Office of Naval Research 6.1 Long Range Navy and Marine Corps Science and Technology (N00014-13-1-0237). Principal Investigator: Mark Bolas (on behalf of postdoc **J. Adam Jones**). \$506,141.00. FY:2013-2014. Other roles: Proposal Author, Research Personnel.
2. *Is this Real Life? Is This Just Fantasy? An Investigation of the Understanding of Complex Molecular Geometry Through Virtual Reality and Interaction*, Gordon Research Conference Visionary Grant. Co-Principal Investigators: Robert W. Kojima, Stephan Schwan, **J. Adam Jones**, Minyoung Song. \$ 5,000.00. FY: 2013.

### PATENTS:

1. U.S. Patent Application #14211459. *Head Mounted Display Frame for Improved Spatial Performance in Head Mounted Virtual Environments*. Inventors: **J. Adam Jones**, Mark Bolas, David M. Krum. Applicant: University of Southern California. Filed: March 14, 2014.

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2. U.S. Patent Application #14216220. *Dynamic Field of View Throttling as a Means of Improving User Experience in Head Mounted Virtual Environments*. Inventors: Mark Bolas, **J. Adam Jones**, Ian McDowall, Evan Suma. Applicant: University of Southern California. Filed: March 17, 2014.
3. U.S. Patent Application #14216152. *Control of Ambient and Stray Lighting in a Head Mounted Display*. Inventors: Mark Bolas, **J. Adam Jones**, David M. Krum. Applicant: University of Southern California. Filed: March 17, 2014.

### **REFERRED JOURNAL ARTICLES:**

1. **J. Adam Jones**, J. Edward Swan II, Mark Bolas. 2013. *Peripheral Stimulation and its Effect on Perceived Spatial Scale in Virtual Environments*. IEEE Transactions on Visualization & Computer Graphics (TVCG). 19, 4, pages 701-710.
2. J. Edward Swan II, **J. Adam Jones**, Eric W. Kolstad, Mark A. Livingston, Harvey S. Smallman. 2007. *Egocentric Depth Judgments in Optical See-Through Augmented Reality*. IEEE Transactions on Visualization & Computer Graphics (TVCG). 13, 3, pages 429-442.

### **REFERRED CONFERENCE PROCEEDINGS:**

1. **J. Adam Jones**, Lauren Cairco Dukes, David, M. Krum, Mark T. Bolas, Larry F. Hodes. 2015. *Correction of Geometric Distortions and the Impact of Eye Position in Virtual Reality Displays*. Proceedings of the International Conference on Collaboration Technologies and Systems, Atlanta, Georgia, *in press*.
2. Elham Ebrahimi, Bliss Altenhoff, Leah Hartman, **J. Adam Jones**, Sabarish V. Babu, Christopher C. Pagano, Timothy A. Davis. 2014. *Effects of Visual and Proprioceptive Information in Visuo-motor Calibration During a Closed-loop Physical Reach Task in Immersive Virtual Environments*. Proceedings of the ACM SIGGRAPH Symposium on Applied Perception, Vancouver, Canada, pages 103-110.
3. **J. Adam Jones**, J. Edward Swan II, Gurjot Singh, Sujun Reddy, Kenneth Moser, Chunya Hua, Stephen R. Ellis. 2012. *Improvements in Visually Directed Walking in Virtual Environments Cannot be Explained by Changes in Gait Alone*. Proceedings of the ACM SIGGRAPH Symposium on Applied Perception, Playa Vista, California, pages 11-16.
4. **J. Adam Jones**, J. Edward Swan II, Gurjot Singh, Stephen R. Ellis. 2011. *Peripheral Visual Information and Its Effect on Distance Judgments in Virtual and Augmented Environments*. Proceedings of the ACM SIGGRAPH Symposium on Applied Perception in Graphics and Visualization. Toulouse, France, pages 29-35.
5. Gurjot Singh, J. Edward Swan II, **J. Adam Jones**, Stephen R. Ellis. 2010. *Depth Judgment Measures and Occluding Surfaces in Near-Field Augmented Reality*. Proceedings of the ACM SIGGRAPH Symposium on Applied Perception in Graphics and Visualization. Los Angeles, California, pages 149-156.
6. **J. Adam Jones**, J. Edward Swan II, Gurjot Singh, Stephen R. Ellis. 2008. *The Effects of Virtual Reality, Augmented Reality, and Motion Parallax on Egocentric Depth Perception*. Proceedings of the ACM SIGGRAPH Symposium on Applied Perception in Graphics and Visualization. Los Angeles, California, pages 9-14.

### **REFERRED ABSTRACTS:**

1. Elhman Ebrahimi, Bliss M. Altenhoff, Christopher C. Pagano, Sabarish V. Babu, **J. Adam Jones**. 2015. *Investigating the Impact of Perturbed Visual and Proprioceptive Information in Near-Field Immersive Virtual Environments*. Poster compendium, Proceedings of the IEEE Virtual Reality Conference, Arles Caramargue, France, *in press*.
2. **J. Adam Jones**, Lauren Cairco Dukes, Mark Bolas. 2014. *Automated Calibration of Display Characteristics (ACDC) for Head-Mounted Displays and Arbitrary Surfaces*. Poster compendium, Proceedings of the IEEE Virtual Reality Conference, Minneapolis, Minnesota, pages 85-86.

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3. **J. Adam Jones**, David M. Krum, Mark Bolas. 2014. *The Effect of Eye Position on the View of Virtual Geometry*, Poster compendium, Proceedings of the IEEE Virtual Reality Conference, Minneapolis, Minnesota, pages 87-88.
4. **J. Adam Jones**, Evan A. Suma, David M. Krum, Mark Bolas. 2012. *Comparability of Narrow and Wide Field-Of-View Head-Mounted Displays for Medium-Field Distance Judgments*, Poster compendium, Proceedings of the ACM SIGGRAPH Symposium on Applied Perception, Playa Vista, California, page 119.
5. Gurjot Singh, J. Edward Swan II, **J. Adam Jones**, and Stephen R. Ellis. 2012. *Depth Judgments by Reaching and Matching in Near-Field Augmented Reality*. Poster compendium, Proceedings of the IEEE Virtual Reality Conference, Irvine, California, pages 165-166.
6. **J. Adam Jones**, J. Edward Swan II, Gurjot Singh, Stephen R. Ellis. 2011. *Peripheral Visual Information and Its Effect on the Perception of Egocentric Depth in Virtual and Augmented Environments*. Poster compendium, Proceedings of the IEEE Virtual Reality Conference. Singapore, pages 215-216.
7. Gurjot Singh, J. Edward Swan II, **J. Adam Jones**, Stephen R. Ellis. 2011. *Depth Judgment Tasks and Environments in Near-Field Augmented Reality*. Poster compendium, Proceedings of the IEEE Virtual Reality Conference. Singapore. pages 241-242.
8. **J. Adam Jones**, J. Edward Swan II, Gurjot Singh, Joshua Franck, Stephen R. Ellis. 2009. *The Effects of Continued Exposure to Medium Field Augmented and Virtual Reality on the Perception of Egocentric Depth*. Poster compendium, Proceedings of the ACM SIGGRAPH Symposium on Applied Perception in Graphics and Visualization. Crete, Greece, page 138.
9. Gurjot Singh, J. Edward Swan II, **J. Adam Jones**, Joshua Franck, Stephen R. Ellis. 2009. *Depth Judgment Measures and Occluders in Near-Field Augmented Reality*. Poster compendium, Proceedings of the ACM SIGGRAPH Symposium on Applied Perception in Graphics and Visualization. Crete, Greece, page 127.
10. **J. Adam Jones**, J. Edward Swan II, Gurjot Singh, Eric W. Kolstad. 2008. *The Effects of Virtual Reality, Augmented Reality, and Motion Parallax on Egocentric Depth Perception*. Poster compendium, Proceedings of the IEEE Virtual Reality Conference. Reno, Nevada. pages 267-268.

### **INVITED PRESENTATIONS:**

1. *The State of Virtual Reality*, Invited speaker in Business Telecommunications Technologies, Georgia State University, Atlanta, Georgia, February 23, 2015, Host: Jung P. Shim.
2. *Spatial Perception in Virtual Reality: It's Not Just What You See But How You See It*, Invited speaker to Engineering Seminar Series at University of Georgia, Athens, Georgia, February 20, 2015, Host: Kyle Johnson.
3. *Learning and Perceiving in Augmented (and Virtual) Environments*, Invited speaker at the Gordon Research Conference on Visualization in Science and Education, Bryant University, Smithfield, Rhode Island, July 22, 2013.
4. *Going With The Flow: Motion-based Visual Cues in the Extreme Periphery and Their Effect on Distance Judgments in Virtual & Augmented Reality*, Invited speaker at the School of Interactive Arts & Technology - Simon Fraser University, Vancouver, BC, Canada, November 24, 2011, Host: Bernhard Riecke.
5. *External Visual Cues and Their Effect on Walked Distance Judgments in Virtual and Augmented Environments*, Invited speaker at the NASA Ames Research Center, Moffett Field, California, November 22, 2011, Host: Stephen R. Ellis.
6. *Virtual & Augmented Environments: A Matter of Perception*, Invited speaker at the Imaging Media Research Center - Korea Institute for Science & Technology, Seoul, South Korea, May 4, 2010, Hosts: Heedong Ko & Yong-Moo Kwon.

**TECHNICAL PRESENTATIONS:**

1. *The State of Virtual Reality: A Talk of Many Things*, School of Computing Seminar Series, Clemson University, South Carolina, October 31, 2014.
2. *Mapping the Field of View*, Office of Naval Research Year One Project Overview, USC Institute for Creative Technologies, Playa Vista, California, February 10, 2014.
3. *Improvements in Visually Directed Walking in Virtual Environments Cannot be Explained by Changes in Gait Alone*, ACM SIGGRAPH Symposium on Applied Perception, Playa Vista, California, August 3, 2012.
4. *Experiences Abroad - Japanese Technology & Culture*, Invited presentation at the Colloquium on Understanding More About Japanese Culture, Business, and Information Technology, Sponsored by the Japan Foundation and Mississippi State University, Mississippi State University, Mississippi, August 19, 2010, Host: J.P. Shim.
5. *Going With The Flow: Distance Judgments in Virtual Reality, Augmented Reality, and the Real-World*, Applied Cognitive Science Seminar Series, Mississippi State University, Mississippi, October 28, 2011.
6. *Graphics: Making Games Look Good*, Invited presentation to the Starkville High School Game Design Club, Starkville, Mississippi, October 25, 2011, Host: Andrew Stamps.
7. *A Mostly Visual Introduction to Augmented and Virtual Reality*, Association of Computer Machinery (ACM) Student Chapter, Mississippi State University, Mississippi, September 20, 2010.
8. *A Review of the AR Lab's Perceptual Experiments in Virtual & Augmented Environments*, Invited guest lecture to CSE-8283: Empirical Software Engineering, Mississippi State University, Mississippi, April 1, 2010.
9. *Depth Judgments and Adaptation in Augmented and Virtual Reality*, Empirical Software Engineering Research Group, Mississippi State University, Mississippi, November 2, 2009.
10. *Visual Perception in Augmented and Virtual Environments*, Graduate Seminars in Computer Science, Mississippi State University, Mississippi, October 7, 2009.
11. *Perceptual Cues in Visual Presentations*, Invited guest lecture to CSE-6990: Principles of Digital Visual Communication and Analysis, Mississippi State University, Mississippi, September 4, 2009.
12. *Studying Human Perception in Virtual and Augmented Reality*, Invited guest lecture to ECE-8990: Level of Detail and Virtual Environments, Mississippi State University, Mississippi, March 26, 2009.
13. *Augmented and Virtual Reality: A Matter of Perception*, Graduate Seminars in Computer Science, Mississippi State University, Mississippi, November 10, 2007.
14. *Depth Perception in Augmented and Virtual Reality*, ACCESS: Applied Cognitive Science Seminar Series, Mississippi State University, Mississippi, September 7, 2007.
15. *Egocentric Depth Judgments in Optical See-Through Augmented Reality*, ACCESS: Applied Cognitive Science Seminar Series, Mississippi State University, Mississippi, November 17, 2006.
16. *Egocentric Depth Judgments in Optical See-Through Augmented Reality*. Institute for Neurocognitive Science & Technology Colloquium. Mississippi State University, Mississippi, October 26, 2006.

**PROFESSIONAL SERVICE:**

- ❖ Program Committee, IEEE Virtual Reality Conference (IEEE VR), 2014 – 2015.
- ❖ Program Committee, Perceptual & Cognitive Issues in Augmented Reality (PERCAR), 2015, 2016.
- ❖ Program Committee, IEEE Symposium on Virtual Reality Software & Technology (VRST), 2015.
- ❖ Program Committee, Intl. Workshop on Human Perception & Psychology in Augmented Reality, 2015.
- ❖ Program Committee, Intl. Workshop on Collaboration and Virtual Environments (CoVE), 2015.

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- ❖ Program Committee, International Symposium on Visual Computing (ISVC), 2015.
- ❖ Organizing Committee, IEEE Virtual Reality Conference (IEEE VR), 2010 – 2014, 2016.
- ❖ Reviewer, Quarterly Journal of Experimental Psychology, 2015.
- ❖ Reviewer, Presence: Teleoperators and Virtual Environments, 2015.
- ❖ Reviewer, IEEE International Symposium on Mixed & Augmented Reality (ISMAR), 2007 – 2015.
- ❖ Reviewer, IEEE Symposium on 3D User Interfaces (IEEE 3DUI), 2015.
- ❖ Reviewer, IEEE Virtual Reality Conference (IEEE VR), 2006 – 2015.
- ❖ Review Editor, Frontiers in Virtual Environments, 2014.
- ❖ Reviewer, ACM Transactions on Applied Perception (ACM TAP), 2013 – 2014.
- ❖ Reviewer, ACM Special Interest Group on Computer-Human Interactions (SIGCHI), 2013 – 2014.
- ❖ Reviewer, International Journal of Human-Computer Studies (IJHCS), 2008 – 2014.
- ❖ Reviewer, IEEE Transactions on Visualization and Computer Graphics (TVCG), 2013.
- ❖ Judge, IEEE 3D User Interfaces Contest (IEEE 3DUI), 2012 – 2013.
- ❖ Reviewer, International Conference on Multimodal Interactions (ICMI), 2012.
- ❖ Judge, Mississippi School for Math & Science – Game Design Contest, 2010 – 2011.
- ❖ Student Volunteer, IEEE Virtual Reality Conference (IEEE VR), 2010.
- ❖ Member, Association of Computing Machinery (ACM).

### **UNIVERSITY SERVICE:**

- ❖ Faculty Search Committee, Spring 2016.
- ❖ Institute for Neurocognitive Science & Technology Steering Committee, 2007-2008.
- ❖ Mississippi State University Imaging Center of Excellence Quality Control Group, 2007-2009.
- ❖ Institute for Imaging and Analytical Technologies Host: Social Sciences Research Center - University of Catania (*Sicily, Italy*) Visiting Student Program, *Mississippi State University*, October 2010.
- ❖ MSU Liaison - Future Exchange Student Meeting, *Sookmyung Women's University (Seoul, South Korea)*/ *Mississippi State University*, May 2010.
- ❖ MSU Globe Trotters - Office of International Education, *Mississippi State University*, 2009-2011.
- ❖ Korean Exchange Student Orientation Volunteer, *Mississippi State University*, August 2009.
- ❖ Forum Moderator: Leadership Styles and Successful Leaders in Korea and the U.S., *Kwangwoon University (Seoul, South Korea)*, May 2009.

### **SELECTED RESEARCH PROJECTS:**

- ❖ fMRI Image-based Signal Analysis & Quality Assurance System
- ❖ The Virtual Schematic Eye: A Physiological Optics Approach to High-Fidelity Augmented Reality
- ❖ Measurement of Resting Ocular Vergence via a Modern Nonius Apparatus
- ❖ Automated Calibration of Display Characteristics using a Retinal Surrogate
- ❖ Health Interventions That Matter (HITM) for Preventative Health Maintenance
- ❖ Occupational Health & Safety Evaluation System for Animal Research
- ❖ Texture-based Volume Rendering for Medical and Cinematic Presentations.
- ❖ Peripheral Visual Cues and Their Effect on The Perception of Egocentric Depth in Virtual and Augmented Environments
- ❖ Egocentric Depth Perception in Optical See-Through Augmented Reality
- ❖ 6-DOF Motion Tracked Interactions for Use With Large, Tiled Projection Displays
- ❖ 3D Compass: Exploiting Perceptual Illusions to Calibrate Augmented Reality Displays
- ❖ Apokoliptoscope: A Table-top Augmented Reality Display
- ❖ Video-based Motion Tracking using Off-The-Shelf Components
- ❖ Real-Time Radiosity with Programmable Shaders in GLSL
- ❖ Spiral Graph: Information Visualization for System Analysis and Anomaly Detection
- ❖ Ray Casting & Isosurfacing for Volume Visualization