

# *Jason Jerald*

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## **OBJECTIVE**

A position conducting research and development in the area of interactive computer graphics and immersive virtual environments.

## **RESEARCH INTERESTS**

- Virtual & Augmented Environments
- Human-Computer Interaction
- Visual Perception
- Immersion & Presence
- Display Technologies
- Real-time Rendering
- Image- Based Rendering
- Psychophysics
- Real-Time Ray Tracing
- Latency
- Graphics Hardware
- User Studies

## **EDUCATION**

- Ph.D. in Computer Science** UNC Chapel Hill expected Dec 2008  
Dissertation: Scene-Motion Thresholds and Latency Thresholds in Virtual Environments  
Under the direction of Frederick P. Brooks, Jr.
- M.S. in Computer Science** UNC Chapel Hill Dec 2003  
Latency Compensation for Head-Mounted Virtual Reality
- B.S. in Computer Science** Washington State University Aug 1998  
Computer Graphics Specialization, minors in Mathematics and Electrical Engineering

## **WORK EXPERIENCE**

- UNC Chapel Hill** Aug 2001 – 2007  
**Research Affiliate, Effective Virtual Environments Research Group.** Investigated what makes immersive environments effective. Activities included modeling, real-time rendering, system integration, human computer interaction, software and hardware development, latency reduction / compensation, user studies, and demonstrations.
- UNC Chapel Hill** Jun 2006 – Jul 2006  
**Instructor, Introduction to Java Programming Course.** Designed and taught this course.
- NASA Ames Research Center** Jun 2005 – Oct 2005  
**Researcher, Advanced Display and Spatial Perception Laboratory.** Designed, implemented, ran psychophysics studies, and analyzed data for real and simulated motions in virtual and augmented reality.
- Naval Research Laboratories** May 2004 – Aug 2004  
**Contractor, Virtual Reality Laboratory.** Worked on the Battlefield Augmented Reality System (BARS) and the NRL CAVE. Duties included system upgrade, integration, and development.
- HRL Laboratories** Sep 1998 – Aug 2003  
**Research Staff, Human-Centered Systems Department.** Researched and developed interactive computer graphics applications. Projects included Distributed Design Review In Virtual Environments, Eye Gaze Correction for Videoconferencing, Direct Visualization of the Electronic Battlefield, Human Computer Symbiotes, Virtual Immersive Environments with Windows, Immersive Visualization for Computational Electromagnetics, Battlefield Information Integration and Visualization for Command, a PC CAVE cluster, and setup and maintenance of the first re-configurable CAVE.

## UNC Chapel Hill

Aug 2002 – Dec 2002

**Teaching Assistant, Exploring Virtual Worlds Course.** Setup software framework for student projects, debugged open source software, and helped students with technical problems.

## Washington State University

Apr 1998 – Aug 1998

**Research Assistant, Imaging Research Laboratory** Developed volumetric/implicit surfaces software (as a Maya plug-in), that takes a 'skeleton' and grows 'skin' by expanding to an implicit surface. The surfaces are smooth and get rid of the bulge problem evident using other methods.

## Argonne National Laboratories

May 1997 – Aug 1997

**Intern, Mathematical and Computer Sciences Division.** Designed software to be used in the CAVE (CAVE Automatic Virtual Environment), . The work integrated custom software, OpenInventor, the CAVE Library, and the I\_COLLIDE library from the University of North Carolina.

## Battelle Pacific Northwest National Laboratories

May 1996 – Aug 1996

**Intern, Immersive Virtual Environments Laboratory.** Collaborated with a small team on the design, implementation, and improvement of a virtual medical environment. The work included the intertwining of volumetric data along with traditional polygonal-based modeling. Responsibilities included the majority of programming for the virtual environment.

## ICF Kaiser Hanford

May 1994 – Aug 1994

**Intern, Design Services.** Created visualizations to support solutions of hazardous waste storage tank problems. Also evaluated software releases such as 3dStudio and AutoCAD.

## Westinghouse Hanford Company

Jun 1992 – Aug 1993

**Intern, Design Services.** Quickly moved into designer/modeler/ animator position after starting as Design Services Assistant. Used various software for engineering applications.

## PUBLICATIONS

- JERALD, J., STEINICKE, F., AND WHITTON, M. 2008. Scene-Motion Thresholds as a Function of Head Motion. Submitted to *Object Perception, Attention, and Memory*.
- STEINICKE, F., BRUDER, G., JERALD, J., FRENZ, H., AND LAPPE, M. 2008. Analyses of Human Sensitivity to Redirected Walking, *Proceedings of ACM Virtual Reality Software and Technology*, in press.
- STEINICKE, F., BRUDER, G., KOHLI, L., JERALD, J., AND HINRICH, K. Taxonomy and Implementation of Redirection Techniques for Ubiquitous Passive Haptic Feedback. *Proceedings of International Conference on Cyberworlds*, in press.
- JERALD, J., PECK, T., STEINICKE, F., AND WHITTON, M. 2008. Sensitivity to Scene Motion for Phases of Head Yaws, *Proceedings of ACM Applied Perception in Graphics and Visualization*, in press.
- JERALD, J., FULLER, A., LASTRA, A., WHITTON, M., KOHLI, L., AND BROOKS, F. 2007. Latency Compensation by Horizontal Scanline Selection for Head-Mounted Displays. *Proceedings of SPIE Stereoscopic Displays and Virtual Reality Systems*, Volume 6490, pp. 64901Q.
- ADELSTEIN, B. D., LI, L., JERALD, J., AND ELLIS, S. R. 2006. Suppression of Head-Referenced Image Motion During Head Movement. *Proceedings of The 50th Annual Meeting of Human Factors and Ergonomics Society*, pp 2678-2682.
- JERALD, J. 2004. Latency Compensation for Head-Mounted Virtual Reality. Technical Report, Report No. TR04-015, *University of North Carolina at Chapel Hill*.
- JERALD, J. AND DAILY, M. 2002. Eye Gaze Correction for Videoconferencing. *Proceedings of Eye Tracking Research and Applications Symposium*, pp. 77-81.
- JERALD, J., DAILY, M., NEELY, H., AND TINKER, P. 2001. Interacting with 2d Applications in Immersive Environments. *Proceedings of EUROIMAGE International Conference on Augmented Virtual Environments and 3d Imaging*, pp. 267-270.
- DAILY, M., HOWARD, M., JERALD, J., LEE, C., MARTIN, K., MCINNES, D., TINKER, P., AND SMITH, R. 2000. DDRIVE: Distributed Design Review in Virtual Environments. *Proceedings of Collaborative Virtual Environments*, pp. 57-63.

- NEELY, H., JERALD, J., TINKER, P., AND FOX, J. 1999. Human-Centered Interaction for Command and Control. Proceedings of *Raytheon Software Technology Symposium*.
- DAILY, M., SARFATY, R., JERALD, J., MCINNES, D., AND TINKER, P. 1999. The "Cabana": A Re-Configurable Spatially Immersive Display. Proceedings of *the Third International Immersive Projection Technology Workshop*, pp. 123-132.

## **PATENTS**

- NEELY, H., FOX, J., KOLSCH, M., SHOMPHE, M., JERALD, J. Method and Apparatus for Interacting with a Virtual Environment, patent pending.
- NEELY, H., TINKER, P., FOX, J., JERALD, J., AND NEELY, H. 2007. System and Method for Distributed Multimodal Collaboration Using a Tuple-Space. US Patent 7269623.

## **AWARDS**

<b>North Carolina Space Grant</b>	Aug 2006 – May 2008
<b>LINK Foundation Fellowship</b>	Aug 2006 – Jul 2007
<b>National Physical Science Consortium Fellowship</b>	Aug 2001 – May 2006
<b>Latané Fellowship in Interdisciplinary Living</b>	Aug 2003 – May 2004
<b>Associated Western Universities Grant</b>	May 1997 – Aug 1997
<b>SIGGRAPH Pioneer Grant</b>	Aug 1995
<b>Washington Software Association Scholarship</b>	Aug 1993 – May 1997

## **PROFESSIONAL ORGANIZATIONS & VOLUNTEER WORK**

<b>ACM SIGGRAPH Volunteer</b>	Jul 1995 – Current
Currently serving as SIGGRAPH 2009 Student Volunteer Manager and a member of the SIGGRAPH 2008 Student Volunteer Committees (one of six committee members managing 350+ international student volunteers for the third consecutive year). Previous positions included Student Volunteer Team Leader (four years managing students in various venues), Student Volunteer, General Reality Company volunteer, Emerging Technology demonstrations, Sketches reviewer, and Course reviewer.	
<b>Bell Tower Toastmasters</b>	June 2007 – Current
Practice and evaluation of speaking and leadership skills. Currently serving as President-Elect. Previously served as Vice President of Education.	
<b>IEEE Virtual Reality Volunteer</b>	Mar 2006 – Mar 2008
Served as a student volunteer for three years.	
<b>UNC Graphics Lunch Coordinator</b>	Jan 2002 – Jan 2004
Coordinated a popular weekly event at UNC. Speakers ranged from local graduate students to internationally recognized speakers.	

## **SOFTWARE DEVELOPMENT SKILLS**

Various computer languages (with a preference of C++), various graphics libraries (e.g., OpenGL, VRJuggler, OpenSG, EVEIL, Cg), modeling and animation packages (e.g., Maya and 3dStudio), Unix and Windows development.

## **REFERENCES**

Available upon request.