

Joel P. Martin

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Education

- M.S. Computer Engineering, Mississippi State University
August 2008
GPA: 4.0

Thesis: Results of a User Study on 2D Hurricane Visualization
Coursework: Visualization and image processing
- B.S. Computer Engineering and a Minor in Mathematics, Mississippi State University
May 2002
GPA: 3.66 (Magna Cum Laude)
- Mississippi School for Mathematics and Science
May 1998
GPA: 3.8

Work Experience

December 2003 to Present

**MSU Geosystems Research Institute (GRI), Starkville, MS
Research Associate I**

- Currently work on several projects through the Department of Defense High Performance Computing Modernization Program (HPCMP) Programming and Environment Training (PET) project. These projects have included eddy detection and visualization, ocean sedimentation visualization, and remote visualization with Kitware's WebVis.
- Currently serve as at-institution support for the Enabling Technologies Functional Area of the PET project. We provide assistance to users that utilize DoD HPC systems. This work has included writing data readers for Kitware's ParaView (ADCIRC, NOGAPS, GMS, SDS, Jpeg 3D, and NetCDF) and supporting customers with remote-visualization problems in ParaView, EnSight, and FieldView.
- Built and wrote software to utilize a two-tiered visualization cluster. This system had 20 Pentium 4 and Xeon machines connected to an IBM T221 monitor (9.2 million pixels, 4 DVI inputs). Oversaw two graduate students on a related project that allowed in-situ visualization of a CFD solution. The user was able to make modifications (angle of attack, wind speed, etc.) that will affect the future steps of the simulation and see those results as the simulation progressed.
- Previously involved in the day-to-day operations of MSU's CAVE, including software development, hardware maintenance, software maintenance, and giving tours.

May 2002 to December 2003

**Visualization, Analysis, and Imaging Laboratory (VAIL),
MSU Engineering Research Center (ERC), Starkville, MS
Graduate Research Assistant**

- Developed a Playstation to RS-232 converter using a Uicom SX28AC and a Maxim 3110ECNI. This device allows a Playstation controller to be connected to the SGI that runs the CAVE. The device ran 24/7 for almost two years, when we decommissioned the CAVE.
- Developed software for the CAVE using CAVElibs and OpenGL to visualize an aerosol moving through the bronchial tubes using data generated by Dr. Boyd Gatlin.
- Worked with Dr. Stephanie Doane and Randy Brou from the MSU Psychology Department and implemented their ideas for an interface to the ocean sedimentation codes developed by Dr. Rhonda Vickery.

January 2001 to May 2001

**Mississippi School for Mathematics and Science, Columbus, MS
Instructor**

Co-taught the Electronics course for high school juniors and seniors at MSMS. The students learned about analog circuits, digital circuits, and microcontrollers through the design and construction of robots. The Basic Stamp microcontroller was the main development platform for the class.

May 2000 to August 2000

**Intel Corporation, Beaverton, OR
Intern**

Member of the development team for the Intel® NetStructure™ 1010, a Linux-based server appliance. The appliance supports multiple domains, each using HTTP, FTP, and mail. It can be controlled using a custom-built web interface written in Perl.

May 1999 to August 1999

**University of Mississippi Medical Center, Jackson, MS
Summer Student Worker**

Computer system administrator and programmer for the Department of Physiology. Wrote macros for the OPTIMAS software package in a C-like language. The macros allowed a user to determine the optical density of a sample under a microscope. The researchers used this to quantify how “brown” a tissue sample appears after it had been stained.

October 1998 to May 1999

**Southern Computing Solutions, Starkville, MS
IT Consultant**

Provided IT services to the School of Human Sciences at Mississippi State University. Responsibilities included network design, troubleshooting, and preventative maintenance for UNIX and Windows machines.

Honors and Activities

- Recipient of the Joseph Barrier Graduate Fellowship
- Recipient of the Mississippi Eminent Scholars Grant (August 1998 to May 2002)
- Recipient of the Entering Freshman Academic Scholarship (August 1992 to May 2002)
- Inducted into Tau Beta Pi, the Engineering Honor Society (November 2001)
 - Secretary of the MSU chapter (August 2003 to August 2004)
 - Vice-president of the MSU chapter (August 2002 to August 2003)
- Inducted into Upsilon Pi Epsilon, the Computer Science Honor Society (April 2002)
 - Treasurer of the MSU chapter (May 2002 to May 2004)
- Inducted into Eta Kappa Nu, Electrical Engineering Honor Society (April 2002)
- Member of the Institute of Electrical and Electronics Engineers (IEEE) (August 2000 to December 2008)
 - Student Volunteer for the 2004 and 2005 IEEE Visualization Conferences
 - Treasurer of the MSU chapter (May 2002 to May 2003)
 - Vice-chair of the MSU chapter (May 2001 to May 2002)
- Bulldawg Cycling Club Founding Member (February 2004 to Present)
 - Secretary/Treasurer (February 2004 to Present)
- League of American Bicyclists Certified Instructor

Publications

Joel P. Martin, Rhonda Vickery, Rick Angelini, Sean Ziegeler, "SSH-Enabled ParaView," *Proceedings of the DoD HPCMP Users Group Conference 2009*, San Diego, CA, June 15-18, 2009, IEEE Computer Society, in press.

Joel P. Martin, Rick Angelini, Rhonda Vickery, "Simplified SSH Tunnels for ParaView Client/Server," *HPC Insights*, Spring 2009, pp. 27-29.

Jean Mohammadi-Aragh, Sean Ziegeler, **Joel Martin**, and Robert Moorhead, "Visualization of Time-Varying Features," *Proceedings of the DoD HPCMP Users Group Conference 2008*, Seattle, WA, July 14-17, 2008, IEEE Computer Society, pp. 396-399.

Joel P. Martin, J. Edward Swan II, Robert J. Moorhead II, Zhanping Liu, and Shangshu Cai, "Results of a user study on 2D hurricane visualization," *Computer Graphics Forum*, vol. 27, no. 3, pp. 991-998, May 2008. Presented at the EuroVis conference held May 26-28, Eindhoven, Netherlands.

R. Vickery, **J. Martin**, J. Fowler, R. Moorehead, Y. Dandass, T. Atkinson, A. Cedilnik, P. Adams, J. Clarke, "Web-Based High Performance Remote Visualization," DoD High Performance Computing Modernization Program Users Group Conference, 18-21 June 2007, pp. 364 - 369.

R J Vickery, A Cedilnik, **J P Martin**, Y Dandass, T Atkison, R J Moorhead, J Clarke, and P Adams, "Web-based Secure High Performance Remote Visualization," *Journal of Physics: Computer Series* 46, SciDAC 2006, pp. 545-549.

B. J. Groner, M. Lee, R. Moorhead, **J. Martin**, J. Newman, "Concurrent Visualization of Parallelized Computational Fluid Dynamics Code," in Proc. High Performance Computing Symposium 2006, L. Watson (ed.), Soc. for Modeling and Simulation International, Huntsville, AL, April 2006.

J.P. Martin, R.J. Moorhead, M.A. Chupa, D.W. Irby, "Interactive, Cluster-based Visualization." High Performance Computing Symposium, April 2-8, 2005, San Diego, CA.

J.P. Martin, G.P. Gopal, M.J. Mohammadi-Aragh, and L. Boggess, (2003). "Text Entry Via Palm™ Handheld in an Immersive Virtual Environment," Proceedings of the Human Factors and Ergonomics Society 47th Annual Meeting.

Presentations

Joel P. Martin, "ParaView Productivity Enhancements for DoD", Department of Energy Computer Graphics Forum, Monterey, CA, April 2009.

Reports

Sean Ziegeler, Mahnas Jean Mohammadi-Aragh, **Joel Martin**, Robert Moorhead, "Visual Data Analysis and Feature Extraction for CWO Data: Final Report," Final report for PET project ET-KY8-001, May 2009.

Sean Ziegeler, **Joel Martin**, John van der Zwaag, Robert Moorhead, "Parallel JPEG-2000-3D Compression of Structured Data Sets: Final Report," Final report for PET project ET-KY8-002, May 2009.

Joel P. Martin, J. Edward Swan, Robert J. Moorhead II, Zhanping Liu, and Shangshu Cai, "HPCVI Final Report: Hurricane Visualization User Study," HPCVI Final Report, August 2007.

Zhanping Liu, J. Edward Swan II, Shangshu Cai, Robert J. Moorhead II, **Joel P. Martin**, "Flow Visualization User Study," HPCVI Final Report, August 2007.

Robert Moorhead, Rhonda Vickery, Andy Cedilnik, **Joel Martin**, James Fowler, Ken Martin, "High-Performance Secure Remote Visualization using WebVis," Final report for PET project RMV-KY6-001, May 2007.

Robert Moorhead, Rhonda Vickery, Andy Cedilnik, Yogi Dandass, Travis Atkinson, **Joel Martin**, Ray Vaughn, Ken Martin, High-Performance Secure Remote Visualization using WebVis, Final Report for PET Project RMV-KY5-001, May 2006.

Rhonda Vickery, **Joel Martin**, Jean Mohammadi, Nick Nystrom, Jean Blaudeau, Multi-Dimensional Visual Data Mining, Final Project Report for PET Project DMN-KY5-003, May 2006.