Nathaniel Duca

CONTACT INFORMATION

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RESEARCH INTERESTS

Debugging and profiling techniques, game development, level of detail, mesh processing, L-systems, stream processing, digital photography, parallel rendering, graph visualization

EDUCATION

Johns Hopkins University, Baltimore, MD
B.S., Computer Science, May, 2004 with depatrmental honors.
Senior thesis on *Applications and Execution of Stream Graphs*

PROFESSIONAL EXPERIENCE

Sony Computer Entertainment US Resarch and Development
Lead Programmer, RSX Tools Group **September, 2005 - present**
Formed and led development of PS3 graphics tools; invented novel techniques for finding bugs/bottlenecks on RSX and Cell; organized numerous customer visits to assist in PS3 launch process.

Firaxis Games,
Graphics programmer for Sid Meier's Civilization IV **January, 2005 - September, 2005**
Invented and implemented the game's seamless transition from game level to "globe view"; came up with a constraint-based L-system layout algorithm to create the cities, suburbs and other detail element found in the game world; miscellaneous other graphics development tasks.

Computer Graphics Lab, Johns Hopkins
Research Assistant **September, 2001 - January, 2005**
Lead programmer & developer on the relational debugging engine (SIGGRAPH 2005 paper, "A Relational Debugging Engine for the Graphics Pipeline"); lead programmer on the *Geometric Level of Detail* (GLOD) API (http://www.cs.jhu.edu/ graphics/GLOD/; various other research projects.

Digital Media Center, Johns Hopkins
Student Staff **September, 2001 - May, 2004**
Advised and tutored students on image manipulation, graphic design, and 3D modeling, techniques, and tricks. In parallel, created a variety of virtual sculptures, artworks, and collaborative pieces.

IBM Research, Hawthorne, NY
Summer Intern **Summer, 2001 and Summer, 2002**
Analyzed the latency and bandwidth aspects of the DeepView parallel rendering cluster. Developed a caching scheme to compress arbitrary OpenGL command streams.

Computer Associates, Islandia, NY
Summer Intern **Summer, 2000**
Developed tools for network discovery and visualization for performance and vulnerability analysis. The resulting software is available at `http://netradar.sourceforge.net/`.

REFERENCES

Available on request.