Michael A. Lentine

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Summary

Software engineer with experience in computer graphics, numerical analysis, and physical simulation

Work experience in computer science and engineering at high technology companies

Awards

Intel Graduate Fellowship	*2009, 2010*
Phi Kappa Phi	*Spring 2007*
Phi Beta Kappa	*Fall 2006*
Debusmann Endowed Scholarship	*2006*
Dean's List six semesters	*2003 - 2006*

Education

Stanford University, Stanford, CA	**GPA 4.00/4.00**
Ph.D. in Computer Science	*June 2012*
Carnegie Mellon University, Pittsburgh, PA	**QPA 3.97/4.00**
Bachelor of Science in Computer Science	*December 2006*
Minor in Political Science	

Teaching

Instructor, *Stanford University*, Interactive Computer Graphics	*Spring 2013*
Course Speaker, *SIGGRAPH 2011*, PhysBAM: Physically Based Simulation	*Summer 2011*
Teaching Assistant, *Stanford University*, Math and Computer Science Behind Special Effects	*Spring 2011*
Teaching Assistant, *Stanford University*, Mathematical Methods for Computer Vision, Robotics, and Graphics	*Fall 2008*

Work Experience

Software Engineer, *Google, Mountain View, CA, 94043*　　　　　*March 2014 - Present*
- Designed and developed tools to help developers produce high quality graphics on Android
- Addressed a number of issues and improved the user experience for the Android Lollipop releases
- Worked with external vendors to improve the quality of graphics drivers on Nexus devices
- Designed and implemented a lightweight, fast, cross-platform math library (MathFu)
- Designed and implemented a performance analysis tool for native Android apps (fplutil)

Principal Engineer, *Lucasfilm, San Francisco, CA, 94129*　　　　　*May 2008 - Feburary 2014*
- Designed and implemented a high quality mesh reduction tool for artists in Maya
- Designed and developed simulations and advection rules for particle systems within the Unreal Engine
- Designed and developed a realistic deformation system for characters
- Designed and implemented new simulation tools and algorithms (won an Academy Award)
- Designed and developed a new simulation system for large scale rigid scenes used in *Super 8*
- Wrote and presented a technical talk on a new deforming rigid body system used in *Avatar*
- Responsible for maintaining and improving ILM's core physical simulation system
- Designed and wrote test cases to test various features of simulation

PNG Intern, *Pixar Animation Studios, Emeryville, CA, 94608*　　　　　*January 2007 - July 2007*
- Improved performance and robustness of internal software in Perl, Python, and C/C++

- Designed and developed numerous web interfaces for bug management and tracking using Perl, Python, CGI, HTML, and JavaScript
- Designed and developed performance analysis tools using Python and C/C++

AIX Quality Intern, *IBM Corp, Austin, TX, 78758*   *May 2005 - August 2005*
- Wrote C functional verification tests for IBM AIX quality improvement software
- Wrote Perl and Shell scripts to automate functional verification testing
- Designed and wrote scripts and a Java GUI application to allow AIX testers to determine how well their test cases function

Summer Intern, *Internet Photonics Inc./Common Agenda/Ciena Corp, Shrewsbury, NJ, 07702   May 2004 - August 2004, June 2003 - August 2003, and June 2002 - August 2002*
- Designed and wrote a web interface using CGI, JavaScript, and HTML for executing automated software tests for telecommunications equipment
- Wrote Perl and TCL scripts to automate software testing for telecommunications equipment
- Wrote Java applications to automate HTML form testing for telecommunications equipment
- Wrote program in Labview to control instruments that measured Gigabit Ethernet packet errors
- Helped install fiber-optic telecommunications equipment at customer sites
- Assembled and tested optical filters and amplifiers for fiber-optic telecommunications products

PUBLICATIONS

English E., Lentine, M., and Fedkiw, R., **Interpenetration Free Simulation of Thin Shell Rigid Bodies**, *IEEE Transactions on Visualization and Computer Graphics 19, 991-1004* (2013).

Lentine, M., **Fast and Scalable Method for the Simulation of Incompressible Flow**, *Stanford University Department of Computer Science Thesis* (2012).

Lentine, M., Cong M., Patkar S. and Fedkiw, R., **Simulating Free Surface Flow with Very Large Time Steps**, *ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA)* (2012).

Lentine, M., Aanjaneya M. and Fedkiw, R., **Mass and Momentum Conservation for Fluid Simulation**, *ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA)* (2011).

Lentine, M., Gretarsson, J. and Fedkiw, R., **An Unconditionally Stable Fully Conservative Semi-Lagrangian Method**, *Journal of Computational Physics 230, 2857-2879* (2011).

Lentine, M., Zheng W. and Fedkiw, R., **A Novel Algorithm for Incompressible Flow Using Only a Coarse Grid Projection**, *SIGGRAPH 2010, ACM Transactions on Graphics 29, 4* (2010).

Criswell, B., Lentine, M. and Sauers S. **Avatar : Bending Rigid Bodies**, *SIGGRAPH 2010 Talks.*

Lentine, M., Gretarsson, J., Schreoder, C., Robinson-Mosher, A. and Fedkiw, R., **Creature Control in a Fluid Environment**, *IEEE Transactions on Visualization and Computer Graphics 17, 682-693* (2011).

Selle, A., Lentine, M. and Fedkiw, R., **A Mass Spring Model for Hair Simulation**, *SIGGRAPH 2008, ACM Transactions on Graphics 27, 64.1-64.11* (2008).

SKILLS

Programming: C, C++, Python, ML, Perl, TCL/Expect, Shell scripting, Java, Objective-C, Fortran, Pascal, BASIC, Lisp, MEL, Matlab, Labview, HTML, JavaScript

Operating Systems: Windows/DOS, Unix/Linux, Macintosh OS, iOS, Android

Applications: Maya, Unreal Engine, Microsoft Visual Studio, Microsoft Office, Vi, LaTeX, Adobe Photoshop, Macromedia Flash, etc.