

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

TEACHING

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

WORK EXPERIENCE

Software Engineer , <i>Google, Mountain View, CA, 94043</i>	March 2014 - Present
<ul style="list-style-type: none">• 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 , <i>Lucasfilm, San Francisco, CA, 94129</i>	May 2008 - February 2014
<ul style="list-style-type: none">• 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 <i>Super 8</i>• Wrote and presented a technical talk on a new deforming rigid body system used in <i>Avatar</i>• Responsible for maintaining and improving ILM's core physical simulation system• Designed and wrote test cases to test various features of simulation	
PNG Intern , <i>Pixar Animation Studios, Emeryville, CA, 94608</i>	January 2007 - July 2007
<ul style="list-style-type: none">• 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., Schroeder, 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, L^AT_EX, Adobe Photoshop, Macromedia Flash, etc.