

## Todd D. Keeler

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### Degrees

- Ph.D. Computer Science, University of British Columbia, Jan 2012 - current (Thesis submitted, Expected Completion - 2017 Summer)
- M.Sc. Applied and Computational Mathematics, Simon Fraser University, September 2005 - September 2007 (Completed December 2011)
- Ph.D. Applied and Computational Mathematics, Simon Fraser University, September 2007 - August 2011 unfinished
- B.Sc. Specialization in Computational Science (Math), University of Alberta, 2005
- B.Sc. Specialization in Physics, University of Alberta, 2004

### Awards

- Mitacs Graduate Internship: November 2012 - August 2013
- BCIC: Innovation Scholar September 2007 - September 2010
- Mitacs-Nserc IPS Scholarship: September 2007 - September 2010
- Mitacs Graduate Internship: January 2007 - May 2007  
Won an Accelerate BC, Internship Award of Excellence.
- Special Graduate Entrance Award: October 2005, October 2006
- NSERC Undergraduate Research Award: May 2005, May 2004

### Publications

*Ocean Waves Animation using Boundary Integrals and Explicit Mesh Tracking*  
Todd Keeler and Robert Bridson, ACM SIGGRAPH/Eurographics Symposium on Computer Animation 2014 - Best Technical Paper Award

*Linear-Time Smoke Animation with Vortex Sheet Meshes*  
Tyson Brochu, Todd Keeler, and Robert Bridson, ACM SIGGRAPH/Eurographics Symposium on Computer Animation 2012

*Population Model of The Stability-Flexibility Tradeoff*  
Burton Voorhees, Joseph Senez, Todd Keeler, Martin Connors, Advances in Complex Systems, Volume 11, issue 3 2008, pp. 443-470

*The Spherical Visibility Map*  
Todd Keeler, John Fedorkiw, and Sherif Ghali, Computer-Aided Design, Volume 39, Issue 1, January 2007, Pages 17-26

*Probabilistic Induction of Cellular Automata Rules: II. Probing CA Rule Space*  
Burton Voorhees, Rhyon Arthur, and Todd Keeler, Inter. Jour. of Unconventional Comp., Vol. 3 Num. 3, 2006

*Probabilistic Induction of Cellular Automata Rules: I. A Reinforcement Scheme*  
Burton Voorhees, Rhyon Arthur, and Todd Keeler, Inter. Jour. of Unconventional Comp., Vol. 2 Num. 2, 2006

*Unstructured Meshes and Finite Elements in Space Plasma Modelling*  
Marchand R, J.Y. Lu, K. Kabin, R. Rankin, and T. Keeler, Proceedings of ISSS-7., PP. 26-31, March, 2005.

**M.Sc. Thesis** *An integral equation method for solving Laplaces equation with Robin boundary conditions*

## Experience

- November 2015 - Present, Software Engineer at Double Negative:  
Optimizing and Maintaining Ocean and Water simulations for Visual Effects
- March - Oct 2015, Contracting for the University of British Columbia:  
commercialization of automatic hexahedral mesh generating software
- August 2013 - Dec 2014, Contracting for Nome Consulting:  
cloud based high throughput network debugging and development for large scale applications  
using the Go programming language (golang.org)
- November 2012 - September 2013, Microsoft Studios:  
commercialization of mesh based smoke effects for computer games; research on surface based  
wave dynamics for fluid animation
- September 2007 - September 2010, Radical Entertainment:  
working on real-time smoke simulations for computer games.
- May - Aug. 2005, University of Alberta, Dept. of Computer Science:  
researching vector visibility in computational geometry
- May - Aug 2005 & 2004, University of Athabasca:  
researching cellular automata schemes
- May - Oct. 2004, University of Alberta, Dept. of Physics:  
researching mesh generation in computational space physics.
- May 2003 - Dec. 2003 University of Alberta, Dept. of Biology:  
development of computation clusters and modification of genetic search algorithms for data  
mining and microarray analysis

## Skills

### **Significant Experience:**

C++, GPU Computing (OpenCL), Python, Linux, OpenGL, Conversant French, Communication,  
Teaching, Writing (Technical and Prose)

### **Plugin Writing Experience**

Houdini, Clarisse, Maya

### **Familiar With:**

Go, Visual Studio, Perforce, Git, Svn, Qt, Javascript, Node.js, Django, Perl, MPI, Supervising