



Isaac Dooley

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Profile

Isaac Dooley is a Department of Energy High Performance Computer Science Fellow who received his M.S. Degree from the University of Illinois in Computer science and his B.S. in Mathematics and Computer Science from Birmingham-Southern College. He now is pursuing a Ph.D. at the University of Illinois. He works with his advisor Professor Laxmikant Kale in the Parallel Programming Laboratory and with Professor William Gropp.

Objective

Isaac Dooley intends to graduate with a Ph.D. around August 2010, at which point he hopes to continue working in the high performance computing and parallel programming field, either in the industry or at a research institution. His interests include automatic performance tuning, scalable performance analysis, performance visualization, and adaptive behaviors in parallel runtime systems.

Education

2004-Present University of Illinois, Ph.D. program, Computer Science
2004-2006 University of Illinois, MS Degree, Computer Science
2000-2004 Birmingham-Southern College (BSC), BS Degree, Summa Cum Laude
Majors: Mathematics, Computer Science

Awards

2005-2009 Department of Energy *High Performance Computer Science Fellowship*
2004 *Faculty Outstanding Mathematics Senior Award*
2003-2004 *Vail Research Fellow*
2003 Recipient of *The Acton Award in Mathematics*
2002 1st place ACM 2002 Regional Computer Programming Competition (Division 2)

1997-2000 National Math Team Champion in High School
2000 Voted Most Intellectual in High School
1999 Eagle Scout, Boy Scouts of America

Elected Positions

2003-2004 President of BSC Association for Computing Machinery chapter
2002-2004 President of BSC Intersivity Christian Fellowship Chapter
2002-2003 Vice President of BSC Association for Computing Machinery chapter
2002-2003 Vice President of BSC Kappa Mu Epsilon chapter (Math Honorary)

Work Experience

2009-Present Graduate Research Assistant. Parallel Programming Lab. University of Illinois
2005-2009 Department of Energy High Performance Computer Science Fellow
2007 Summer Practicum. Lawrence Livermore National Lab
2006 Summer Practicum. Sandia National Lab
2004-2005 Graduate Research Assistant. Parallel Programming Lab. University of Illinois
1998-2004 Co-founder, Webmaster, IT Manager. ALtruis LLC.

Computer Skills

Expert C, C++, Java, MPI, Charm++, Mac OSX, Linux
Proficient Fortran, Matlab, Perl, PHP, HTML, CSS, Bash, SQL, Posix Threads, Java Threads,
CVS, Git, SVN, Networking, Eclipse, Photoshop, Dreamweaver, LaTeX

Peer Reviewed Journal Publications

Orion Lawlor, Sayantan Chakravorty, Terry Wilmarth, Nilesh Choudhury, Isaac Dooley, Gengbin Zheng, and Laxmikant Kale; **ParFUM: A Parallel Framework for Unstructured Meshes for Scalable Dynamic Physics Applications**; in *Engineering with Computers*, 22:215–235, September 2006

Isaac Dooley and Sandhya Mangala and Laxmikant Kale and Philippe Geubelle; **Parallel Simulations of Dynamic Fracture Using Extrinsic Cohesive Elements**; *Journal of Scientific Computing*, 39(1):144-165 April 2009

Peer Reviewed Conference Publications

Isaac Dooley, Chee Wai Lee, and Laxmikant V. Kale; **Continuous Performance Monitoring for Large-Scale Parallel Applications**; accepted to *International Conference on High Performance Computing 2009*

Peer Reviewed Workshop & Symposia Publications

Orion Lawlor, Hari Govind, Isaac Dooley, Michael Breitenfeld, and Laxmikant Kale; **Performance Degradation in the Presence of Subnormal Floating-Point Values**; in *OSIHPA Workshop at PACT05, September 2005*.

Isaac Dooley and Laxmikant Kale; **Quantifying the Interference Caused by Subnormal Floating-Point Values**; in *OSIHPA Workshop at PACT06, September 2006*.

Isaac Dooley, Chao Mei, Laxmikant V. Kale; **NoiseMiner: An Algorithm for Scalable Automatic Computational Noise and Software Interference Detection**; in *Proceedings of HIPS Workshop at IEEE International Parallel and Distributed Processing Symposium 2008*

Aaron Becker, Isaac Dooley, and Laxmikant Kale; **Flexible Hardware Mapping for Finite Element Simulations on Hybrid CPU / GPU Clusters**; *Symposium on Application Accelerators in HPC, 2009*

Isaac Dooley and Laxmikant V. Kale; **Detecting and Using Critical Paths at Runtime in Message Driven Parallel Programs**; *12th Workshop on Advances in Parallel and Distributed Computing Models (APDCM 2010) at IPDPS 2010*

Isaac Dooley, Chao Mei, Jonathan Lifflander, Laxmikant V. Kale; **Memory Aware Scheduling in Message Driven Parallel Programs**; *under review*