

SAEED MALEKI

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EDUCATION

- Ph.D. in Computer Science,** Spring 2009 - Present
University of Illinois at Urbana-Champaign. GPA: 3.97/4.00
Advisers: Prof. David Padua and Prof. Maria Garzaran
- B.Sc. in Mathematics and Computer Science,** Fall 2004 - Fall 2008
Sharif University of Technology, Tehran, Iran. GPA: 18.0/20

RESEARCH INTEREST

- **Parallel graph and dynamic programming algorithm**
- **Abstraction for parallel programming of irregular applications**
- **Compiler analysis and evaluation**

SKILLS

- **Programming:** C, C++
- **Parallel Programming:** MPI, OpenMP, Pthreads, Chapel, Vector Instructions for Altivec, SSE/AVX and NEON
- **Operating Systems:** Linux, AIX, Windows
- **Mathematical Background:** Linear Algebra, Combinatorics, Abstract Algebra, Real Analysis

AWARDS AND HONORS

- *Ranked 2nd (Silver Medal) among more than 20,000 contestants in the 21st National Mathematics Olympiad, Iran* 2003
- *Qualified to study two majors (Mathematics and Computer Science) simultaneously at Sharif University of Technology, Iran* 2006

RESEARCH EXPERIENCE

- **University of Illinois at Urbana-Champaign**
Graduate Research Assistant, Supervised by Prof. David Padua Fall 2011 - Present
Working on parallelizing graph applications for small and large scale parallel systems.
- **University of Illinois at Urbana-Champaign**
Graduate Research Assistant, Supervised by Prof. David Padua Spring 2009 - Spring 2011
Worked on evaluation of compilers' capabilities in auto-vectorization including XLC, ICC and GCC and studying compiler/hardware limitations.
- **Microsoft Research**
Research Intern, Supervised by Madanlal Musuvathi in RiSE Research Group Spring 2014
Worked on parallelizing high-dimension Hidden-Markov Model (HMM) solvers including voice recognition algorithms.
- **Microsoft Research**
Research Intern, Supervised by Madanlal Musuvathi in RiSE Research Group Summer 2013
Worked on parallelizing inherently sequential dynamic programming algorithms.

- **Microsoft**
Intern, Supervised by Jim Radigan in Microsoft Visual Studio Summer 2012
 Worked on auto-vectorization for Visual C++ Dev.
- **Carnegie Mellon University**
Visiting Scholar, Supervised by Franz Franchetti in Spiral Project Summer 2011
 Worked on highly optimized digital signal processing (DSP) code generator for ARM processor.

PUBLICATIONS

- **Saeed Maleki**, Madanlal Musuvathi, Todd Mytkowicz. Parallelizing Low-Rank Dynamic Programming, *Under review for ACM Transactions on Parallel Computing Journal*. Mar. 2015
- **Saeed Maleki**, G. Carl Evans, David Padua. Tiled Linear Algebra: A System for Parallel Graph Algorithms, *The 27th International Workshop on Languages and Compilers for Parallel Computing (LCPC'14)*, Hillsboro, Oregon. Sep. 2014
- **Saeed Maleki**, Madanlal Musuvathi, Todd Mytkowicz. Parallelizing Dynamic Programming through Rank Convergence, *19th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPOPP'14)*, Orlando, Florida. Feb. 2014
- Albert Sidelnik, **Saeed Maleki**, Maria Garzaran, Brad Chamberlain, David Padua. Performance Portability with the Chapel Language, *26th IEEE International Parallel & Distributed Processing Symposium (IPDPS'12)*, Shanghai, China. May 2012
- **Saeed Maleki**, Yaoqing Gao, Maria Garzaran, Tommy Wong, David Padua. An Evaluation of Vectorizing Compilers, *Parallel Architectures and Compilation Techniques (PACT'11)*, Galveston Island, Texas. Oct. 2011
- Maria Garzaran, **Saeed Maleki**, William Gropp, David Padua. Program Optimization through Loop Vectorization, Tutorial, Presented in *PLDI'11, CGO'11, SC'10*.

PATENTS

- **Parallel Dynamic Programming through Rank Convergence**, Saeed Maleki, Madanlal Musuvathi, Todd Mytkowicz.
 Filed by Microsoft. Fall 2013

IN PREPARATION

- **Saeed Maleki**, Donald Nguyen, Andrew Lenharth, David Padua, Keshav Pingali. Blocked-Asynchronous Dijkstra: A Faster Parallel SSSP Algorithm.

TALKS

- **Tiled Linear Algebra: A System for Parallel Graph Algorithms**
 - LCPC'14 Workshop, Hillsboro, OR. Fall 2014
 - Compiler Seminar at UIUC, Urbana, IL. Fall 2014
- **Parallelizing Voice Recognition Algorithms**
 - Microsoft Research, Redmond, WA. Spring 2014
- **Parallelizing Dynamic Programming through Rank Convergence**
 - PPOPP'14 Symposium, Orlando, FL. Spring 2014
 - Compiler Seminar at UIUC, Urbana, IL. Fall 2013
 - Microsoft Research, Redmond, WA. Summer 2013
- **Blocked-Asynchronous Dijkstra: A Faster Parallel SSSP Algorithm**
 - University of Texas at Austin, Austin, TX. Fall 2014

- Microsoft Research, Redmond, WA. Summer 2013
- **Auto-Vectorization for Visual Studio C/C++ Compiler**
 - Microsoft, Redmond, WA. Summer 2012
- **An Evaluation of Vectorizing Compilers**
 - PACT'11 Compiler, Galveston Island, TX. Fall 2011
 - Intel, Champaign, IL. Spring 2012
 - UPCRC Symposium, Microsoft Research, Redmond, WA. Fall 2010
 - Carnegie Mellon University, Pittsburgh, PA. Summer 2011
- **Highly-Optimized Digital Signal Processing Code Generator for ARM**
 - Carnegie Mellon University, Pittsburgh, PA. Summer 2011

PROFESSIONAL ACTIVITIES

- Artifact Evaluation Committee for PLDI'14, Reviewer for TPDS'14, PACT'14, SC'13, JPDC'13, CC'13.
- Member of Grad Student Admission Committee at UIUC, Department of Computer Science, 2012.