

Ian Karlin

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US Citizen

Research Interests:

- Numerical Algorithms
- Effects of the Memory Hierarchy's Utilization on Algorithm Performance

The goal of my research is to create efficient BLAS and numerical algorithms by effectively utilizing the memory subsystem of computers.

Present Employment:

- **Ph.D. Candidate** in Computer Science, University of Colorado at Boulder (Advisor Elizabeth Jessup).
- **Research Assistant** for the University of Colorado at Boulder, working on developing composed BLAS algorithms using memory-centric design (August 2006 – Present).

Relevant Past Employment:

- **Intern** at Sandia National Laboratory, California, working on the design and implementation of a parallel block matrix multiply for the multigrid preconditioning package ML (May 2007 – August 2007).
- **Givens Associate** at Argonne National Laboratory, in the Mathematics and Computer Science Division, working on performance analysis and tuning of the OpenAD software package (May 2006 – August 2006).
- **Teaching Assistant** for the University of Colorado at Boulder, the capstone course Software Engineering 1 and 2 (August 2005 – May 2006).
- **Intern** at the Temptime Corporation in Research and Development Lab, developing software to interact with so instruments and testing new instrumentation systems (July 2004 – September 2004, April 2005 – July 2005, December 2005 – January 2006).

Education:

- M. S. in Computer Science, University of Colorado, Boulder (May 2007).
- B. S. in Computer Science, University of California, Davis graduated with honors (June 2005).

Publications:

I. Karlin. Colorado Celebration of Women in Computing (CCWIC). Boulder, CO, April 2008 (submitted), 5 pages.

J. G. Siek, I. Karlin, and E. R. Jessup. Build to Order Linear Algebra Kernel. Workshop on Performance Optimization for High-Level Languages and Libraries (POHLL'08). Miami, FL, April, 2008 (to appear), 8 pages.

I. Karlin and J. Hu. Implementing and Profiling a Variable Block Matrix-Matrix Multiply in ML. Technical Report CSRI Summer Proceedings 2007, pages 49-56, Sandia National Labs, December 2007.

I. Karlin and J. Utke. Practical Effects of Local Jacobian Preaccumulation, Combinatorial Scientific Computing Workshop at Computational Science and Engineering 2007. Costa Mesa, California, February 2007, 2 pages.

I. Karlin and J. Utke. AD Source Transformation and Performance Metrics, Software Transformation Systems Workshop at Generative Programming and Component Engineering. Portland, Oregon, October 2006, 2 pages.

Presentations:

Automatic Creation of Memory-Efficient Linear Algebra Routines, 13th SIAM Conference on Parallel Processing for Scientific Computing, Atlanta, GA, March 2007 (in preparation).

Service:

University of Colorado at Boulder, Department of Computer Science, 2008 Faculty Search Committee Student Representative (August 2007 – Present).

University of Colorado at Boulder, Department of Computer Science, Executive Committee Student Representative (August 2007 – Present).

University of Colorado at Boulder, Department of Computer Science, Graduate Committee Student Representative (August 2006 – May 2007).

Skills:

Computer Languages: C, C++, Fortran77, Fortran90, MATLAB, MPI, SQL

Environments: Linux, Mac OSX, Windows

Profiling: PAPI, MPE