Christina Oberlin

CONTACT INFORMATION

University of Wisconsin-Madison
Department of Computer Science
1210 W. Dayton St.
Madison, WI 53706

Voice: (608) 283-5574
E-mail: coberlin@cs.wisc.edu
Web: www.cs.wisc.edu/~coberlin

OBJECTIVE

To obtain a position solving complex problems using mathematics and computer programming. Must be in the Los Angeles area.

PERSONAL

U.S. citizen, born May 21, 1980.

EDUCATION

University of Wisconsin, Madison, Wisconsin

Ph.D. in Computer Science, expected August 2007.
- Thesis: *Techniques for Degenerate Problems in Nonlinear Equations and Nonlinear Optimization*
- Advisor: Stephen J. Wright

Florida State University, Tallahassee, Florida

B.S. (*summa cum laude*) in Mathematics and Physics, April 2002.

EXPERTISE

Mathematics: algorithmic analysis and design, linear algebra, and real analysis.

Programming: C/C++, Perl, SQL, Matlab, and GAMS.

EXPERIENCE

Graduate research assistant in Optimization, University of Wisconsin, supervised by Dr. Stephen J. Wright, 2002-present.
- Developed and analyzed algorithms for optimization and equilibrium problems.
  1. *The convergence of Newton's method with a simple acceleration technique for reformulated, degenerate nonlinear complementarity problems.*
     Determined weak conditions under which nearby solutions will be found quickly. Implemented the algorithm and demonstrated its success. This algorithm is simpler or more computationally efficient than other known algorithms.

  2. *Techniques for identifying active constraints at the solution of a nonlinear program.*
     Proved the accuracy of a technique based on sequential linear programming under conditions weaker than previously known. Conducted extensive computational testing. Determined effective modeling and solver options and found that identification results from a technique based on a linear program with equilibrium constraints are reliably approximated by a simpler technique based on a linear program.

Undergraduate research assistant in Materials Science, Florida State University, supervised by Dr. Per Arne Rikvold, 1999-2002.
- Programmed and analyzed models of magnetic materials and gels.

Summer Research Assistant in Experimental Atomic Physics, University of Washington, supervised by Dr. Michael Romalis, 2000.
- Built circuits, set up lasers and optics.

Summer Research Assistant in Condensed Matter Physics, Rensselaer Polytechnic Institute, supervised by Dr. Gwo-Ching Wang, 1999.
- Programmed and analyzed a deposition model.

PUBLICATIONS

An accelerated Newton method for equations with semismooth Jacobians and nonlinear complementarity problems, with Stephen J. Wright. *Mathematical Programming*, to appear.

Active Constraint Identification in Nonlinear Programming, with Stephen J. Wright. *SIAM Journal on Optimization* 17 (2006), 577-605.

HONORS

- NSF Graduate Research Fellowship, awarded in 2002 for 3 years.
- University of Wisconsin Prize Fellowship, awarded in 2002 for 2 years.
- Goldwater Scholar, 2000-2002.