

Sorelle A. Friedler

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RESEARCH INTERESTS

The design and analysis of algorithms for geometric problems, especially problems regarding calculating statistical trends on moving data as a tool for scientific analysis. In addition, general interest in algorithms and programming language analysis.

EDUCATION

University of Maryland, College Park, MD **Ph.D. Expected** August 2005 - June 2010
Computer Science PhD candidate. Thesis title: *Algorithms for Calculating Statistical Properties of Moving Points*. Advisor: David M. Mount.

University of Maryland, College Park, MD **M.S.** August 2005 - December 2007
Computer Science. GPA 3.8. Course work included: Computational Geometry, Analysis of Algorithms, Theory of Programming Languages, Gene Finding and Genome Assembly, and College Teaching.

Swarthmore College, Swarthmore, PA **B.A.** August 2000 - May 2004
Computer Science. Minor: Mathematics. GPA in major: 3.7.

University of Ghana, Legon, Ghana Spring 2003
Study abroad.

PAPERS

Sorelle A. Friedler, Yee Lin Tan, Nir J. Peer, and Ben Shneiderman. Enabling teachers to explore grade patterns to identify individual needs and promote fairer student assessment. *Computers & Education*, 51(4):1467-1485, December 2008.

Sorelle A. Friedler and David M. Mount. Compressing kinetic data from sensor networks. In *Proc. of the Fifth International Workshop on Algorithmic Aspects of Wireless Sensor Networks (AlgoSensors)*, pages 191 – 202, 2009.

Sorelle A. Friedler and David M. Mount. Approximation algorithm for the kinetic robust k-center problem. Accepted subject to minor revisions, *Computational Geometry: Theory and Applications*, 2009.

Sorelle A. Friedler and David M. Mount. Spatio-temporal range searching over compressed kinetic sensor data. Submitted for publication, *Proc. of the Latin American Theoretical Informatics Symposium*, 2010.

David Applegate, Aaron Archer, and Sorelle A. Friedler. An implementation of Jain's algorithm for survivable network design. In preparation, 2009.

Sorelle A. Friedler, Carlos Castillo, Ron Alford, and Jeffrey S. Foster. Dynamic tracking of type qualifiers in Java. In preparation, 2009.

TEACHING AND WORK EXPERIENCE

Instructor, University of Maryland, College Park

- Summer 2009. Teach CMSC451 - Design and Analysis of Computer Algorithms. Design and implement curriculum and projects, hold office hours, and grade papers.
- Summer 2007. Teach CMSC330 - Organization of Programming Languages. Design and implement curriculum and projects, hold office hours, grade papers, and oversee one teaching assistant.

Research Assistant in Programming Languages, University of Maryland

Summer 2008. Work with Associate Professor Jeff Foster to develop a system to track type qualifiers dynamically in Java programs.

Intern in Integer Programming, AT&T Labs Research

Summer 2006. Work with Aaron Archer and David Applegate to implement a solution to the survivable network design problem for large graphs based on integer programming.

Teaching Assistant, University of Maryland, College Park

- Spring 2006. Teaching Assistant for CMSC311: Computer Organization. Hold office hours, organize, grade, and prepare projects.
- Fall 2005. Teaching Assistant and Discussion Section Leader for CMSC212: Low-level programming concepts. Teach two discussion sections each of which meets for two one-hour sessions each week. Additional responsibilities include grading papers, implementing projects, and holding office hours.

Middle School Mathematics Teacher, Springside School, Philadelphia

Fall 2004 to Fall 2005. Design and implement curriculum for four classes of students in grades five through eight to teach topics including two- and three-dimensional geometry, pre-algebra, number theory, probability, and statistics.

AWARDS

Ann G. Wylie Dissertation Fellowship

2009-2010

Provides tuition, stipend, and health insurance for one semester. Awarded to “outstanding students working on the final stages of their dissertations.”

AT&T Labs Fellowship Program

2006-2009

Provides tuition, stipend, health insurance, and conference funds for 3 years. Awarded to 5 “outstanding under-represented minority and women students” chosen from a national pool.

Verizon Fellowship

2006-2007

Monetary award for outstanding academic achievement.

Graduate School Fellow, University of Maryland

2005-2007

Monetary award for “academic merit, intellectual ability, and the student’s potential to make a unique contribution to the diversity of the educational experience on this campus.”

Member, Sigma Xi Scientific Research Society

2004 to present

PRESENTATIONS

Fall Workshop on Computational Geometry

Nov. 13, 2009. *Spatio-temporal Range Searching Over Compressed Kinetic Sensor Data*

Swarthmore College – Invited Talk

Oct. 23, 2009. *A Sensor-Based Framework for Kinetic Data*

Fifth International Workshop on Algorithmic Aspects of Wireless Sensor Networks

July 11, 2009. *Compressing Kinetic Data From Sensor Networks*

Social Networks Seminar, University of Maryland

Mar. 6, 2009. *Networks Chapter 5: Structural Balance*

Arcadia University Mathematics Education Colloquium – Invited Talk

Feb. 19, 2009. *How do Computers Solve Geometric Problems?* Presentation on computational geometry designed to help high school math teachers add enrichment material to their curriculum.

Dissertation Proposal

Jan. 14, 2009. *Algorithms for Calculating Statistical Properties of Moving Points.*

AT&T Research Labs Colloquium

Aug. 11, 2006. *An Implementation of Jain's Algorithm for Survivable Network Design.*

SERVICE

Co-leader, Computer Science Dept. TA Orientation, University of Maryland

Fall 2007, Fall 2008, Fall 2009. Work with Prof. William Gasarch to design and run a one to two hour orientation for new teaching assistants describing responsibilities and teaching strategies.

Co-leader, Women in Computer Science, University of Maryland

Fall 2006 to Spring 2009. Co-leader for graduate student women in computer science group. Organize lunch discussions, potlucks, guest speakers, and orientation activities.

Member, Department Education Committee, University of Maryland

Fall 2008 to Spring 2009. Graduate student representative to the Computer Science Department Education Committee. Elected position.

Member, Graduate Admissions Committee, University of Maryland

Spring 2008 to present. Served on the graduate admissions committee for the Computer Science department.

Member, Graduate Visit Day and Orientation Committee, University of Maryland

Spring 2007 to Fall 2007. Work as part of a committee to organize visit day and orientation for the Computer Science department.

Member, Computer Science Department Council, University of Maryland

Fall 2006 to Spring 2007. Graduate student representative to the Department Council. Elected position.