

Warren J. Schudy

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RESEARCH INTERESTS

The research area that most excites me is the theoretical foundations of artificial intelligence, including approximation algorithms, machine learning, and combinatorial optimization. My dissertation is on approximation algorithms for feedback arc set on tournament graphs, correlation clustering, and other problems.

EDUCATION

Brown University (September 2005-May 2010)

- Computer Science PhD candidate (PhD expected spring 2010)
- Dissertation: Approximation Schemes for Dense Variants of Feedback Arc Set, Correlation Clustering, and Other Fragile Min Constraint Satisfaction Problems
- Committee: Claire Mathieu (Advisor), Amy Greenwald, Marek Karpinski, Phil Klein
- MS Computer Science, spring 2007
- GPA 4.0/4.0

Worcester Polytechnic Institute (August 2000-May 2005)

- BS May 2005 with High Distinction
- Majors in Physics and Computer Science, minor in Mathematics
- GPA 3.9/4.0
- Computer Science Senior Thesis: Translating Linear Temporal Logic into Büchi Automata (advisors: Kathi Fisler and Dan Dougherty)
- Physics Senior Thesis: Quantum Information (advisor: P.K. Aravind)

PUBLICATIONS

Conference

- M. Karpinski and W. Schudy. Approximation Schemes for the Betweenness Problem in Tournaments and Related Ranking Problems. In submission, 2009.
- C. Mathieu, O. Sankur, and W. Schudy. Online correlation clustering. To appear in *STACS '10: Proc. 27th Symposium on Theoretical Aspects of Computer Science*.
- C. Mathieu and W. Schudy. Correlation clustering with noisy input. To appear in *SODA '10: Proc. 21st ACM-SIAM Symposium on Discrete Algorithms*.
- M. Elsner and W. Schudy. Bounding and Comparing Methods for Correlation Clustering Beyond ILP. In *ILP-NLP '09: Proc. NAACL/HLT 2009 Workshop on Integer Linear Programming for Natural Language Processing*, pages 19–27, 2009.

- M. Karpinski and W. Schudy. Linear time approximation schemes for the Gale-Berlekamp game and related minimization problems. In *STOC '09: Proc. 41st ACM Symposium on Theory of Computing*, pages 313–322, 2009.
- Greenwald, Z. Li, and W. Schudy. More efficient internal-regret-minimizing algorithms. In *COLT '08: Proc. 21st Annual Conference on Learning Theory*, pages 239–250, 2008.
- W. Schudy. Finding strongly connected components in parallel using $O(\log^2 n)$ reachability queries. In *SPAA '08: Proc. 20th Symposium on Parallelism in Algorithms and Architectures*, pages 146–151, 2008.
- C. Mathieu and W. Schudy. Yet Another Algorithm for Dense Max Cut: Go Greedy. In *SODA '08: Proc. 19th ACM-SIAM Symposium on Discrete Algorithms*, pages 176–182, 2008.
- C. Kenyon-Mathieu and W. Schudy. How to rank with few errors: a PTAS for weighted feedback arc set on tournaments. In *STOC '07: Proc. 39th ACM Symposium on Theory of Computing*, pages 95–103, 2007.

Journal

- C. Mathieu and W. Schudy. How to rank with fewer errors: a PTAS for feedback arc set in tournaments. In submission, 2009.

TEACHING EXPERIENCE

TA, Brown University CS Department (Fall 2006, Fall 2007, Spring 2009)

- Design and Analysis of Algorithms, taught by Claire Mathieu
- Introduction to Combinatorial Optimization, taught by Meinolf Sellman
- Introduction to Nanocomputing, taught by John Savage

Brown University Sheridan Center for Teaching and Learning (Fall 2006- Spring 2007)

- Certificate in development of a “reflective teaching practice” (Teaching Certificate I).

WPI Math and Science Help: Tutor / Peer Leader (Fall 2001-Fall 2003)

- Led help-sessions in calculus-based physics and multivariable calculus.

RESEARCH AND PROFESSIONAL EXPERIENCE

University of Bonn (June 2008, July 2009)

- Host: Marek Karpinski

Google Research (Summer 2007)

- Host: D. Sivakumar

WPI Physics Department (Summer 2004 & 2005)

- Modeled semiconductor devices reliant on quantum mechanical effects, using finite element (computational) methods to get numerical answers to hard problems. Supervisor: L. R. Ram-Mohan.

Lavaplume Software (Summer 2003)

- Designed and implemented a Bayesian document classifier.
- Developed significant portions of a UI using C# and Microsoft Visual Studio .NET.

WPI Physics Department (Summer 2002)

- Assisted with experimentation in polymer diffusion using quasi-elastic light scattering spectroscopy. Supervisor: G. Phillies.

INVITED TALKS

- China Theory Week, *September 24, 2009*
- Carnegie Mellon University, *April 22, 2009*
- IBM Yorktown Heights, *January 27, 2009*
- University Bonn, *July 1, 2008*
- Microsoft Research Redmond, *November 27, 2007*
- Microsoft Research Silicon Valley, *August 16, 2007*
- IBM Research Almaden, *August 13, 2007*
- Institute for Advanced Study, *Jan 15, 2007*

SERVICE

Conference reviewing (Ongoing)

- NESCAI 2007, APPROX 07, FOCS 2007, STOC 2008, SODA 2009, ALENEX 2009, FSTTCS 2009, ESA 2009, STACS 2010

Journal reviewing (Ongoing)

- Algorithmica, Mathematics of Operations Research, JMLR, TPAMI

Theory Lunch Organizer (Spring 2008)

- Organized the weekly theory seminar.

FOCS Volunteer (Fall 2007)

- Provided audio-visual assistance and other local arrangements.

Curriculum Czar (May 2007-May 2008)

- Served on the departmental curriculum committee.

New Student Orientation Czar (August 2006)

- Arranged the 4-day orientation of incoming PhD and Master's students for the Brown Computer Science Department.

AWARDS AND HONORS

Brown University Dissertation Fellowship (2009)

- Exempted from teaching and research duties for the academic year.

NSF Graduate Research Fellowship Program Honorable Mention (2006)

- Received honorable mention.

WPI Outstanding Computer Science Senior Award (2005)

- Awarded to student with "outstanding record and who has contributed to the enrichment and professional development of his or her fellow students."

WPI Salisbury Award (2005)

- Awarded to the “most meritorious seniors at the university... faithfully, industriously, and with distinguished attainment.”

Honor Societies (2003-2004)

- Computer Science (Upsilon Pi Epsilon, 2004)
- Math (Pi Mu Epsilon, 2003)
- Physics (Sigma Pi Sigma, 2004)
- Engineering (Tau Beta Pi, 2004)

COURSES

Brown University

- CSCI 1490: Introduction to Combinatorial Optimization
- CSCI 1550: Probabilistic Methods
- CSCI 1760: Introduction to Multiprocessor Synchronization
- CSCI 2440: Topics in Game-Theoretic Artificial Intelligence
- CSCI 2570: Introduction to Nanocomputing
- CSCI 2580: Hard Problems in Combinatorial Optimization
- CSCI 2950: Approximation Algorithms
- CSCI 2950: Computer Science, Algorithms, and Economics
- CSCI 2960: Topics in Programming Languages and Systems
- MATH 1530: Abstract Algebra
- APMA 2610: Recent Applications of Prob/Stat (Audit)
- APMA 2630: Theory of Probability

WPI (partial list)

- MA 4235: Mathematical Optimization
- PH 501: Math Methods for Physics
- EE 2011: Intro Electrical and Computer Engineering
- SS 2117: Environmental Economics

PERSONAL INFORMATION

Citizenship: United States of America

Year of birth: 1983

Place of birth: Massachusetts, USA