**Scott F. Diehl**

CONTACT INFORMATION

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RESEARCH INTERESTS

Computational complexity and algorithms. Specifically:

- Lower bounds for the computational resources required to solve fundamental problems such as satisfiability and circuit minimization.
- Role of randomness in computing, especially derandomization and interactive protocols.

EDUCATION

Ph.D. in Computer Science — University of Wisconsin, 2008

- Thesis Title: Time-Space Lower Bounds for Satisfiability and Related Problems on Randomized Machines.
- Advisor: Professor Dieter van Melkebeek.
- Minor: Mathematics.

M.S. in Computer Science — University of Michigan, 2003

- 4.0 GPA.
- Advisor: Professor Kevin Compton

B.S. in Computer Science — University of Michigan, 2002

- With Highest Distinction and Honors.
- 4.0 GPA in Computer Science and Mathematics, 3.96 GPA overall.

AWARDS

University of Wisconsin Department of Computer Sciences:

- Cisco Systems Distinguished Graduate Fellowship. 2006–8
  Awarded in spring 2006 and again in spring 2007.
- Summer Research Fellowship. 2004

University of Michigan Department of Computer Science and Engineering:

- Summer Research Fellowship. 2002
- Student Achievement Award. 2002

JOURNAL PUBLICATIONS

S. Diehl and D. van Melkebeek. Time-space lower bounds for the polynomial-time hierarchy on randomized machines. *SIAM Journal on Computing*, 36(3):563–594, 2006.

S. Diehl, J. Budd, D. Ullman, J. Cayula. Geographic window sizes applied to remote sensing sea surface temperature front detection. *Journal of Atmospheric and Oceanic Technology*, 19(7):1105–1113, 2002.

CONFERENCE PUBLICATIONS

S. Diehl. Lower bounds for swapping Arthur and Merlin. In *Proceedings of the 11th International Workshop on Randomization and Computation*, pages 449–463. Springer-Verlag, 2007.

S. Diehl and D. van Melkebeek. Time-space lower bounds for the polynomial-time hierarchy on randomized machines. In *Proceedings of the 32nd International Colloquium on Automata, Languages, and Programming*, pages 982–993. Springer-Verlag, 2005.

S. Diehl and K. Compton. An implementation of the polynomial-calculus as a SAT solver. In *Proceedings of the Sixth International Conference on Theory and Applications of Satisfiability Testing*, pages 273–280, 2003.

## Submitted Papers

S. Diehl, D. van Melkebeek, R. Williams. A generic time-space lower bound for proof complexity. Submitted to *the 35th International Colloquium on Automata, Languages, and Programming*, 2008.

## Presentations

"Lower bounds for swapping Arthur and Merlin."

- 11th International Workshop on Randomized Techniques in Computation, Princeton University, 2007.
- Midwest Theory Day, University of Notre Dame, 2007.

"Time-space lower bounds for the polynomial-time hierarchy."
Joint work with D. van Melkebeek.

- Invited talk at Complexity of Boolean Functions workshop, Dagstuhl, Germany, 2006.
- Midwest Theory Day, University of Wisconsin-Milwaukee, 2005.
- 32nd International Colloquium on Automata, Languages, and Programming, Lisbon, Portugal, 2005.

"An implementation of the polynomial calculus as a SAT solver."
Joint work with K. Compton.

- Sixth International Conference on Theory and Applications of Satisfiability Testing, Santa Margherita, Italy, 2003.

"Automated edge detection for remotely sensed imagery."
Poster co-authored with J. Chye, J. Budd, D. Ullman and J. Johnson.

- 43rd Annual IAGLR Conference, Cornwall, Ontario, 2000.

## Teaching Experience

University of Wisconsin:

CS 799, Complexity Theory. Fall 2007
Co-instructed with J. Kinne and Professor D. van Melkebeek.
Supervised by Professor D. van Melkebeek.

CS 577, Introduction to Algorithms. Spring 2004
Teaching assistant for Professor D. Joseph.

CS 368, Learning a New Programming Language. Fall 2003
Teaching assistant, instructed by S. Whiteman.

CS 577, Introduction to Algorithms. Fall 2003
Teaching assistant for Professor D. van Melkebeek.

University of Michigan:

EECS 586, Design and Analysis of Algorithms. Spring 2003
Acted as substitute lecturer in addition to usual TA duties.
Graduate student instructor for Professor Q. Stout.

EECS 376, Fundamentals of Computer Science. Fall 2003
Lectured during two weekly, required discussion sections.
Graduate student instructor for Professor K. Compton.

## Service and Activities

University of Wisconsin:

- Graduate Student Mentor. 2006–8
- ACM International Collegiate Programming Contest, co-coach. 2004–8
  University of Wisconsin teams have taken first *and* second place at regionals twice and have advanced to world finals every year while coaching.
- Theory Reading Group, co-organizer. 2003–8
- ACM International Collegiate Programming Contest, participant. 2003–4
  Team took first place in regional competition and competed at world finals.

Reviewer: Computational Complexity, SIAM Journal on Computing, International Journal of Foundations of Computer Science.

## References

Available upon request.