Jennifer Paykin

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Education

University of Pennsylvania — Philadelphia, PA
Ph.D. Computer and Information Science — *September 2012 – present*

Wesleyan University — Middletown, CT
B.A. Mathematics and Computer Science (with High Honors) — *September 2008 – May 2012*

- GPA 3.90

Research Experience

Wesleyan University Department of Computer Science — Middletown, CT
Honors Thesis — *September 2011 – May 2012*

- Research Advisor: Norman Danner
- Constructed a static time-complexity analysis for a higher-order language with structural recursion
- Formalized the analysis in Coq (a dependently-typed proof assistant) to obtain machine certification of the system

Algorithmic Combinatorics on Partial Words REU Program — Greensboro, NC
Research Assistant — *June 2011 – July 2011*

- Research Advisor: Francine Blanchet-Sadri
- Worked with a partner to study properties of the abelian complexity function on partial words
- Developed tools in Python and Java to graph abelian complexity on a class on infinite words

Washington University Computer Science REU Program — St. Louis, MO
Research Assistant — *June 2010 – August 2010*

- Research Advisors: Kunal Agrawal and Roger Chamberlain
- Implemented a parallel regression tree designed for web-search ranking applications using the C MPI libraries
- Expanded libraries for the X language, an implementation of the Auto-Pipe system for streaming applications
- Incorporated Cilk++ blocks into the existing X language to enable thread-based parallelism within blocks

Publications

- Norman Danner, Jennifer Paykin and James S Royer. "Certified cost semantics for a higher-order language." Proceedings of the 7th ACM SIGPLAN workshop on Programming Languages meets Program Verification (PLPV), January 2013.
- Stephen Tyree, Killian Q. Weinberger, Kunal Agrawal, and Jennifer Paykin. "Parallel boosted regression trees for web search ranking." Proceedings of the 20th International conference on World Wide Web, ACM, New York, USA, 2011.

Posters and Presentations

- "Linear Logic as Linear Algebra"
  - Poster, CRA-W Grad Cohort Workshop, April 5, 2013
- "Automated cost analysis of a higher-order language in Coq"
  - Wesleyan University Computer Science Seminar, April 24, 2012
  - Poster, Consortium for Computing Sciences in Colleges Northeastern Region, April 27, 2012
  - Poster, Wesleyan University Natural Sciences and Mathematics Poster Session, April 19, 2012
    - Best Poster in Mathematics and Computer Science
- "Abelian complexity and variations on the Thue-Morse word"
  - Mid-Hudson Mathematics Conference for Undergraduates, October 16, 2011

Teaching Experience

Wesleyan University Department of Mathematics Middletown, CT
Math Workshop Tutor *September 2011 – June 2012*

- Provided reference and homework help for students in a wide variety of lower level math courses

Wesleyan University Department of Mathematics Middletown, CT
Teaching Assistant, Discrete Mathematics *Spring 2010*

- Graded homework and quizzes for Discrete Mathematics

Indian Hills High School Oakland, NJ
Tutoring Chairperson *September 2007 – June 2008*

- Founded student tutoring program though the National Honors Society
- Organized tutors and assisted students with schoolwork in one-on-one sessions

Awards and Prizes

- NSF Graduate Research Fellowship (Honorable Mention) 2013
- Senior Prize in Computer Science, Wesleyan University, 2012
- Membership in Phi Beta Kappa
- Wesleyan University Dean's List, Fall 2010–Spring 2012