

## Thomas W. Finley

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### EDUCATION

**Cornell University**, Ithaca, NY Aug. 2003-present  
PhD student in Computer Science

**Duke University**, Durham, NC Aug. 1998-Dec. 2002  
**Class Rank:** 109/1403      **GPA:** 3.832/4.0  
**Majors:** BS in Computer Science, BA in Mathematics; **Minor:** Economics

### EXPERIENCE & ACTIVITIES

*Software Engineering Intern for Google* Summer 2007  
Performed software development/data mining research activities.

*Produced Python/C Modules for Machine Learning/Optimization* Spring 2005-present  
Published Python modules to existing C software, used by others in machine learning research (PyGLPK, PyGraphcut, SVM<sup>python</sup>).

*Research Intern for Yahoo! Research Labs* Summer 2005  
Performed research activities relating to machine learning.

*TA for CS 478 (Machine Learning) and CS 472 (Artificial Intelligence)* Spring 2005, 2006, 2007, Fall 2007  
Derived and graded homework assignments, mentored student projects, graded prelims and exams, and held office hours and review sessions.

*Research Work with Dr. Thorsten Joachims* Spring 2004-present  
Research in machine learning focusing on support vector machines, most work in settings involving learning functions in complex outputs where the problem domain requires approximate inference (clustering, loopy graphical models, etc.).

*TA for CS 100M (Introduction to Computer Programming)* Fall 2003  
Taught section and lab, did grading, and held office hours.

*Produced OS X Freeware* January 2003-present  
Wrote a freeware program “Fob” as an exercise in Objective-C and Cocoa. Fob received 3 1/2 and later 4 stars from Macworld.

*Designed JFLAP Automata Teaching Tools (Duke CS “CURIOUS” Program)* May 2002-present  
Modified existing tool JFLAP and produced new tool for teaching automata and computability theory, and grammar parsing. Book on subject published.

*Tutor for CPS 130 (Algorithms)* Spring 2002  
Tutored students on all subjects of the undergraduate algorithms course.

*Myrinet (Duke Math PRUV Fellowship, NSF VIGRE Grant)* June 2001-May 2002  
Research project where I investigated strategies for increasing the communications throughput for parallel computations over a network of workstations. The focus was primarily on efficient routing schemes.

*Designed JAWAA Animation Tool (Duke CS “CURIOUS” Program)* Summer 2001  
Produced a tool for defining key-frame based JAWAA animations through a GUI. JAWAA is used in educational data structure animations.

*Vice President, Duke ACM* Spring 2001  
Helped organize and promote various activities and talks for the ACM.

*Undergraduate TA for CPS 104 (Computer Organization and Programming)* Sept. 2000-May 2002  
Helped the students of CPS 104 at Duke (about 70 students total) through interactive class-like help sessions, office hours, newsgroup and email, and an original tutorial web site.

### HONORS

Distinguished Student Paper Award at ICML 2005  
ACM Programming Contest Mid-Atlantic Region: 10<sup>th</sup> of 139 teams (2001), 11<sup>th</sup> of 136 (2002), 4<sup>th</sup> of 146 and qualification for the world finals (2003)

Dean's List at Duke (6 semesters), with Distinction 4 of those 6  
Practical Research for Undergraduates using VIGRE (PRUV) Fellowship  
Graduation with High Distinction in Mathematics (for Myrinet)  
Graduation with High Distinction in Computer Science (for JFLAP)  
Computing Research Association Outstanding Undergraduate Honorable Mention (2003 awards)  
Elected to the Duke Chapter of Phi Beta Kappa (Spring 2003)

## **SKILLS**

**Languages:** C, C++, Objective-C, Python, Java, MATLAB, Maple, MIPS assembler, PERL, SML, Scheme, Lisp, Prolog, Applescript.

**APIs:** Python/C API, BLAS/LAPACK, OpenGL, Cocoa (Mac OS X), GM (Myrinet messaging), other various scientific/mathematical open source APIs.

**Web Design:** HTML, Cascading Style Sheets, JavaScript, plus some server side CGI work (PERL, AppleScript, WebCatalog, and binary executables).

**Mathematical Software:** Maple, Matlab, Octave.

**Publishing:** Photoshop (including KPT 3, 5), PageMaker, Director, Illustrator, LaTeX, Xfig, GIMP.

**Operating Systems:** Mac OS 6-X, Solaris, GNU/Linux, Windows 3.x-2000 & NT.

## **PUBLICATIONS**

Thomas Finley, Thorsten Joachims, *Training Structural SVMs when Exact Inference is Intractable*, ICML (to appear), 2008.

Thorsten Joachims, Thomas Finley, Chun-Nan J. Yu, *Cutting-plane training of structural SVMs*, Machine Learning Journal (to appear), 2008.

Thomas Finley, Thorsten Joachims, *Parameter Learning for Loopy Markov Random Fields with Structural Support Vector Machines*, ICML Workshop on Constrained Optimization and Structured Output Spaces, 2007.

Yisong Yue, Thomas Finley, Filip Radlinski, Thorsten Joachims, *A Support Vector Method for Optimizing Average Precision*, Proceedings of the Conference on Research and Development in Information Retrieval (SIGIR), 2007.

Susan Rodger and Thomas Finley, *JFLAP - An Interactive Formal Languages and Automata Package*, ISBN 0763738344, Jones and Bartlett, 2/27/06, 2006.

Susan H. Rodger, Bart Bressler, Thomas Finley, and Stephen Reading, *Turning Automata Theory into a Hands-on Course*, Thirty-seventh SIGCSE Technical Symposium on Computer Science Education, 2006.

Thomas Finley and Thorsten Joachims, *Supervised Clustering with Support Vector Machines*, Proceedings of the International Conference on Machine Learning (ICML), 2005.

Ayonike Akingbade, Thomas Finley, Diana Jackson, Pretesh Patel and Susan H. Rodger, *JAWAA: Easy Web-Based Animation from CS 0 to Advanced CS Courses*. Thirty-fourth SIGCSE Technical Symposium on Computer Science Education, 2003.

Ryan Cavalcante, Thomas Finley, and Susan H. Rodger, *A Visual and Interactive Automata Theory Course with JFLAP 4.0*. Thirty-fifth SIGCSE Technical Symposium on Computer Science Education, 2004.

## **REFERENCES**

Dr. Owen Astrachan ([ola@cs.duke.edu](mailto:ola@cs.duke.edu)), Dr. Thorsten Joachims ([tj@cs.cornell.edu](mailto:tj@cs.cornell.edu)),  
Dr. Susan Rodger ([rodger@cs.duke.edu](mailto:rodger@cs.duke.edu)), Dr. Dennis DeCoste ([decoste@microsoft.com](mailto:decoste@microsoft.com))