

Karen A. Glocer

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Research Interests

Boosting algorithms that are robust to noise, convex optimization, sparse feature subset selection.

Education

Ph.D. Computer Science, University of California Santa Cruz, 2008 (Expected)

M.S. Computer Science, University of California Santa Cruz, 2003

B.A. Physics, Dartmouth College, 2000

Publications

“Entropy Regularized LPBoost” M. Warmuth, K. Glocer, and S.V.N. Vishwanathan. *submitted to Conference on Learning Theory (COLT)*, Helsinki, Finland, July 2008.

“Boosting Algorithms for Maximizing the Soft Margin,” M. Warmuth, K. Glocer, and G. Rätsch. *Neural Information Processing Systems (NIPS)*, Vancouver, B.C., Canada, December 2007.

“Sparse linear filters for detection and classification in hyperspectral imagery,” J. Theiler and K. Glocer. *SPIE* (2006).

“Online Feature Selection for Pixel Classification,” K. Glocer, D. Eads, and J. Theiler. *International Conference on Machine Learning (ICML)*, Bonn, Germany, August 2005, pages 249–256.

“Zone-Based Shortest Positioning Time First Scheduling for MEMS-Based Storage Devices,” Bo Hong, Scott A. Brandt, Darrell D. E. Long, Ethan L. Miller, Karen A. Glocer, and Zachary N. J. Peterson. *Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS)*, Orlando, FL, October 2003, pages 104–113.

Research Experience

Graduate Student Researcher
Manfred Warmuth

2006–present

UC Santa Cruz

My current research focus is on developing boosting algorithms that are robust to noisy data, or more specifically, data that is not linearly separable by a convex combination of weak hypotheses. The theoretical aspect of this work involves convergence analysis and error analysis of the algorithms. The empirical aspect of this project involves developing fast, scalable implementations of the algorithms. This requires a focus on optimization theory and implementation of optimization algorithms.

Research Assistant
James Theiler

2003–2006

Los Alamos National Laboratory

I developed and evaluated feature selection algorithms to solve pixel classification problems in multi-spectral and hyperspectral satellite imagery. I also studied feature selection in the context of salient anomaly detection in multispectral and hyperspectral imagery.

Karen A. Glocer

Research Assistant

2003

James Howse, Don Hush, and Clint Scovel

Los Alamos National Laboratory

I developed a parallel implementation of a data-dependent kernel classifier algorithm using C++ and MPI. The implementation has successfully run on 100 processors. Other features of the code include cross-validation, tie-breaking, and checkpoints.

Teaching Experience

Teaching Assistant, Introductory physics course in fluids and waves, UC Santa Cruz, Winter 2002

Teaching Assistant, Introductory physics course in electricity and magnetism, UC Santa Cruz, Spring 2006

Led a graduate level course in convex optimization, Los Alamos National Laboratory, Summer 2006

Computing Experience

Programming languages: C/C++, Python

Parallel Programming: MPI

Other Expertise: Matlab, Maple, Mathematica, R

Operating systems: Linux, Mac OSX, Windows

Honors and Awards

Sigma Xi Senior Thesis Competition, 3rd place, 2000

Louis V. Gerstner Endowed Scholarship, 1996-2000