

Mark Richards

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OBJECTIVE

Internship for Summer 2009

EDUCATION

University of Illinois at Urbana-Champaign

Ph.D., Computer Science, expected 2009-10

Projected Thesis: Representations and approximation algorithms for sequential decision processes with imperfect information

Brigham Young University

M.S., Computer Science, 2004

Thesis: Improving Particle Swarm Optimization

GPA: 3.91/4.00

B.S., Computer Science, *magna cum laude*, 2002

Minor: Mathematics

GPA: 3.93/4.00

Coursework Highlights

Artificial intelligence, mathematical logic, machine learning, linear and nonlinear programming, numerical analysis, statistical natural language processing, statistics, parallel programming

SOFTWARE SKILLS

Sandia National Laboratories, Albuquerque, NM

2003-2004

Student Intern (2003), Full-time technical staff (2004)

- Designed and implemented Surfpack, a C++ library of surface-fitting algorithms which facilitates surrogate-based optimization
- Refactored existing code for linear regression, kriging interpolation, and adaptive splines; implemented additional algorithms using radial basis functions and moving least-squares
- Developed cross-platform build system using GNU autotools
- Implemented a front-end scripting language for the library using lex and yacc
- Developed automated testing suite using CPP Unit
- Held Department of Energy L Security Clearance

Oxford Worldwide Group, Provo, UT

04/01-12/01

Intern

- Developed artificial neural network software for biometric security application

TEACHING EXPERIENCE

Brigham Young University, University of Illinois

2000-2007

Instructor (2006), Teaching Assistant (2000-2007)

- Showcased technical communication skills through lecturing on numerous computer science topics; consulting with individual students during office hours; and writing clear and unambiguous exam questions and specifications for homework assignments and programming projects
- Teaching assistant for eight different courses over ten semesters: web programming, discrete math, theory, operating systems, networks, computer architecture, parallel programming, artificial intelligence

RESEARCH

- Authored four refereed conference papers on particle swarm optimization, surface-fitting algorithms, and opponent modeling in Scrabble
- Used Bayesian inference techniques to develop arguably the world's best Scrabble-playing program. Featured in IEEE Computer Magazine, New Scientist Magazine, and on front page of UIUC newspaper, 2007
- Current research focuses on bounded rationality in large adversarial sequential decision environments where participating agents understand that the Nash equilibrium is computationally intractable