Joshua R. Hoak

JRHoak@gmail.com
www.common-index.com

Education

Post Bach. Coursework in Computer Science, 2009-2010, Portland State University

B.A., Mathematics, May 2009, Reed College.
Thesis in Computational Complexity: *Mathematical Games*

Experience

Software Developer, SocialMedia.com Fall 2010 – Present

Built a RESTful statistics web service using Scala for tracking advertisement metrics capable of handling thousands of requests per second per server. Developed an asynchronous caching layer to handle traffic spikes to the service. Implemented web services that identify users' locations and conjectured interests to enable personalized advertisements. Constructed a web service to generate random advertisement variations to test a variety of presentation hypotheses, using techniques of MapReduce to analyze the resulting data.

Software Developer Intern, KGS Go Server Spring 2010 – Fall 2010

Researched machine vision techniques to recover the position of a Go board from a raw camera image for use in the KGS Go application for Android phones to abet the recording of Go games. Using Java, investigated algorithms for convolution, edge detection, and projective geometry, and developed novel methods for optimal-line analysis.

Support Vector Machine Research Spring – Summer 2010

Investigated the effects of noise on the accuracy of Support Vector Machines, providing insights into the effectiveness of the Fuzzy Support Vector Machine model. (Paper available at www.common-index.com/projects.html)

Research Assistant: QMedTrix Spring 2010

Acquired information on current Machine Learning research and data cleaning methods for use in the creation of an automated fraud detection system.

Game Theory Research (Undergraduate Thesis) Fall 2008 - Spring 2009

Researched Constraint Logic theory for games and amalgamated the results of current complexity theory research. Then, using Constraint Logic, proved the NP-completeness of three games, one of which was unexplored in the literature.

Personal Experience

Presenter, Frontier Developers' Meetup 13 January 2011

Gave an introductory presentation to developer peers on the basic methods of Machine Learning, which included discussions of Perceptrons, Neural Networks, SVMs, and K-Means. (Slides at www.common-index.com/projects.html)

Go Diagram and Layout Generation Summer 2009 – Present

For Go, the Chinese game of strategy, developed a typesetting system for transforming Go files into vector graphics.

Languages & Technologies

Scala, Java, Python, Javascript, C, MongoDB, LaTeX, R, MySQL, HTML/CSS