Joshua R. Hoak

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www.common-index.com

Education

B.A., Mathematics, May 2009, Reed College.
Thesis in Computational Complexity: *Mathematical Games*
Cumulative GPA: 3.24

Extended Coursework in Computer Science, Portland State University
Cumulative GPA: 3.83

Experience

Software Development Intern, KGS Go Server Spring 2010 – Present

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 make it easier to record Go games. Investigated algorithms for convolution, edge detection, and projective geometry, and developed novel methods for optimal-line analysis. Implemented these methods from scratch using Java.

Support Vector Machine Research Spring – Summer 2010

Investigated the effects of noise on the accuracy of Support Vector Machines and presented the results in a formal paper, which provided insights into current Fuzzy Support Vector Machine research. Used a variety of technologies to achieve results, such as **R** to create artificial data sets, Python to partition data and add noise, and LIBSVM to train Support Vector Machines.

Research Assistant: QMedTrix Spring 2010

Acquired information on current Support Vector Machines research, data cleaning methods, and fraud research for use in the creation of an automated fraud detection system for medical bills.

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

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

Recent Coursework

- Machine Learning
- Probability, and Computing
- Languages and Compilers
- Cryptography
- Operating Systems
- Computability & Complexity

Languages and Technologies

Java, Python, C, LaTeX, X-86 Assembly, HTML/CSS, OSX, Windows

Personal Experience

Blog Founder, Contributor 2010 - Present

Founded Moments and Deviations (momentdev.wordpress.com), a blog devoted to studying practical and theoretical problems in computer science and math.

Go Diagram and Layout Generation Summer 2009 – Present

Used Perl, Python, and Bash to develop a Go typesetting system that transformed Go SGF-files (list of coordinates) into vector graphics arranged for printing.

Founder and Organizer, Go Club. Reed College Fall 2007 – Spring 2009

Organized weekly meetings and devoted to study and practice of the game Go.