Steven Schmatz

Developer, researcher, and student at University of Michigan

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Summary

I am a driven, multifaceted developer and scientist. My main interests are software engineering (particularly web development), machine learning, and artificial intelligence.

Education

University of Michigan College of Engineering
Bachelor of Science in Engineering (BSE), Computer Science Major and Mathematics Minor, 2014 - 2016
Activities and Societies: Extracurricular research

International Academy
International Baccalaureate, 2010 - 2014
Activities and Societies: Chemistry Olympiad, Science Olympiad, Health Occupation Students of America, extracurricular research, student council, peer advising

Experience

Student at University of Michigan: College of Engineering
August 2014 - Present (2 months)

I am studying computer science with a focus on mathematics.

Research Scientist, Center for Biomedical Informatics at Harvard Medical School, through the Research Science Institute (Center for Excellence in Education)
2013 - 2014 (1 year)

Awarded a full $10,000 merit scholarship for summer research at the Research Science Institute, sponsored by the Center for Excellence in Education and held by MIT. Here I conducted an internship at Harvard Medical School's Center for Biomedical Informatics. The project I was involved with studied the relationship between bacterial drug resistance and "protein disorder", or the quality of proteins to have multiple interchangeable tertiary structures. I was involved in the implementation of a neural network-based protein disorder predictor, data wrangling/pipelining, and the statistical methods used to study the correlation.

Research Assistant, Department of Bioinorganic Chemistry at Oakland University
2012 - 2013 (1 year)

My work here was focused around the chemical modeling of metalloproteins. We characterized the reduction-oxidation properties of gentisate 1,2-dioxygenase, which is a vital protein to bacterial hydrocarbon metabolism. My responsibilities included running organic synthesis of a biomimetic compound to study its interactions at low temperatures, as well as characterizing the compound with NMR, GCMS, and UV/Vis spectroscopy.

Honors and Awards

National finalist, Fortune 1 Collegiate Innovators
Walmart
September 2014

Research Science Institute (RSI) Scholar
Center for Excellence in Education
April 2013

National "Honors" Finalist, US Chemistry Olympiad
American Chemical Society
May 2013

1st in State of Michigan, Pathophysiology
Health Occupation Students of America (HOSA)
April 2012

President's Volunteer Service Award - Gold Level
Corporation for National and Community Service
May 2013

National Merit Finalist
National Merit Scholarship Foundation
September 2013

Projects

Website
January 2014 to Present
Members:Steven Schmatz

My personal web page with contact info, other useful links, and some personal projects I've been working on.

MyoFight
September 2014 to Present
Members:Steven Schmatz

A recreation of the classic arcade game Street Fighter using virtual reality devices: the Thalmic Myo, an armband which measures EMG/positional data of the player's arm, and the Microsoft Kinect, which measures position data using computer vision. I developed the backend code which received data from multiple heterogenous sources, rendered the game logic, and sent the game data to iOS devices to be viewed in realtime. Built with the Go programming language, C++, C#, and Swift. Source code available at https://github.com/stevenschmatz/MyoFight.

Gopherbox
June 2014 to August 2014
Members:Steven Schmatz

An open-source, client-side encrypted file server. Uses TLS over TCP to securely sync files across multiple machines. Built with the Go programming language (the mascot for the language is a gopher, hence the name Gopherbox), and Objective C for the frontend, as well as MongoDB and AWS for the backend.

Mathelo
January 2013 to Present
Members:Steven Schmatz, Amit Mizrahi

MathBlocks is a collaborative workspace for solving math and science problems. The app was written with Node.js and includes text and video chat, LaTeX support and graphing via the WolframAlpha API. It was built with Javascript and Sockets IO in 36 hours at the MHacks hackathon.

Various DIY/Hardware projects
September 2013 to Present
Members:Steven Schmatz

I enjoy dabbling with Arduino to create basic hardware projects. I have made a basic autonomous robot which avoids collisions with walls (http://goo.gl/t4kAvk), an alarm clock lamp which simulates the colors of a sunrise (http://goo.gl/E4MrmT), and a pen which uses accelerometer data to digitize handwriting in realtime (code available open source at http://goo.gl/Ijc1y3).

Courses

Bachelor of Science in Engineering (BSE),
Computer Science Major and Mathematics Minor
University of Michigan College of Engineering

Programming and Introductory Data Structures	EECS 280
Discrete Mathematics	EECS 203
Multivariable Calculus	MATH 215
Accelerated Introduction to Computers and Programming	ENGR 151
Data Structures and Algorithms (Winter 2015)	EECS 281
Introduction to Computer Architecture (Winter 2015)	EECS 370
Matrix Algebra (Winter 2015)	MATH 417
Design project: Microprocessors (Winter 2015)	ENGR 100

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Independent Coursework

Machine Learning	Stanford University MOOC

Learning From Data — Caltech MOOC through edX

Skills & Expertise

Software Engineering
Machine Learning
Web Development
The Go programming language
C++
Python
Matlab/Octave
Mathematica
JavaScript
Physics
Chemistry
Community Outreach
Piano
Youth Leadership
Human Biology
Bioinformatics
Electronics
Biochemistry
Organic Chemistry

Volunteer Experience

International Academy President at Key Club (Kiwanis International)
August 2012 - January 2014 (1 year 6 months)

I was involved in the organization of local events, and acted as a liaison between the district leadership and the students at International Academy. I organized events in affiliation with organizations such as UNICEF, Rotary International, and Lighthouse International.

Languages

English (Native or bilingual proficiency)
German (Professional working proficiency)

Test Scores

ACT
May 2013 Score:36

SAT Mathematics II, Chemistry, Physics
September 2013 Score:800