CLARK ZINZOW

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EDUCATION

University of Wisconsin - Madison *2016*
Bachelors of Science in Mathematics & Computer Science
Member of the UW Math Club, the Hub, the UPL, and Badger Entrepreneurs

PROJECTS

Math/CS/Physics Blog Exposition on interesting intersections of advanced/abstract mathematics, computer science, and physics. (in progress)

Big Solution Manual Compiling solutions to problems from a large number of the canonical mathematics and computer science graduate-level textbooks. (in progress)

Mathematics

Jordan Ellenberg research Several research projects under the direction of Jordan Ellenberg: Modified Nim Games; L_p Tic-Tac-Toe; Planted Clique; and Molecule Reconstruction. (in progress)

Operator Theory research Exploring the spectral theory of self-adjoint operators. (in progress)

Computer Science

Topological Data Analysis Researching ways to incorporate multiresolution persistent homology representations into probability models. (in progress)

DNN Mathematical Framework Researching applications of harmonic analysis, topology, Riemannian geometry, and dynamical mean field theory towards developing a rigorous mathematical framework for deep neural networks. (in progress)

Deep Autonomous Driving Researching applications of deep reinforcement learning, via different deep neural network architectures, to the planning problem in autonomous vehicle navigation systems. (in progress)

Quantum Machine Learning Researching quantum analogs of several classical machine learning algorithms (k-NN, SVM, TDA). (in progress)

Nonlinear Optimization Algorithms MATLAB implementations of nonlinear programming algorithms: line-search (simple Wolfe, strong Wolfe, Moré-Thuente), steepest descent, Newton's method, Dogleg method, BFGS, limited memory BFGS, Gauss-Newton method, and Steihaug-Toint conjugate gradient trust region method. (2015)

ML/Signal Processing Algorithms MATLAB implementations of machine learning/signal processing algorithms: proximal gradient method, stochastic gradient descent, backpropagation, and low-rank matrix reconstruction from partial sampling. (2016)

Computer Vision Applications MATLAB implementations of a variety of computer vision applications: 2D object recognition, image mosaicking, line-finders (Hough Transform), an optical flow system, a refocusing app, object reconstruction (photometric stereo), and an object tracking vision system. (2016)

Python ML Library Implementation of various machine learning algorithms and systems in Python. (in progress)

C++ Algorithms Library Performance-centric library of interesting algorithms implemented in C++. (in progress)

Professional

MeetSnap	Contact information sharing app using just-in-time data broadcasting and phone-knocking contact info transfers via Bluetooth Low Energy. (hiatus)
Vote Calculator	Voting web application implementing the Ranked Pairs voting method, constructed for the Madison City Council. (hiatus)

Note: For more information on these projects, visit my personal website: clarkzinzow.me

EXPERIENCE

Benefit Concepts Inc. January 2014 - Present
Technology Consultant/Web Developer *Whitewater, WI*

- Provided consultation on HR/payroll software systems, cloud services, and computer security.
- Researched HR/payroll software for inclusion in company's offerings (in order to compete with Zenefits.)
- Researched and set up viable cloud services solutions for the company.
- Set up and maintained company's encrypted e-mail system via Microsoft Azure RMS.
- Currently working on a new website for the company. (in progress, not deployed)

100State/100Health July 2014 - January 2016
Software Engineer/Web Application Developer *Madison, WI*

- Worked on software/web app development projects focused on health IT and the state government.
- Learned how to use agile software development frameworks for managing product development.
- Gained valuable experience developing with JavaScript and many JavaScript frameworks.
- Created applications using modern technologies, such as the MEAN stack.
- Learned many modern software development practices from former Epic software engineers.

Northwestern Mutual Life Insurance Company December 2014 - May 2015
Technology Consultant/IT Support *Milwaukee, WI*

- Provided consultation on enterprise software, cloud services, and computer security for financial advisor.
- Provided general IT support.
- Learned how to make software and cloud services compliant with strict company-defined security standards.

Division of Information Technology at UW-Madison June 2014 - September 2014
Web Developer *Madison, WI*

- Performed web development contract work for a variety of UW-Madison departments.
- Created websites, WordPress plugins and themes, and provided general website maintenance.
- Extensive experience developing using WAMP/MAMP stack and programming in PHP, JavaScript, jQuery, SQL, and a variety of PHP/JavaScript frameworks.
- Learned how to complete a project efficiently via test-driven development, source control, issue tracking, and good programming practices, and how to work within a team of developers.
- Learned the proper practices for developing, testing, deploying, and managing a large web site.

EXTERNAL LINKS

Personal Website	clarkzinzow.me
GitHub	github.com/ClarkZinzow
LinkedIn	linkedin.com/in/clarkzinzow
HackerRank	hackerrank.com/ClarkZinzow