Zach Siegel

Mathematics, Education

zachary.edmund.siegel@gmail.com
zsiegel92.github.io
grouptherenow.com
(914) 400 3675

Education

Pomona College

BA in Mathematics, 2014. Computer Science minor. GPA 3.63.

Research

Predictive Policing in Los Angeles — *2017*

Stop LAPD Spying Coalition, LA Community Action Network

Implemented LAPD's "hotspot"-generation algorithm. Compared hotspots to historical arrest, citation, and crime report data from the City of Los Angeles. Collaborated with GIS specialist to visualize time-varying hotspots in an interactive map using ArcGIS. Contributed results the community-generated report entitled "Predictive Policing in Los Angeles".

Generative Models and Sparse Coding — *2014*

Department of Mathematics, Pomona College

Formalized connections between the Boltzmann Machine Distribution and state-of-the-art unsupervised learning techniques based on sparse coding.

Anomaly Detection Using Dictionary Learning — *2013*

University of Minnesota, Minneapolis

Achieved state-of-the-art unsupervised detection of anomalous image and video data using dictionary learning and sparse coding. Part of an NSF-funded REU.

Aquatic Insect Populations' Response To Time-Varying Reproductive Rates — *2012*

Oregon State University

Modeled insect populations in MATLAB using partial differential equations. Developed field data collection methodology to study model accuracy. Part of an NSF-funded REU.

Zero-Sum Flows of the Linear Lattice — *2012*

Department of Mathematics, Pomona College

Proved conditions for bounds on network flows in a generalization of the boolean lattice

Career

STEM Tutor at Tutor Me LA — *June 2016 - present*

Private tutoring of UCLA students as part of the UCLA Guardian Scholars scholarship.

Computer Science Instructor at PlanetBravo — *June - August 2018*

Teaching introductory and intermediate computer science courses for young children.

Optimizing B'nai Mitzvah Scheduling — *February - May 2018*

Automated and optimized yearly scheduling for B'nai Mitzvot of ~130 students of Sinai Temple. Used mixed-integer linear programming.

Founder at GroupThere — *May 2017 - present*

Launched a carpool optimization tool at grouptherenow.com. Minimizes drive-time across groups of 2-100. Configured for activist organizations. "Bee Swarm for Cars".

Developer at FactoryOfEverything — *August 2016 - March 2017*

Developed a model for purchasing, production, shipping, and holding over a factory-warehouse-retail system. Forecasting using classical signal processing, regression, and machine learning. Implemented MVP in MATLAB. Planned use-case: optimizing a SoCal cosmetics factory group.

Tutor for Incarcerated Youth at M&I Education Consulting — *March 2015 - October 2017*

Math and CS tutoring for incarcerated youth and foster youth through M & I Education Consulting in Long Beach, CA.

Honors

Outstanding Presentation Award — *2014*

Joint Mathematics Meeting, Baltimore, MD

Awarded to 15% of undergraduate research groups presenting work at JMM (the most-attended national Mathematics conference) for summer 2013 research.

Llewellyn Bixby Mathematics Prize — *2012*

Department of Mathematics, Pomona College

Awarded annually to the student with highest achievement within the Department.

Skills

Python	AWS, Heroku	R
Java	HTML	MATLAB
C,C++	SQL, ORM	Mathematica
JS, Angular (JS & 2+)	COIN-OR, GUROBI	LaTeX