

Zach Siegel

Mathematics, Education

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Education Pomona College
BA in Mathematics, 2014. Computer Science minor. GPA 3.63.
Indian Institute of Technology, Kanpur
Mathematics Department, Spring 2013.

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 grouphtherenow.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

Java

C,C++

JS, Angular (JS & 2+)

AWS, Heroku

HTML

SQL, ORM

COIN-OR, GUROBI

R

MATLAB

Mathematica

LaTeX