Zach Siegel
Mathematics, Education

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Education

University of California, Los Angeles
Decisions, Operations, and Technology Management *Ph.D. candidate at the Anderson School of Management.*

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

Mathematics Tutor at Tutor Me LA — *June 2016 - September 2019*
Private tutoring for college-level and high school students. 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