Zach Siegel

Optimization | Data Analytics

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I am passionate about data integration, automation, and optimization. I like to bring together recent and proven technologies for solutions that create value.

Education

University of California, Los Angeles *2019-2021*
MS in Operations Management - Decisions, Operations, and Technology Management *Ph.D. group at Anderson School of Management. GPA 3.94*

Pomona College *2010-2014*
Mathematics BA, Computer Science minor. GPA 3.63

Indian Institute of Technology, Kanpur *Spring 2013*
Mathematics Department.

Tools

Code	· Python · Javascript · C++ · Java	*Container*	· Docker · Kubernetes · Helm	*Optimization*	· Pyomo · COIN-OR · GUROBI
Frontend	· React · Angular	*Cloud*	· AWS · GCP · Heroku	*Computation*	· R · MATLAB · Mathematica
Backend	· Django · Flask · ExpressJS	*Data*	· Pandas · SQL · PySpark · Redis	*Communication*	· Jupyter · LaTeX

Freelance Software Development

Sinai Temple *2018,2019 - recurring*
Automated and optimized scheduling Bar/Bar Mitzvah dates for ~130 students via mixed-integer linear programming.

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".

LA Community Action Network *2017*
Implemented LAPD's "hotspot"-generation algorithm. Compared hotspots to historical arrest, citation, and crime report data from the City of Los Angeles. Contributed results the community-generated report "Predictive Policing in Los Angeles".

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.

Professional Experience

Software Engineer *Capsida Biotherapeutics, Inc.* *2022*
Built a full-stack web application for customized BI analyses; onboarded other contributors and managed what became a widely used internal website. Created tools for long-running bioinformatics calculations; IP-related data mining; scheduling automation and visualization; automated handoffs; and integrations with lab robots. Engineered company-wide operational data strategy.

MBA Teaching Assistant *Anderson School of Management, UCLA* *2020-2021*
Taught Data and Analytics to students in the full-time and fully-employed MBA programs.

Mathematics Tutor *Tutor Me LA* *June 2016 - September 2019*
Provided private tutoring for undergraduate UCLA students as part of the UCLA Guardian Scholars scholarship.

Computer Science Instructor *PlanetBravo* *June - August 2018*
Taught introductory and intermediate computer science courses for young children.

Tutor for Incarcerated Youth *M&I Education Consulting* *March 2015 - October 2017*
Provided Math and CS tutoring for incarcerated and foster youth in El Monte and Long Beach, CA.

Research

Pandemic Mitigation Optimization *2021*
Anderson School of Management, UCLA
Optimizes decisions that affect compartment flow parameters in discrete-time SIRD disease progression model.

Fairness, Efficiency, and Feature-Awareness in the Allocation of Public Goods *2020*
Anderson School of Management, UCLA
Extends strategies for algorithmic fairness from the machine learning community to a resource-allocation optimization setting.

Generative Models and Sparse Coding *2014*
Department of Mathematics, Pomona College
Formalized connections between the Boltzmann Machine Distribution and unsupervised learning based on sparse coding.

Anomaly Detection Using Dictionary Learning *2013*
University of Minnesota, Minneapolis
Unsupervised anomaly detection in video data using dictionary learning and sparse coding. 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. 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

Honors

Outstanding Presentation Award *2014*
Joint Mathematics Meeting, Baltimore, MD
Awarded to 15% of undergraduate research groups presenting work at JMM. 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.