

Zach Siegel

Optimization | Data Analytics

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I am passionate about data integration and optimization. I like to bring together recent and proven technologies to create solutions that help people.

Education

University of California, Los Angeles	Fall 2019-Current
Decisions, Operations, and Technology Management <i>Ph.D. at the Anderson School of Management. GPA 3.94</i>	
Pomona College	2010-2014
<i>Mathematics BA, Computer Science minor. GPA 3.63</i>	
Indian Institute of Technology, Kanpur	Spring 2013
<i>Mathematics Department.</i>	

Technical Skills

<i>Code</i> · Python · Node · Java · C++	<i>Container</i> · Docker · Kubernetes · Helm	<i>Optimization</i> · Pyomo · COIN-OR · GUROBI
<i>Frontend</i> · JS · Angular · HTML	<i>Cloud</i> · GCP · AWS · Heroku	<i>Computation</i> · R · MATLAB · Mathematica
<i>Backend</i> · Flask · Django · ExpressJS	<i>Database</i> · PSQl · SQLAlchemy · Spark	<i>Presentation</i> · LaTeX · Markdown · Jupyter

Freelance Technical Projects

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

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.	