

*Passionate about optimization, automation, and statistics-driven decision-making.  
Highly proficient with a variety of full-stack application development tools that bring analysis to life.*

### Professional Experience

**Software Engineer & Data Scientist** *Capsida Biotherapeutics, Inc.* 2022 - Present

Led the development of a widely-used internal website running on AWS using React and Django. Created and maintained testing suite and documentation. Onboarded cross-functional contributors and socialized adoption.

Created and maintained data "plumbing" automations that connected platforms and services, including: lab information database, project management software, networked lab instruments, and internal website server. Built a QR-based inventory update system to reduce cycle counting need. Fully automated several lab instrument data ingest operations.

Created a primate immunogenicity forecasting and decision-support tool using stochastic modeling to anticipate spontaneous interruptions to animal availability (a widespread challenge in biotech). Fully-automated analysis pipeline makes increasingly precise recommendations available to decision-makers as new assay results are recorded in lab information database.

Deployed software to support: scheduling automation and visualization; highly customized BI analyses; a pipeline for long-running bioinformatics calculations; IP-related data mining; automated "handoffs" across platforms; integrations with lab robots.

**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 as part of PhD teaching requirements.

Built a git deployment pipeline for learning material using JupyterHub. MBA students clicked a "magic link" to access cloud-provisioned, SSO-enabled compute environments. Prepared interactive notebook-based Python and R material.

### Freelance Software Development

**Automated Scheduling** *Sinai Temple* 2018, 2019

Automated and optimized scheduling Bar/Bar Mitzvah dates for ~130 students via mixed-integer linear programming.

**Carpool Assignment Optimization** *GroupThere* 2017 - 2020

Launched a carpool optimization tool at grouptherenow.com. Minimizes total drive-time sum across groups of 2-100. Configured for organizations.

**Community Safety Intervention Modeling** *LA Community Action Network* 2017

Re-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".

**Supply Chain Forecasting, Automation, and Optimization** *FactoryOfEverything* 2016 - 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.

### Education

**University of California, Los Angeles** *MS - Operations Management*. GPA 3.94 2019-2021

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

Awarded "*Llewellyn Bixby Mathematics Prize*," 2014: to the student with highest achievement in the Mathematics department.

### Research

**Pandemic Mitigation Optimization** *Anderson School of Management, UCLA* 2021

Optimizes decisions that affect compartment flow parameters in discrete-time SIRD disease progression model.

**Fairness, Efficiency, and Feature-Awareness** *Anderson School of Management, UCLA* 2020

Extends strategies for algorithmic fairness from the machine learning community to a resource-allocation optimization setting.

**Generative Models and Sparse Coding** *Department of Mathematics, Pomona College* 2014

Formalizes connections between the Boltzmann Machine Distribution and unsupervised learning based on sparse coding.

**Anomaly Detection Using Dictionary Learning** *University of Minnesota, Minneapolis* 2013

Explores unsupervised anomaly detection in video data using dictionary learning and sparse coding. An NSF-funded REU.

Awarded "*Outstanding Presentation Award*" by the Joint Mathematics Meeting, 2014: top 15% of undergraduate groups at JMM.

### Favorite Tools (\* = expert)

*Python* · FastAPI\* · Django\* · Flask · Plotly · *Data* · SQL\* · Pandas · Spark · Redis · *Communication* · LaTeX\* · Jupyter · Markdown  
*JS/TS* · React\* · NextJS · Angular · *Optimization* · Pyomo\* · COIN-OR · GUROBI · *Fun* · Bouldering · Sourdough Bread\*