

# AUBREY CLARK

[aubrey-clark.com](http://aubrey-clark.com) | [github.com/abclark](https://github.com/abclark) | [aubs.bc@gmail.com](mailto:aubs.bc@gmail.com) | San Francisco, CA

## WORK

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### Data Scientist | Google Global Infrastructure

April 2023 –

- Found hidden correlation in network traffic and used it to cut the capacity build signal by 10%
- Built an ML system that predicts optical failures from device telemetry before they cause outages
- Built stability metrics for the capacity solver with engineering, comparing solver paths against routing paths to find root causes
- Built pipelines and metrics that trace physical layer failures through traffic engineering
- Using power forecasts to predict fiber needs 18 months before project requests arrive

### Data Scientist | Twitter

August 2021 – March 2023

- Found bottlenecks in Twitter's serving stack by tracing the critical path through distributed systems
- Rewrote the spam classifier to use reply timing, cutting false positives on real accounts
- Ran experiments on cluster scheduling that cut compute costs

### Data Scientist | Wealthfront

August 2018 – July 2021

- Wrote the optimization engine behind Wealthfront's robo-advisor: a stochastic program solved with Benders decomposition
- Built an order matching system that netted client trades internally before sending them to market

### Research Fellow | University of Cambridge

2017 – 2018

- Game Theory, Information Economics. Research in market design and allocation theory

## EDUCATION

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### Ph.D., Economics, Harvard University

2017

*Mechanism Design. Committee: Eric Maskin (Chair), Oliver Hart*

### B.Sc. Mathematics / B.Econ., University of Queensland, Australia

2009

*First Class Honours, University Medal*

## PROJECTS

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- **Communication Systems from Scratch:** BGP, TCP/IP, Audio Modem, QUIC, BBR, Protocol Buffers, HTTP/3, and gRPC
- **Financial Planning in the AI Era:** An AI financial advisor built from bank statements and a single prompt document
- **Algorithmic Mechanism Design:** Probabilistic Serial and Constrained Birkhoff-von Neumann algorithms for fair allocation

## RESEARCH

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*Contracts for Acquiring Information.* Clark, A. and Reggiani, G. arXiv:2103.03911, 2017

*Capacity Constraints in Principal-Agent Problems.* Clark, A. arXiv:2412.01760, 2017

*Core Equivalence with Large Agents.* Clark, A. arXiv:2103.05136, 2017

## SKILLS

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Machine learning · Optimization · Infrastructure · Mechanism design · Operations research

Day-to-day: Python, SQL, C++, Shell · Infrequent: Rust, Scala, R, Julia