

AUBREY CLARK

aubrey-clark.com | github.com/abclark | aubs.bc@gmail.com | San Francisco, CA

I build machine learning systems. Trained as an economist, I now work on infrastructure, optimization, and ML.

WORK

- Data Scientist** |  Google Global Infrastructure April 2023 –
• Built ML classifiers that predict optical component failures across 1M+ devices in Google's network
• Redesigned the capacity planning algorithm to reduce unnecessary network builds by 10%
• Built ordering models that cut YouTube CAPEX by over \$30M
• Tuned congestion control parameters for backbone transport protocols using traffic telemetry
- Data Scientist** |  Twitter August 2021 – March 2023
• Designed a critical path algorithm over distributed traces to find bottlenecks in Twitter's serving stack
• Rewrote the spam classifier to use reply timing, cutting false positives on legitimate accounts
• Ran experiments on cluster scheduling that reduced compute costs
- Data Scientist** |  Wealthfront August 2018 – July 2021
• Designed the optimization engine for Wealthfront's automated financial advisor: a stochastic mixed-integer program solved with Benders decomposition, for 250,000 users
• Built an internal order matching system that netted client trades before routing to market, reducing transaction costs
- Research Fellow** |  University of Cambridge 2017 – 2018
• Game Theory, Information Economics. Research in market design and allocation theory

EDUCATION

- 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

- **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

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