

AUBREY CLARK

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WORK

- Data Scientist** |  Google Global Infrastructure April 2023 –
• Built an ML system that predicts optical failures from device telemetry before they cause outages
• Found correlation in network traffic and used it to cut the capacity build signal by 10%
• Built stability metrics for the capacity planning solver, root-causing instability by comparing solver and router pathing
• Built pipelines and metrics that trace traffic engineering events back to physical layer failures
• Building an early warning system that forecasts fiber infrastructure needs from upstream power signals
- 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

- 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

SKILLS

Machine learning · Optimization · Infrastructure · Mechanism design · Operations research
Day-to-day: Python, SQL, Shell · Infrequent: C++, Rust, Scala, R, Julia