

AUBREY CLARK

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WORK

Data Scientist  Google Global Infrastructure	April 2023 –
<ul style="list-style-type: none">Built an ML system that predicts optical failures from device telemetry before they cause outagesFound 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 pathingBuilt pipelines and metrics that trace traffic engineering events back to physical layer failuresBuilding an early warning system that forecasts fiber infrastructure needs from upstream power signals	
Data Scientist  Twitter	August 2021 – March 2023
<ul style="list-style-type: none">Identified latency bottlenecks in Twitter's serving stack by tracing requests through distributed systemsRewrote the spam classifier to use reply timing, cutting false positives on real accountsRan experiments on cluster scheduling to improve utilization	
Data Scientist  Wealthfront	August 2018 – July 2021
<ul style="list-style-type: none">Wrote the optimization engine behind Wealthfront's robo-advisor: a stochastic program solved with Benders decompositionBuilt an order matching system that netted client trades internally before sending them to market	
Research Fellow  University of Cambridge	2017 – 2018
<ul style="list-style-type: none">Research in information economics	

EDUCATION

Ph.D., Economics ,  Harvard University	2017
<i>Mechanism Design. Committee: Eric Maskin (Chair), Oliver Hart</i>	
B.Sc. Mathematics / B.Econ. ,  University of Queensland, Australia	2009
<i>First Class Honours, University Medal</i>	

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