

# 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 –  
• 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

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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 · Rustier: Scala, R, Julia