Samuel **Hinton**, PhD

Data Scientist | Software Engineer | Astrophysicist

Links

Website: CosmicCoding
LinkedIn: samuelreay
GitHub: samreay

Skills

Python, C, golang, Javascript, SQL, Java, Stan, Git
Machine learning
Optimisation
Visualisation
Software Engineering
Bayesian Statistics
Model fitting
System Architecture

Awards

Nobel Laureate Delegate
UQ Future Superstar
ASA Bok Prize
Science Grad. of the Year
AIP Prize
University Medal (Science)
University Medal (Eng.)
AAO Honours Scholarship
A.W. Oakes Scholarship

Communication

Numerous podcast appearances.

Academic presentations in more than a dozen institutions and countries.

Science outreach appearances on multiple TV shows, radio channels and public events.

Publications

6 first author
200+ contributing author
Areas of software, statistics, astrophysics, medicine.

Experience

2020-Now **Arenko Group** London, UK
Senior Data Scientist
Designed and productionised probabilistic time-series forecasting models for UK energy markets. Implemented MLOps pipelines in AWS, including feature store, model versioning (mlflow), model serving all in production level python code (FastAPI). Lead data engineering, orchestration (Prefect) and digestion (RDMS) pipelines in a microservice framework. Implemented stochastic market optimisation to increasing automated trading revenues >100%. Designed system architecture both for REST-driven API services and event-drive services (Pulsar). Created interactive visualisations of market opportunities (matplotlib, plotly, Streamlit, Dash, angular). Mentored junior data scientists and helped grow the data science team.

2020 **University of Queensland** Brisbane, Queensland, Australia
Lead Data Analyst
Created a data science pipeline for the COVID-19 Critical Care Consortium, including ingestion, standardisation, and reporting.

2016-2020 **University of Queensland** Brisbane, Queensland, Australia
Astrophysicist
Created data pipelines to run from data preparation to classification, modelling and reports. Created machine learning classifiers to discriminate between supernova. Applied high-dimensional modelling techniques on astrophysical problems. Organised a team of two dozen researchers across multiple countries.

2017, 2016 **Lawrence Berkeley National Laboratory** Berkeley, California
Research Fellowship
High-dimensional Bayesian Hierarchical Modelling for Supernova Cosmology using MCMC fitters, Stan, Gaussian processes and many numerical techniques.

2010–2014 **GBST** Brisbane, Queensland, Australia
Software Developer
Developed business intelligence reports and user-facing applications (angular, Java) for front office financial traders. Created and optimised large scale SQL queries. Optimised databases and applications for network, processing, and memory constraints.

Education

2016–2020 **Doctor of Philosophy** University of Queensland
Analysed supernovae in the Dark Energy Survey using Hierarchical Bayesian Modelling.

2010–2015 **Bachelor of Science** (Physics)(Hons, 1st) University of Queensland
Analysed the Baryon Acoustic Oscillation signal.

2010–2014 **Bachelor of Engineering** (Software)(Hons, 1st) University of Queensland
Created the first online web application to compute redshifts from spectra.