

# Samuel Hinton, PhD

Data Scientist | Software Engineer | Astrophysicist

## Links

Website: CosmicCoding  
LinkedIn: samuelreay  
GitHub: samreay

## Skills

Python, C, C++, Javascript,  
SQL, Java, Stan, Git  
Machine learning  
Numerical Optimisation  
Visualisation  
Bayesian Statistics  
Model fitting

## 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  
Harriet Marks Bursary  
Helen Thompson Prize  
IET Student Prize  
David Andrew Krnak Prize  
UQ Future Leader  
IEEE Student Prize  
GroundProbe Prize  
RWH Hawken Scholar  
Alstom Prize  
John Black Prize

## Communication

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  
45+ contributing author  
Areas of software, statistics and astrophysics.

## Experience

2020-Now	<b>University of Queensland</b> <i>Lead Data Analyst</i> Created a data science pipeline for the COVID-19 Critical Care Consortium. Homogenised and standardised heterogeneous medical data for eventual use in causal modelling. Created reports, dashboards, and products as support for clinical staff.	Brisbane, Queensland, Australia
2020-Now	<b>University of Queensland</b> <i>Astrophysicist</i> Created data pipelines to run from data preparation to, classification, modelling and reports. Created classifiers to discriminate between supernova. Applied high-dimensional modelling techniques on the large-scale-structure in the universe.	Brisbane, Queensland, Australia
2019-Now	<b>SuperDataScience</b> <i>Course Instructor</i> Created courses on statistical analysis and data manipulation in Python for students. Focused on applied statistics and utilisation of modern code packages, with attention given to visual output and workflows for continuous validation of methodology.	Sunshine Coast, Queensland, Australia
2017, 2016	<b>Lawrence Berkeley National Laboratory</b> <i>Research Fellowship</i> High-dimensional Bayesian Hierarchical Modelling for Supernova Cosmology. Involved using numerous MCMC fitters, Stan, Gaussian processes and many numerical techniques.	Berkeley, California
2015–2016	<b>Gemini &amp; Australian Astronomical Observatory</b> <i>Research Intern</i> Reduced telescope data and utilised engineered features to classify globular cluster candidates and their properties for follow up with the Hubble Space Telescope.	La Serena, Chile
2010–2014	<b>GBST</b> <i>Software Developer</i> Developed business intelligence reporting solutions, designed and developed server and client based web application code, creation of large scale SQL queries. Optimised queries, databases, and applications for network, processing, and memory constraints. Developed back-end server code and front-end web applications, plus API's to connect the two.	Brisbane, Queensland, Australia

## Education

2016–2020	<b>Doctor of Philosophy</b> Analysing supernovae in the Dark Energy Survey using Hierarchical Bayesian models to help constrain the nature of dark energy.	University of Queensland
2010–2015	<b>Bachelor of Science (Physics)(Hons, 1<sup>st</sup>)</b> Thesis: Analysed the Baryon Acoustic Oscillation signal imprinted in the large scale structure of the universe.	University of Queensland
2010–2014	<b>Bachelor of Engineering (Software)(Hons, 1<sup>st</sup>)</b> Thesis: Created the first online client-only web-application to compute red-shifts from telescope spectra.	University of Queensland