

Samuel Hinton

B.E. Software Engineering (Hon), B.Sc Physics (Hon)

Contact

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Github
Personal

References available on
request.

Education

- 2017–Now **Doctor of Philosophy** University of Queensland
Analysing supernovae in the Dark Energy Survey using Hierarchical Bayesian models to help constrain the nature of dark energy.
- 2010–2016 **Bachelor of Science (Physics)(Hons, 1st)** University of Queensland
Thesis: Analysed the Baryon Acoustic Oscillation signal imprinted in the large scale structure of the universe using the WiggleZ survey.
- 2010–2015 **Bachelor of Engineering (Software)(Hons, 1st)** University of Queensland
Thesis: Created the first online client-only web-application to compute redshifts from telescope spectra.

Experience

Programming

JavaScript,
HTML5 & CSS3
Python, Java
C, C++, Matlab
SQL, LaTeX

Bash, SVN, Git,
Maven, Node.js,
AngularJS

Interests

astrophysics
cosmology
computational physics
science communication
software design

- 2010–2014 **GBST** Brisbane, Queensland, Australia
Software Developer
Developed business intelligence reporting solutions, designing and developing server and client based web application code, creation of large scale SQL queries, experience optimising queries, databases and applications for network, processing and memory constraints, developed back-end server code and front-end web applications. Prioritised implementation tasks for strict release schedules, delegated work tasks for other developers and reviewed incoming work for quality.
- 2015–2016 **Gemini & Australian Astronomical Observatory** La Serena, Chile
Research Intern
Utilised photometric data of Maffei 1 to determine globular cluster candidates and their properties for spectroscopic follow-up. Utilised data reduction pipelines, automated analysis methods in Python, and applied machine learning techniques to perform object classification.
- 2016 **Lawrence Berkeley National Laboratory** Berkeley, California
Research Fellowship
Research fellowship at LBNL to work on Bayesian Hierarchical Modelling and its applications to Supernova Cosmology. Specifically, investigating how to use high dimensional hierarchical models to model individual supernova instead of populations to provide better constraints on cosmology using supernova discovered by the Dark Energy Survey.

Awards

- 2016 **Bok Prize** Outstanding research in Astronomy Astronomical Society of Australia
- 2016 **Australian Postgraduate Award** Australian Government
- 2015 **Science Faculty Graduate of the Year** UQ
- 2015 **Australian Institute of Physics Prize** UQ
- 2015 **University Medal (Science)** UQ
- 2015 **Rhodes Scholarship Finalist** Oxford University

2015	Australian Gemini Undergraduate Summer Studentships	AAO
2015	A.W. Oakes Scholarship	St John's College
2015	AAO Honours Scholarship	Australian Astronomical Observatory
2015	Harriet Marks Bursary	UQ
2015	10x Deans Commendation	UQ
2015	Helen Thompson Prize for All Round Excellence	St John's College
2014	University Medal (Engineering)	UQ
2014	David Andrew Krnak Memorial Prize	UQ
2014	UQ Future Leader	UQ
2014	IEEE Student Thesis Prize	IEEE
2014	IET Student Prize	The Institution of Engineering and Technology
2014	GroundProbe Prize	UQ
2014	RWH Hawken Scholar	UQ
2014	UQ Summer Research Scholarship	UQ
2012	Exxon Mobil Achievement Award	UQ
2011	Alstom Prize	UQ
2011	Walter Bruce Darker Scholarship	UQ
2010	UQ Academic Excellence Scholarship	UQ
2010	ICT Enabling Scholarship	UQ
2010	John Black Prize	UQ

Communication

2017	Invited Presenter	Research Education and Development Retreat
	Invited presenter at a progressional development program for physics PhD, honours and undergraduate students.	
2017	Workshop Organiser, Host and Presenter	CAASTRO Code Workshop
	Created and presented a code workshop focusing on open-source science run across Australia.	
2017	Battle of the Brains Panel Scientist	National Science Week
	Invited participant in a games panel discussion for physicists during National Science Week.	
2017	World Science Festival Tour Guide	Queensland Museum & UQ
	Scientific tour guide for the Large Hadron Collider exhibit during the World Science Festival.	
2017	FameLab Australia Scientist	British Council
	State finalist FameLab scientist. Public communication through radio interview and stage presentation.	
2017	Guest Scientist	ScopeTV, Channel 10
	Helped script, narrate and appear in a ScopeTV educational astronomy episode on the solar system.	
2017	Science Communicator	Pint of Science, Physics in the Pub, Clayfield College
	Gave public talks to a general audience and to highschool students about various topics in astronomy.	
2017-2016	Tutor & Content Creator	University of Queensland
	Tutored undergraduate physics subjects and created content for the undergraduate cosmology course.	
2016	Guest Scientist, An Evening with Dr Lisa Randall	ThinkInc
	Gave the opening speech for the Brisbane event, talking about the exciting future of astronomy.	

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| 2016 | UQ Science Demo Troupe Member | University of Queensland |
| | Joined the UQ Science Demo troupe to create resources for the group and participate in UQ demonstrations. | |
| 2016 | Uluru Astronomer in Residence | CAASTRO |
| | Accompanied Sky Tours to answer scientific questions from the public and gave public lectures on popular astronomy topics. | |
| 2015 | 5-Minute Physics Content Creator | University of Queensland |
| | Created interactive simulations and visualisations to increase engagement of students with educational content. | |

Publications

Measuring the 2D baryon acoustic oscillation signal of galaxies in WiggleZ: cosmological constraints

Hinton, S. R. et al.

MNRAS 464 (Feb. 2017) pp. 4807–4822. 2017

ChainConsumer

Hinton, S. R.

JOSS 1.4 (Aug. 2016). The Open Journal, 2016

Marz: Manual and automatic redshifting software

Hinton, S.R. et al.

Astronomy and Computing 15 (2016) pp. 61–71. 2016

The Dark Energy Survey Data Release 1

Abbott, T. M. C. et al.

ArXiv e-prints (Jan. 2018). 2018

The WiggleZ Dark Energy Survey: final data release and the metallicity of UV-luminous galaxies

Drinkwater, M. J. et al.

MNRAS 474 (Mar. 2018) pp. 4151–4168. 2018

OzDES multifibre spectroscopy for the Dark Energy Survey: 3-yr results and first data release

Childress, M. J. et al.

MNRAS 472 (Nov. 2017) pp. 273–288. 2017

The Taipan Galaxy Survey: Scientific Goals and Observing Strategy

da Cunha, E. et al.

PASA 34, e047 (Oct. 2017) e047. 2017

Dark Energy Survey Year 1 Results: Cosmological Constraints from Galaxy Clustering and Weak Lensing

DES Collaboration et al.

ArXiv e-prints (Aug. 2017). 2017

Dark Energy Survey Year 1 Results: Galaxy clustering for combined probes

Elvin-Poole, J. et al.

ArXiv e-prints (Aug. 2017). 2017

Dark Energy Survey Year 1 Results: Cross-Correlation Redshifts - Methods and Systematics Characterization

Gatti, M. et al.

ArXiv e-prints (Sept. 2017). 2017

DES Science Portal: I - Computing Photometric Redshifts

Gschwend, J. et al.

ArXiv e-prints (Aug. 2017). 2017

Dark Energy Survey Year 1 Results: Redshift distributions of the weak lensing source galaxies

Hoyle, B. et al.

ArXiv e-prints (Aug. 2017). 2017

Discovery of a $z = 0.65$ post-starburst BAL quasar in the DES supernova fields

Mudd, D. et al.

MNRAS 468 (July 2017) pp. 3682–3688. 2017

A Study of Quasar Selection in the Supernova Fields of the Dark Energy Survey

Tie, S. S. et al.

AJ 153, 107 (Mar. 2017) p. 107. 2017

The 2-degree Field Lensing Survey: design and clustering measurements

Blake, C. et al.

MNRAS 462 (Nov. 2016) pp. 4240–4265. 2016

OzDES multifibre spectroscopy for the Dark Energy Survey: first-year operation and results

Yuan, F. et al.

MNRAS 452 (Sept. 2015) pp. 3047–3063. 2015