

# Samuel Hinton

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

## Contact

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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, 1<sup>st</sup>)** 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, 1<sup>st</sup>)** 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	<b>Australian Gemini Undergraduate Summer Studentships</b>	AAO
2015	<b>A.W. Oakes Scholarship</b>	St John's College
2015	<b>AAO Honours Scholarship</b>	Australian Astronomical Observatory
2015	<b>Harriet Marks Bursary</b>	UQ
2015	<b>10x Deans Commendation</b>	UQ
2015	<b>Helen Thompson Prize for All Round Excellence</b>	St John's College
2014	<b>University Medal (Engineering)</b>	UQ
2014	<b>David Andrew Krnak Memorial Prize</b>	UQ
2014	<b>UQ Future Leader</b>	UQ
2014	<b>IEEE Student Thesis Prize</b>	IEEE
2014	<b>IET Student Prize</b>	The Institution of Engineering and Technology
2014	<b>GroundProbe Prize</b>	UQ
2014	<b>RWH Hawken Scholar</b>	UQ
2014	<b>UQ Summer Research Scholarship</b>	UQ
2012	<b>Exxon Mobil Achievement Award</b>	UQ
2011	<b>Alstom Prize</b>	UQ
2011	<b>Walter Bruce Darker Scholarship</b>	UQ
2010	<b>UQ Academic Excellence Scholarship</b>	UQ
2010	<b>ICT Enabling Scholarship</b>	UQ
2010	<b>John Black Prize</b>	UQ

## Communication

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

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|------|--|--------------------------|
| 2016 | <b>UQ Science Demo Troupe Member</b>   | University of Queensland |
|      | Joined the UQ Science Demo troupe to create resources for the group and participate in UQ demonstrations.                  |                          |
| 2016 | <b>Uluru Astronomer in Residence</b>   | CAASTRO                  |
|      | Accompanied Sky Tours to answer scientific questions from the public and gave public lectures on popular astronomy topics. |                          |
| 2015 | <b>5-Minute Physics Content Creator</b>  | 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*

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

Gatti, M. et al.

*MNRAS (Feb. 2018). 2018*

Rapidly evolving transients in the Dark Energy Survey

Pursiainen, M. et al.

*ArXiv e-prints (Mar. 2018). 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

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