Samuel Hinton

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

Contact

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Github
Personal

References available on request.

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

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

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.

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.

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.

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.

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*

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*