Robert Finnegan

Curriculum Vitae

Contact Details

35 Oak Street
Ashfield, NSW, 2131

0416 705 061
rfin5459@uni.sydney.edu.au

Background

I have recently begun a PhD in medical physics at the University of Sydney, undertaking research at the Ingham Institute with linkage to Liverpool Hospital and the South West Sydney Local Health District. My initial research is aimed at characterising and understanding the link between cardiac radiation dose and toxicity, and investigating the feasibility of automatic cardiac segmentation.

Previous Education

2016–Present **Doctor of Philosophy, Science (Physics)** The University of Sydney
Thesis title: *Deformable Image Registration for Multi-Modality Image-Based Radiotherapy Treatment Planning and Verification*.

2013–2015 **Master of Physical Science, with Distinction** The University of Western Australia
Refining Photometric Redshifts in the GAMA Survey
This degree was an equal split of postgraduate coursework and a dissertation. The research extended recent work on creating a catalogue of gravitationally bound galaxy clusters, by using this catalogue to improve measurement of the distances to galaxies. The successful completion of this dissertation provided new knowledge and capabilities for astronomers, as well as a suite of programs and data manipulation tools for easier and faster application of work in the future.

2010–2013 **Bachelor of Science** The University of Western Australia
Majors in Astrophysics and Applied Mathematics
Graduated with Physics Achievement Prize (Level III).
Undergraduate projects include measuring the mass of the Milky Way using the SRT radio telescope at UWA and imaging of nearby star clusters using the SPIRIT II optical telescope, also located at UWA.

2005–2009 **High School Certificate** Prendiville Catholic College
Graduated as House Captain and Dux.

Relevant Experience

2010–2017 **Private Tuition** Various locations - WA, NSW

Physics, Chemistry, Mathematics Tutor

For several years I have provided private tution to a wide range of students for a number of different subjects. My students have ranged from year 10 to third year university students and I have tutored topics in mathematics, physics and chemistry.

2013–2016 **School of Physics** UWA

Tutor, Laboratory Demonstrator, Outreach

Responsibilities:

- As a tutor for the School of Physics I assist a group of approximately 30 students with physics study, meeting up once a week to provide feedback on assignments, as well as presenting guided examples.
- As a laboratory demonstrator my primary responsibility was to communicate physics concepts and experimental practices to students before, during and after they completed set experiments. Further responsibilities include setting up, testing and managing laboratory equipment.
- The School of Physics has several science outreach programs which involve giving demonstrations to students and members of the public. This includes primary and secondary students, university students, students from regional areas of WA as well as international students. These demonstrations involve small group tours or facilities, exciting displays of physical phenomena (involving high voltages, liquid nitrogen and strong magnetic fields) and discussions of studying physics at UWA.
- Assisting with astronomy outreach I helped operate several telescopes for stargazing nights, as well as providing information - both historical and scientific - about the cosmos.

2013–2016 **School of Indigenous Studies** UWA

Tutor, Academic Support

Responsibilities:

- To provide indigenous university age students one-on-one tuition in areas of physical science and mathematics. Ensuring students work to their potential in order to succeed with their academic goals, as well as providing professional support for difficulties students face. Working with a wide range of people means adapting the style with which information and content is delivered.
- Provide university course lecture notes for two units in mathematics and two units in physics. These units will be taught to first year students; aiming to provide interesting, challenging and engaging content, with topics on electromagnetism, thermodynamics and nuclear physics.

2015–2016 **UniAccess - Disability Services** UWA

Casual Support Staff

Responsibilities:

- Assisting as a scribe to students who are unable to write, due to physical injury or illness. This included providing lecture notes recorded during a lecture and writing exams under student direction.

Other Experience

2014–2015 **Gravity Discovery Centre** Gingin, WA
John De Laeter Scholarship Student
Responsibilities:
- Research and design of a gamma ray detector to be used for cosmic ray detection, including liaising with staff off the centre for support and decision making.
- Fabricate cosmic ray detector with all supporting hardware and structures, using the on-site workshop and available materials.
- Design software to process detector output, analyse data stream and present visualisations.

2012–2013 **Australian Astronomical Observatory** North Ryde, NSW
Student Research Fellow
Responsibilities:
- Working with a large research group to process optical imaging data from the Hubble Space Telescope. The subject of study was the physical properties and history of extragalactic star clusters.
- Accurately monitoring, investigating and analysing all statistical information.
- Presenting results from the study at conferences to professional astronomers.

My project results prompted the submission of a Hubble Space Telescope (HST) proposal to acquire further imaging of nearby star clusters from space-borne and ground-based telescopes.

2011–2013 **ExploreGeo** Wangara, WA
Data and Image Processor
Responsibilities:
- Reducing, processing and analysing a range of geophysical data, including actively obtained data such as transient electromagnetism, induced polarisation and seismic data and passively obtained data such as radiometry and gravity and magnetic data.
- Assisting in reports and imaging given to clients as part of the exploration geophysics consultation provided by ExploreGeo.
- Training and assisting other team members with software, computer management and reporting.
- Assistance in maintaining hardware used for field work.

Prizes, Awards and Scholarships

2017 **South West Sydney Local Health District** Sydney, NSW
Radiation Oncology Medical Physics Top-Up Scholarship

2016 **University of Sydney** Sydney, NSW
Australian Postgraduate Award (APA)

2015 **Gravity Discovery Centre** Gingin, WA
John and Robin de Laeter Scholarship

2014 **ACPSEM** Melbourne, VIC
Combined Scientific Meeting Student Scholarship

2014 **University of Western Australia** Crawley, WA
Physics Level III Achievement Prize

2013 **Australian Astronomical Observatory** North Ryde, NSW
Student Research Fellowship

2009 **Prendiville Catholic College** Ocean Reef, WA
Dux, Engineers Australia WA Division School Award