

Matthew Alger

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<https://matthewja.com>
<https://github.com/matthewja>

Research and Development

Feb 2016 – Oct 2016

Honours Thesis, ANU
Dr Cheng Soon Ong
Dr Julie Banfield

Learning from Crowd Labels to Find Black Holes

Developed a new machine learning approach to the problem of source cross-identification in wide-area radio surveys. Trained predictors using crowdsourced labels from the [Radio Galaxy Zoo](#) citizen science project. Produced an open source Python package ([crowdastro](#)) for applications of machine learning to the cross-identification task, including implementations of crowd label algorithms not available elsewhere.

Nov 2016 – Feb 2017

Pre-PhD Project, CAASTRO
Dr Christian Wolf
Dr Cheng Soon Ong

Acton: A Scientific Research Assistant

Developed an open source Python package ([Acton](#)) for active learning in astronomy using modularised predictors, recommenders, and labellers. Plans to target both EMU-ATLAS and VST-ATLAS surveys.

Jul 2015 – Oct 2015

Undergraduate Project, ANU
Dr Mayank Daswani
Prof. Marcus Hutter

Deep Inverse Reinforcement Learning

Investigated applying deep neural networks to inverse reinforcement learning. Developed open source implementations of a number of inverse reinforcement learning algorithms (available [on GitHub](#)).

Jul 2014 – Oct 2016

Undergraduate Project, ANU
Dr Peter Sunehag
Prof. Marcus Hutter

Reward Modulation in Denoising Autoencoders

Investigated smoothly combining supervised and unsupervised learning in denoising autoencoders. Developed Python code for solving classification tasks and reinforcement learning tasks using denoising autoencoders.

Education

B Science (Adv) (Hons), The Australian National University (2013 — 2016)

Majors: Theoretical Physics, Computer Science
Honours: Computer Science — First Class
WAM: 85 (HD)

Minor: Mathematics

GPA (ANU): 6.75

Work

Nov 2015 – Feb 2016

Google Australia

Software Engineering Intern, Google Australia

Developed an open-source Python application that converts Chrome Apps to run on the open web. Developed JavaScript polyfills for Chrome Apps APIs. Available [on GitHub](#).

Feb 2014 – Nov 2015

Bruce Hall, ANU

IT Support & Team Lead

On-site IT support for residents at Bruce Hall. Liaised with university IT services and Bruce Hall administration. Helped maintain IT facilities and residents' personal computers. Managed IT team internally.

Teaching

Jan 2015, Jan 2017

The University of Sydney

Residential Tutor, National Computer Science School

Ran group lab sessions teaching high school students C and Arduino, ran social activities, and supervised students for the duration of the school.

Jul 2015 – Oct 2015**Jul 2016 – Oct 2016**

ANU

Lab Tutor, Programming for Scientists

Introductory Python course targeted at science and engineering students. Ran programming labs of 20 – 40 students. Supervised lab exams and marked assignments.

Feb 2014 – Jul 2014**Feb 2016 – Jul 2016**

ANU

Lab Tutor, Introduction to Programming and Algorithms

Haskell-based introductory computer science course compulsory for computer science students. Ran programming labs of around 20 students. Conducted oral examinations and marked assignments.

Aug 2013, 2014, 2016

The University of Sydney

Tutor, NCSS Challenge

Online, 5-week Python course and competition for high school students. Worked with other tutors to answer student questions in an online learning environment.