Patrick Armstrong

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EDUCATION

Doctor of Philosophy (Astronomy & Astrophysics) Australian National University
February 2020 – Present

Bachelor of Science (Adv.) (Hon.) Australian National University
February 2016 – October 2019

EXPERIENCE

DES Builder Dark Energy Survey
July 2023 – Present
- Develop & maintain the Pippin pipeline
- Internal review of DES papers
- Organise & host meetings

MSATT Student Mentor MSATT
February 2020 – Present
- Provide guidance and mentorship for highschool students completing astronomical projects

Astronomical Tutor Australian National University
July 2019 – October 2022
- Sole tutor for *Galaxies and Cosmology (ASTR3002)*

Student Seminar Planning Committee Member Australian National University
February 2021 – October 2022
- [2022]: Senior planning committee member
- [2021]: Planning committee member

Mt. Stromlo Outreach Officer Australian National University
January 2018 – December 2022
- Deliver high quality outreach experience for school groups and families

Astronomical Consultant
October 2018 – December 2020
- [2020] Research for Questacon's *Australia in Space* exhibition
- [2019] Research for Penguin Random House's *Stargazer* publication
- [2018] Research and preparation for ABC's Stargazing Live 2018
- [2018] Building backend code and moderation for the Skymapper Citizen Science Project: Supernova Sighting

Questacon Staff Questacon
January 2015 – December 2020
- [2019 – 2020] Learning Programs Presenter (APS 4)
- [2016 – 2019] Questacon Assistant (APS 2)
- [2015 – 2019] Gallery Assistant (APS 1)

Awards & Scholarships

Alex Rodgers Travelling Scholarship ANU College of Science
2022
- Travel to DES Collaboration Meeting 2022

Commendation for Excellence in Tutoring or Demonstrating ANU College of Science
2022
- Tutoring *Galaxies and Cosmology (ASTR3002)*

Australian Government Research Training Program Australian National University
2020 – Present
- PhD Scholarship

RSAA Supplementary Scholarship Australian National University
2020 – Present
- PhD Scholarship

ANU Science, Health, and Medicine Honours Scholarship Australian National University
2019
- Honours Scholarship

ANU Summer Research Scholarship Australian National University
2016
- Develop a TNS Bulk Report API for the SkyMapper Transient Survey

Boyapti Computer Science and Mathematics prize for first year Australian National University
2016
- Top grades in mathematics and computing

Conference

DES Collaboration Meeting Invited Speaker
2020, 2021, 2022, 2023 *DES 5 year supernova analysis*

ASA Annual Science Meeting Speaker
2020, 2021, 2022, 2023 *DES 5 year supernova analysis*

Kepler K2 Extragalactic Data Analysis Meeting Attendee
2018 *Investigating transients in Kepler's K2 survey*

Communcation

SN2017jgh: a high-cadence complete shock cooling light curve of a SN IIb with the Kepler telescope Over 180 items in print, radio, and online, across Australia and internationally
2021
- **Highlights:**
- Al Jazeera
- National Geographic Indonesia
- Radio Canada
- De Morgen
- ABC Science online
- The Guardian
- Space Australia
- Sky News Australia
- 2GB and on the AAP wires

Publications

First Author

Co-Author

Projects

Gitlytics | *Python, Flask, React, PostgreSQL, Docker* June 2020 – Present
- Developed a full-stack web application using with Flask serving a REST API with React as the frontend
- Implemented GitHub OAuth to get data from user's repositories
- Visualized GitHub data to show collaboration
- Used Celery and Redis for asynchronous tasks

Simple Paintball | *Spigot API, Java, Maven, TravisCI, Git* May 2018 – May 2020
- Developed a Minecraft server plugin to entertain kids during free time for a previous job
- Published plugin to websites gaining 2K+ downloads and an average 4.5/5-star review
- Implemented continuous delivery using TravisCI to build the plugin upon new a release
- Collaborated with Minecraft server administrators to suggest features and get feedback about the plugin

Technical Skills

Languages: Java, Python, C/C++, SQL (Postgres), JavaScript, HTML/CSS, R
Frameworks: React, Node.js, Flask, JUnit, WordPress, Material-UI, FastAPI
Developer Tools: Git, Docker, TravisCI, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse
Libraries: pandas, NumPy, Matplotlib