

# Jonah T. Hansen

PHYSICS / ASTROPHYSICS PHD CANDIDATE | ANU

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## Summary

Current PhD candidate in astronomical instrumentation at the Australian National University. Career aim is to work as a researcher in a field related to astronomy, satellites, astronomical instrumentation or aerospace engineering, utilising my critical thinking skills and technological proficiency. Full list of publications here: <https://www.mso.anu.edu.au/~jhansen/#research>.

## Education

### Australian National University

Canberra, ACT

DOCTOR OF PHILOSOPHY

Feb. 2020 - Exp Dec. 2023

- Recipient of an RTP and Dean's Merit HDR Supplementary Scholarship in Science

### Australian National University

Canberra, ACT

BACHELOR OF PHILOSOPHY - SCIENCE, HONOURS IN ASTRONOMY AND ASTROPHYSICS

Feb. 2016 - Dec. 2019

- Recipient of a Tuckwell Scholarship
- High Distinction Average and University Medal recipient

### Loxton High School

Loxton, SA

SOUTH AUSTRALIAN CERTIFICATE OF EDUCATION

Feb. 2010 - Nov. 2015

- ATAR of 99.85

## Work Experience

### Australian National University

Canberra, ACT

RESEARCHER

Jul. 2016 - PRESENT

- PhD project centred on developing a beam combiner for the Pyxis interferometer (see <https://www.mso.anu.edu.au/pyxis/> for more information). Also interested in the properties of Mira variables using high angular resolution measurements.
- First year project with A/Prof. Michael Ireland in tracing back the positions of stars in order to determine cluster membership.
- Second year project with Dr. Brad Tucker in utilising citizen science to try and detect Planet Nine.
- Third year project with A/Prof. Tony Travoignon in designing and building an instrument designed to measure turbulence inside a telescope dome. Was installed onto the Anglo Australian Telescope in early 2019.
- Third year with Dr. Luca Casagrande in identifying relationships between stellar properties and the properties of the exoplanets around them.
- Honours project with A/Prof. Michael Ireland in simulating a linear formation flying, space interferometer mission with the aim of detecting biosignatures on exoplanets.

### Mount Stromlo Observatory

Canberra, ACT

OUTREACH VOLUNTEER

April 2018 - PRESENT

- Assisted with the ANU Stargazing World Record Attempt.
- Regularly give tours and present to school groups at Mt Stromlo Observatory.
- Given talks and written newspaper articles about astronomy (see <http://www.mso.anu.edu.au/~jhansen/#outreach>)

### HEO Robotics

Sydney, NSW

PHD INTERN

Oct. 2020 - Jan. 2021

- Researched and designed an optical payload for a future space situational awareness (SSA) satellite.
- Purchased and tested a potential optical system, both for optical quality and for survivability in space.

### Australian Astronomical Observatory

Sydney, NSW

FELLOWSHIP HOLDER

Dec. 2017 - Feb. 2018

- Conducted a research project with Mr. Barnaby Norris in Adaptive Optics Instrumentation.
- Designed and tested a photonic lantern based wavefront sensor, designed to increase the speed and accuracy at which atmospheric turbulence can be detected.

## Australian National University

STUDENT AMBASSADOR

Canberra, ACT

Jan. 2017 - Jan 2020

- Lead tours of the ANU campus on a fortnightly basis.
- Team leader for major events, such as ANU Commencement Address and ANU Open Day.
- Gave presentations to prospective ANU students.

## Max Planck Institute for Astronomy

STUDENT RESEARCHER

Heidelberg, DE

Jul. - Aug. 2015

- Conducted a research project into galaxy evolution and morphology with Dr Kai Noeske.

## Defence Science and Technology Organisation

WORK EXPERIENCE STUDENT

Adelaide, SA

Apr. 2013

- Worked on a tactical simulation between a submarine and an aerial assault.

## Honours & Awards

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### AWARDS

2020	<b>Peter McGregor Scholarship</b> , Australian National University	Canberra, ACT
2019	<b>University Medal</b> , Australian National University	Canberra, ACT
2018	<b>4th Place Presentation Prize</b> , ANU Bachelor of Philosophy Symposium	Canberra, ACT
2016, 2017, 2019	<b>Chancellor's Letter of Commendation</b> , Australian National University	Canberra, ACT
2017, 2018	<b>Brescia Award</b> , Ursula Hall, Australian National University	Canberra, ACT
2015	<b>Governor's Commendation Award for Outstanding Achievement</b> , South Australian Certificate of Education Merit Ceremony	Adelaide, SA
2015	<b>Chinner Memorial Prize</b> , Loxton High School	Loxton, SA
2015	<b>Gold Medallist</b> , RACI Chemical Analysis Competition	Adelaide, SA
2015	<b>Semi-Finalist</b> , Rostrum Voice of Youth Public Speaking Competition	Adelaide, SA

### OPPORTUNITIES

2015	<b>Participant</b> , International Summer Science School	Heidelberg, DE
2015	<b>Participant</b> , National Youth Science Forum	Canberra, ACT

## Skills

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### Communication

- Given multiple public talks, both for astronomy outreach, as well as for communicating my research.
- Liaisoned with many academics for the ANU National Science Week research market day, achieving a turnout of over 50.
- Written many essays, reports and articles for university newspapers and magazines, as well as The Canberra Times.
- Written technical reports and papers detailing my research.

### Programming

- High proficiency in the Python and LaTeX programming languages.
- Moderate proficiency in C/C++, HTML.

### Teamwork

- Actively gained experience in leadership and teamwork through being a Prefect at Loxton High School.
- Volunteer and group leader for both the ANU National Science Week organisation team and the ConocoPhillips Science Experience.
- Lead a team of 10 student ambassadors for registration at the 2018 ANU Open Day.

## Extracurricular Activities

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### ANU Physics Society

MEMBER, SECRETARY IN 2017 & TREASURER IN 2018

Australian National University

Jun. 2016 - Nov. 2019

- Helped re-affiliate the society after disaffiliation in 2015.
- Led and organised multiple science based trivia nights.

**ANU Music Society***Australian National University*

PIANIST/TRUMPET PLAYER

*Feb. 2016 - PRESENT*

- Played in bi-yearly concerts for both a general audience, as well as a pre-kindergarden concert.

**ANU National Science Week Committee***Australian National University*

ACADEMIC LIAISON

*Aug. 2018*

- Organised and developed a research market day for undergraduates to learn what research is available at ANU.
- Main contact in finding over 50 academics and PhD students to present their research to students.

**ConocoPhillips Science Experience***Australian National University*

STUDENT VOLUNTEER

*Sept. 2016-2019*

- Assisted Year 9 and 10 students by showing them around the ANU campus and encouraging an interest in science.