Isaac R. Ward
Computer Scientist

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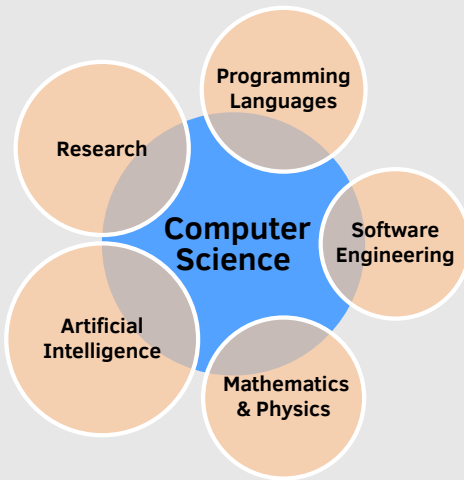
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Technical Skills

Overview

Programming experience

0 ——————→ 4 years

Java • Python3

JavaScript • HTML • CSS • LaTeX

C • C# • C++ • Mathematica

SQL • PHP • MATLAB

Education

BSc. Hons. (H1), Computer Science
GPA: **7.00** / 7, WAM: **88.88%**
· **PROJECT**: Improving Deep Learning Loss Functions for Robotic Navigation,
· **SUPERVISOR**: Winthrop Prof. Mohammed Bennamoun,
· University of Western Australia,
· Jul 2018 - Jul 2019
BSc., Computer Science & Physics
GPA: **6.85** / 7, WAM: **84.73%**
· **DEGREE MAJOR**: Computer Science,
· **SECOND MAJOR**: Physics,
· University of Western Australia,
· Feb 2015 - Nov 2018

Employment & Experience

Jul 2019 - Present	**Artificial Intelligence Data Scientist**	Artrya

- Researched and developed *fully* automatic, machine-learning-based medical tools, which were used by radiologists and cardiologists to provide their patients with faster, more accurate diagnoses.
- Designed algorithms that automatically constructed 3D models of the heart (based on AI inferences). These were used to simulate blood flow through diseased arteries in real time.

Oct 2018 - Present	**Research Assistant**	University of Western Australia

- Authored and edited publications (in the areas of Computer Vision and Artificial Intelligence), and ARC grants (both Linkage and Laureate).

Feb 2019 - Jun 2019	**Teaching Assistant**	University of Western Australia

- Managed lab sessions for the unit *Software Engineering with Java*.
- Assisted and encouraged students — of varying skill level — in their Java programming. Other duties included marking and invigilation.

Feb 2016 - Mar 2019	**State Exam Editor**	WA Exam Papers

- Standardised the difficulty of exams for statewide distribution.
- Securely handled copyrighted and other sensitive documents.

Sep 2015 - Oct 2018	**Tutor & Revision Session Manager**	The Tuition Centre

- Taught & motivated students in their Maths, Physics & English studies.
- Solely managed the Tuition Centre's operation in manager's absence.

Aug 2017 - Nov 2017	**Programming Team Leader**	International Centre for Radio Astronomy Research

- Led a 6-student team in the creation of an astronomical graph editing component in the Square Kilometre Array's data processing pipeline.
- Proved that maintaining an inclusive & mindful team culture is more important than relying on a team's technical skill.

Oct 2016 - Feb 2017	**Test Engineer Intern**	Nuheara

- Completed the Bluetooth qualification process for *Nuheara*'s IQbuds™.
- Ran hardware and software (Android, iOS, firmware) product testing.

Scholarships & Awards

Nov 2019	**Fulbright Scholar**	Fulbright Commission

- Received a postgraduate **Fulbright Futures Scholarship**, funded by the Kinghorn Foundation.

Oct 2019	**1962 Prize Finalist**	Australian Computing Society

- One of seven finalists for the Australian Computing Society's 1962 Prize; awarded for outstanding undergraduate achievement in Information Computing Technologies.

Jun 2018 - Jul 2018	**Future Physicist's Scholarship Recipient**	FPISC, USTC (Hefei)

- Attended seminars & lectures given by industry and academic leaders in Hefei, China, as a part of the FPISC program.
- Studied plasma confinement using the campus' reverse field pinch.

Sep 2017 - Jan 2018	**Astrophysics Summer Studentship Recipient**	ICRAR

- Developed the 'gfinder' program: a machine learning tool for localizing galaxies in large (>150GB), JPEG2000 encoded datasets.
- Improved neural network evaluation speed by parallelising Intel Movidius' Neural Compute Sticks.

Dec 2014	**State Distinction (English 3A/3B)**	School Curriculum & Standards Authority

Workshops & Seminars

Feb 2019	**Robotic Operating System Workshop** (participant)	Woodside Energy Ltd.

- Conducted hands on work with Robotic Perception, Computer Vision and Robotic Manipulation.
- Studied the Robotic Operating System (ROS) software framework in a bottom up approach, under the guidance of Rob Reid (formerly at NASA's JPL & Google's Project Tango).
- Solved tasks relevent to Western Australia's mining sector using semi-autonomous simulated robots.

Sep 2015 - Oct 2018	**WACE Exam Revision Seminars** (presenter)	Karratha Senior High School

- Delivered multiple 3-hour-long exam revision sessions to groups of 10-40 students on behalf of the Tuition Centre, Claremont.
- Provided calculator training sessions for staff as required.
- Presented exam revision sessions on grade 11 & 12 English, Math Applications & Math Methods.
- Provided resources, advice, and guidance for students making university and scholarship applications.

Dec 2017	**Machine Learning Workshop** (participant)	Data Intensive Astronomy, ICRAR

- Attended talks given by academic professionals from the Data Intensive Astronomy group at the International Centre for Radio Astronomy Research (ICRAR). Speakers included Dr. Andreas Wicenec & Dr. Chen Wu.
- Subsequently applied state-of-the-art machine learning techniques to the problem of galaxy classification.

Nov 2017	**Supercomputing Workshop** (participant)	Pawsey Supercomputing Centre

- Participated in a hands-on, week-long course about scientific supercomputing.
- Scheduled and ran programs (Monte Carlo simulations & graphics rendering) in Python3 on the supercomputer 'Magnus' (Cray XC40).
- Attended lectures on distributed computing and supercomputer architectures given by experts at the facility.

Community Involvement & Outreach

Feb 2016 Nov 2018	**University Physics Society Member**	University of Western Australia

- Aided peers with physics, mathematics and programming work in and around the common room.
- Helped create graphics that were used on merchandise, and to publicize community events.

Feb 2018	**Public Outreach Volunteer**	Gravity Discovery Centre

- Volunteered in setting up and guiding members of the public through the Gravity Discovery Centre's 'super blue blood moon' event.
- Explained basic astronomical concepts surrounding the event and helped members of the community operate a small astrophotography rig.
- Helped package and store telescopes once the event was complete.

Mar 2017 - Feb 2018	**Performer at Musical Benefits**	

- Played guitar in the band 'Kopano' for a number of benefit shows on behalf of the organisations Women Of Music Production Perth (WOMPP) and West Australian Music (WAM).
- The proceeds from these shows went on to support local music programs in the community.

Sep 2016 Sep 2017	**Stage and Sound Volunteer**	Mammoth Music Showcase, Rockingham

- Setup stage & sound (amplifiers, instruments, mixer, etc.) at a fundraising show where aspiring young musicians were invited to perform in front of their local community (~300 people).
- Handled funds and other logistical matters.

Publications

1. Benjamin Allaert, Isaac Ronald Ward, Ioan Marius Bilasco, Chaabane Djeraba, and Mohammed Bennamoun. Performance evaluation of optical flow techniques for facial expression analysis. *submitted to the International Journal of Computer Vision (IJCV)*, 2019. Available at `https://arxiv.org/abs/1904.11592`

2. Isaac Ronald Ward, Mohammad Amir Asim Khan Jalwana, and Mohammed Bennamoun. Improving image-based localization with deep learning: the impact of the loss function. *Pacific-Rim Symposium on Image and Video Technology (PSIVT)*, 2019. Available at `https://arxiv.org/abs/1905.03692`

3. Isaac Ronald Ward, Hamid Laga, and Mohammed Bennamoun. Object detection from RGB-D images. In Paul Rosin, editor, *RGB-D Image Analysis and Processing*. Springer Publishing, 2019. Available at `https://arxiv.org/abs/1907.09236`