

Daniel Williams

williamsdaniel888@gmail.com

Skills

Projects. Scrum, Lucid Communication, Interpersonal & Intercultural Awareness.

Technology. Python, C/C++, MATLAB, SQL. ROS, Gazebo. PyTorch, BERT. Linux, Shell Scripting, Git.

Fabrication. Technical Drawing, CAD. Laser Cutting, 3D Printing, Electronics. Portfolio: rubile.now.sh.

Languages. English (C2), Spanish, French (B2), Greek (B1), Russian (A2), Arabic (A1), Japanese (N5).

Education

University of Melbourne

2021 – 2024

Doctor of Philosophy (Confirmed May 2022)

Thesis: Trust-Mediated Interactions between Humans and Autonomous Robotic Swarms

University College London

2019 – 2020

MSc Machine Learning (Distinction)

Supervised — Deep — Reinforcement Learning, Graphical Models, Machine Vision, Affective Computing, Natural Language Processing, Information Retrieval and Data Mining.

Thesis: Domain Adaptation through Adversarial Training of Albert for Aspect-based Sentiment Analysis

Imperial College London

2015 – 2019

MEng Electrical and Electronic Engineering (First-Class Honors)

Mathematics (Calculus, Linear Algebra, Statistics, Optimization), Analog & Digital Electronics, Embedded Systems, Signal Processing, Machine Learning, Systems Identification, Predictive Control.

Thesis: Multi-Agent Optimal Control for Cooperative Payload Transportation

Professional Experience

July 2022 –

**The University of Melbourne
Melbourne, Australia**

Subject Demonstrator (Casual)

Leading workshops in MATLAB and Simulink for *ELEN90055 Control Systems* in the Department of Electrical and Electronic Engineering.

April 2022 –

Australian Defence Force

Officer Cadet (Reserve)

Affiliated with Monash Company, Melbourne University Regiment.

April – May 2020

**9Epoch.ai
Melbourne, Australia**

Machine Learning Engineer (Casual)

Scraped and cleaned financial reporting data from ASIC using BS4. Performed regression analyses with Numpy, visualization with Grafana.

March – September 2020

**EmoTech
London, United Kingdom**

Industrial Dissertation Project

Aspect-based Sentiment Analysis using ALBERT architecture. Employed adversarial examples to improve classification accuracy. Model development in PyTorch, FastAPI web applet with AWS.

May – September 2018

**RISC Lab
KAUST, Saudi Arabia**

Visiting Research Assistant

Investigated cooperative payload transport (CPT) using aerial drones. Developed PID-based control scheme for communication-free CPT. Simulated system behavior using ROS, Gazebo and MAVROS.

Publications

1. E. Vella, **D. A. Williams**, R. Walton, A. Chapman, and A. Michalewicz, "Did That Stone Move? Staging Stone Swarms in Virtual Reality and IRL Galleries," presented at the EVA London 2022, London, UK, Jul. 2022.
2. E. Vella, **D. A. Williams**, A. Chapman, and C. Manzie, "Individual and Team Trust Preferences for Robotic Swarm Behaviors," presented at the 2022 American Control Conference, Atlanta, Georgia, USA, Jun. 2022.
3. **D. A. Williams**, A. Chapman, and C. Manzie, "A Framework for Trust-Mediated Interactions between Humans and Autonomous Swarms," presented at the Thinking Swarms Workshop, Brisbane, Australia, May 19, 2022. [Online].
4. E. Vella, **D. A. Williams** et al., "Can You Trust a Stone?," presented at ANAT SPECTRA 2022: Multiplicity, Melbourne, Australia, Apr. 22, 2022.

Other Achievements

Speech Mentor (2021-23), World Speech Day Japan Contest, Durham University, UK.

Certificate in Small-Group Teaching (2021), University of Melbourne, Australia.

Student-Staff Liaison Officer (1st – 4th Year), Dept. Electrical Engineering, Imperial College London, UK.

President's Ambassador (2015 – 2019), International Outreach Bureau, Imperial College London, UK.

Interests

Automation. Multi-Agent Cooperation, Natural Language Programming, Robotics (Terrestrial, Aerial, Swarm), Model Predictive Control, Reinforcement Learning.

Horticulture. Cert II from Melbourne Polytechnic (Fairfield, 2021). Self-employed landscape gardener. Volunteer grower for TreeProject (2021 - 2022).

Martial Arts. Shorinji Kempo: Online Instructor and Captain at Camden Shorinji Kempo (2021 – 2022), Captain and Secretary at Imperial College (2016 – 2019).