

James Condos

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EDUCATION

University of Melbourne

Melbourne, VIC

Masters of Electrical Engineering – Autonomous Systems and AI

2024 - Expected Dec 2026

- Control Algorithms, Embedded Systems, Photonics, Optimization, Quantum Computing, AI/ML

Bachelor of Science – Major in Mathematical Physics

2019 - 2022

- H2B – Second Class Honours – Advanced Maths (Abstract Algebra, Differential Forms), Quantum Physics

Diploma in Computer Science

2019 - 2022

- H2A – First Class Honours – Projects in Java, C, Python, ML and AI

EXPERIENCE

Melbourne Space Program

Melbourne, VIC

CO – LEAD for ACRUX – 2 Project

Jan 2022 – Current

- Currently working on the ADCS (Attitude Determination and Control Systems) team for ACRUX – 2, where we are aiming for a **2025 December launch of a satellite into low earth orbit**.
- Writing code in C++ to implement the ADCS finite state machine, interface with the sensors and actuators, reaction wheels, sun sensors and communicate with the On-Board Computer.
- Assisting in writing of our **LQR (Linear-Quadratic-Regulator) control algorithm**, which will focus on how the satellite moves, with our reaction wheels.
- Research Control algorithms and implement them through a range of sensors and actuators. **One example is the B-Dot algorithm**, which uses a magnetometer and magnetorquer for de-tumbling.

Australian Defence Intelligence Organization

Melbourne, VIC

STEM Cadetship

May 2025 - Current

- A program for high achieving university students to work in a Defence Intelligence Organization.
- Working on **python development**, projects and other technical aspects for the ADF's needs.

GamePlan Coaching Tutoring

Melbourne, VIC

Tutor

Aug 2022 – Current

- Tutoring, advising, coaching, and guiding high school students in the VCE curriculum for STEM subjects
- Tutoring university students for subjects in physics, math's and computer science.

PHM Technology

Melbourne, VIC

Electrical Engineering Research Intern

Jan 2025 – July 2025

- Conducted a research project with **Discrete-Event-Simulations (DES), Deep Reinforcement Learning (DRL) and Machine Learning (ML)** for multi-agent **python simulations**. Developed a deterministic decision agent for maintenance operators, which was to be extended to a stochastic framework.
- Gained experience with advanced maintenance and reliability software, MADE, which creates digital risk twins.

University of Melbourne

Melbourne, VIC

Physics 1 and Physics 2 (PHYC10003 and PHYC10004) Lab Demonstrator

March 2023 – Jan 2025

- Running and supervising Physics labs for classes of 15-20 students, teaching Physics.
- Includes marking written labs for experiments and collaborating with peers.

APA Group

Melbourne, VIC

Student Intern in CICD and DevOps (Software Development)

Jan 2022 – March 2022

- Working in a collaborative team setting, working continuously with Java and MySQL implementation and development, where my team's goal was to bridge development and operations.
- Working with Team City, Octopus Deploy, Bitbucket and Git.
- Contributed to a work environment that fosters innovation, teamwork and high achievement.

University of Melbourne

Melbourne, VIC

Summer Research project for the School of Physics

Dec 2021 – March 2022

- An independent research project for the school of physics under an academic, with focus and study on '*Quantum Machine Learning*'.
- Discussed the importance of computation theory for Quantum Computers (PDA's, DFA's etc). Also discussed different ways to improve efficiency of Qubit collapsing states, and how this can be utilized in data mining and statistical analysis

PROJECTS AND INVOLVEMENT

My Digital Portfolio

- [My Portfolio and Projects!](#)

Notable Projects

- Final Degree Project simulating a Quantum Computer on an FPGA board beginning in 2026
- Developed a Solar Cell from scratch, Semi-Conductor Physics (Lab work + Solid State Physics)
- Created an FPGA hardware physical digital clock (Verilog)
- Created a Doubly Connected Linked Edge List data structure (C)
- Created a Tweet Sentiment Bot for Optimizing Trades in Financial Markets (Python and ML)
- Created a more advanced version of Flappy Bird (Java)

Extra-Curricular Involvement

- UMSU Host Program – Touring new students through the University
- Captain for the Melbourne university Futsal Soccer Team (Goalkeeper)
- University of Melbourne Peer Mentor Leader
- Melbourne University Electrical Engineering Club (MUEEC)

SKILLS AND DEVELOPMENT

Technical

- Proficient Applications (Excel, Word, PowerPoint, Outlook, Adobe, Photoshop, Visual Studio, TeamCity, Octopus Deploy, Atlassian Products (Confluence, BitBucket, Jira etc.), Quartus, Altium.
- Programming languages
 - Fluent in: Python, Object Oriented Python, C, Xamarin (C++ Based), Java, Verilog, MATLAB, Haskell, MySQL, Node.js
- Defence Clearance
 - Australian Positive Vetting (PV) Clearance Obtained in 2025