



# PUNJAYA WICKRAMASINGHE



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ACT, AUSTRALIA

## EDUCATION

### Australian National University (ANU)

FEB 2019 - DEC 2023

- Bachelor of Engineering (Research & Development)
- Major: Mechatronics | Minor: Computer Science
- First Class Honours | GPA: 6.72 out of 7
- Excellence Scholarship (2019)
- CECC Dickins Scholarship in Engineering (2023)

### Narrabundah College

JAN 2017 - DEC 2018

- ATAR: 99.20

## PRIMARY WORK EXPERIENCE

### Geodrones Australia, Mechatronics Engineer

NOV 2023 - PRESENT

- Key contributor to project nominated for **Australian AI Awards 2024**.
- Developed and implemented **real-time AI-driven** 2D and 3D change detection on a drone, with live results for operators.
- Adapted, integrated and evaluated open-source state estimator for **GPS-Denied UAV navigation** on proprietary drones.
- Developed a software stack enabling real-time **Docker containerised drone mission swapping** with secure **networking**, improving operational flexibility and efficiency.
- Developed drone hover stabilisation using **optical flow**.
- Embedded systems experience, writing **STM32 compatible drivers** in C for hardware.
- Designed basic **custom PCBs** with Altium.
- Experience debugging and managing **CMake build systems**.
- Basic experience with **networking**: protocols, security, troubleshooting connectivity issues, using Wireshark.
- Pitched to industry partners and VIPs, providing live demos at National Security & Defence expo (October Sky 2024).

### Complementary Inertial Navigation System for Improved UAV State Estimation, ANU Research Student

JAN 2023 - DEC 2024

- **Co-authored paper** in European Journal of Control – “Constructive synchronous observer design for inertial navigation with delayed GNSS measurements”.
- Achieved 86/100 on thesis and seminar.
- Advanced Linear Algebra to execute the implementation of a novel INS filter algorithm using ArduPilot and Python.
- Incorporated sensor measurements (magnetometer, barometer, GPS velocity) to further enhance performance.
- Results of my initial implementation were presented at the ArduPilot 2023 Conference.

### Private Tutor, Tutor

MAY 2019 - PRESENT

- Tutoring 4 students (55 since 2019), aged 8-18, with diverse backgrounds.
- Improved student grades from C/B to A average.
- Simplified complex concepts for easy understanding.
- Taught time management and self-sufficiency skills.
- Eager to instill lasting subject curiosity in students

## SECONDARY WORK EXPERIENCE

### Signals & Bio Engineering Research, ANU Research Student

JAN 2020 - NOV 2021

#### Project 1: Selectivity of Acetone Breath Sensor (6 months)

- Achieved 88/100 on thesis and seminar.
- Meta-analysis to find areas to improve acetone breath sensors.
- Refined information extraction, interpretation and synthesis skills.

#### Project 2: Acoustic Emotion Recognition (12 months)

- Achieved 91/100 on thesis and seminar.
- Investigated spatial audio features for enhancing ML performance in acoustic emotion recognition.
- Gained knowledge in spatial audio and HRTF concepts.
- *Seaborn* data visualisation and ML algorithm adaptation.
- Testing through Python and MATLAB.
- *sklearn* for traditional ML and *TensorFlow* for deep learning.

### BixeLab, Digital Identity Testing Analyst

NOV 2021 - NOV 2023

- World's second NIST/FIDO accredited biometric testing lab
- Data analysis with Pandas and creating client reports
- Small team of 15 - demanded adaptability and learning agility
- Automated processes and uplifted secure data handling protocol

## SKILLS

- **Programming Languages:** Python, C++, C, Java, Haskell, JS
- **Front-end:** HTML, CSS, Curses (TUI)
- **Embedded:** C, Verilog
- **Tools:** Git, Linux, Docker, ROS, Vim, CMake, Altium, Onshape, Gazebo, ArduPilot, Jira, STM32 Cube IDE, Fusion360
- **Personal Projects:** Connect4, Pong, Snake, Portfolio Website, Utility App Suite

## EXTRA CURRICULAR

### ANU Engineering Student Association, Head of Social

2020 - 2021

- ANU's 3rd largest student association
- Lead a team of 3 people
- Organized 5 events
- Produced \$1,700 in sales from social events, exceeding previous years' performance

### Volunteering for Australian Sri Lankan Buddhist Association (ASLBA)

2010 - 2024

- Volunteering for ASLBA at the Red Cross Blood Donation Centre as a photographer (2020)
- Master of Ceremony for and general involvement in cultural events (2010 - 2017)
- Volunteer at ASLBA community events

### National Premier League (NPL) Soccer

2013 - 2020

- Highest level of football in Canberra
- Runners-up in 2019 (U18 NPL1) and semi-finalists in 2020 (U23 NPL2).
- Consistently trained while managing a balanced lifestyle.