Vincent Kannan

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EDUCATION

University of Sydney - Bachelor of Aeronautical Engineering (Honours) Expected November 2025

SKILLS

Programming	C++, Java, MATLAB, Python, R Studio
Platform and Tools	ANSYS, Nastran Patran, OpenVSP, Strand 7, SolidWorks, XFOIL
Technical	3D Printing, C02 Laser Cutter, Machining, Engineering Drawing Interpretation

EXPERIENCE

Aerostructures Engineer, USYD Rocketry Team June 2024 – Present

Cross-functional collaboration with different subsystems in the USYD Rocketry Team to design, manufacture, and launch a rocket at the Spaceport America Cup 2025.

- Complete tasks for the Aerostructures team to meet deadlines and exceed targets for the wider USYD Rocketry Team
- Read and interpret engineering drawings for rocket construction
- Utilise finite element analysis, OpenRocket and computer aided design to perform stress analysis and aerodynamic simulations leading to an optimised rocket structure
- Design parts that are not commercially available for manufacturing

Casual Academic, University of Sydney December 2023 – Present

In class tutor and lab demonstrator for undergraduate subjects in the Faculty of Engineering.

- Teach foundational engineering, drawing standards and machining practices to undergraduate students
- Attend and contribute to subject meetings; liaise with other casual academics, subject coordinators, and technical staff
- Prepare, supervise, and mark assignments

Aeronautical Engineer Intern, Vampire Projects Inc. December 2023 - Present

Ongoing internship gaining hands-on experience in restoration of a De Havilland Vampire to full aircraft worthiness subject to the Australian Warbirds Association Limited Standards.

- Collaborate with a team of engineers
- Tool and chemical handling
- Read and interpret engineering drawings
- Design and manufacture components that are no longer commercially available
- Manufacture and restore fuselage and assorted parts

PROJECTS

Performance and Fracture Toughness of Graphene Fiber-Reinforced Polymer Composites 2025

- Design and manufacture double cantilever beam specimens by hand lay-up using epoxy resin and woven fibreglass, with varying weight percentages of graphene mixed into the matrix
- Perform controlled crack propagation tests to evaluate fracture toughness, comparing graphene concentrations to determine optimal damage tolerance
- Conduct data analysis and visualisation using Python to interpret mechanical property trends
- Automate propagation measurements using machine learning models in Python

Uncrewed Air Vehicle (UAV) design for request for proposal - Australian Air Force 2025

- Collaborated on a full UAV concept proposal in response to a military request for proposal

- Lead structural design and internal layout of the wing and fuselage, including sizing and placement of spars, ribs and bulkheads
- Performed finite element analysis to validate structural integrity under load cases and mission profiles

Autonomous UAV Course Navigation 2025

- Developed autonomous navigation scripts in Python for drone using onboard vision and sensor data
- Implemented real-time obstacle detection, proportional integral derivative controller and waypoint tracking
- Led project team, managed milestones and ensured successful test flights in indoor environments

Therapeutic Toy for Cerebral Palsy Infants 2024

- Designed ergonomic infant grip toy featuring finger grooves and adaptive form
- Manufactured prototypes via 3D printing with flexible thermoplastic polyurethane for safe infant interaction
- Contributed to initial testing and evaluation for suitability in early-stage motor skill therapy for children diagnosed with cerebral palsy

Design and Structural Testing of Wing Tail box 2024

- Calculated structural loads to determine rib and spar configuration of an aircraft wing tail box
- Fabricated wing box and conducted destructive testing to assess failure modes and validate structural design
- Compared physical test results with theoretical predictions and finite element analysis outputs

Handwriting Conversion via Machine Learning 2023

- Built a convolutional Neural Network model in Python to convert images of handwritten letters to digital text
- Pre-processed image data, training and validated the model
- Achieved 96% accuracy in full-page handwritten character recognition

PROFESSIONAL DEVELOPMENT

Flying Operations – Curtis Aviation NSW July 2024

- Completed 2-day intensive flight training program
- Logged 5 hours of recorded pilot flight instruction as part of introductory pilot course
- Successful navigation flight and theory modules

Student Member – Royal Aeronautical Society Australian Division (RaeS AD) April 2024 – Present

- Attend seminars and events hosted by RAeS AD as well as receive newsletters
- Volunteer for Cool Aeronautics, a STEM outreach program and subbranch of RaeS

AWARDS AND CERTIFICATIONS

International Rocket Engineering Competition (IREC) 2025

USYD Rocketry Team

- 1st place overall – New Horizon Award
- 1st place in 10,000ft SRAD (Student Researched and Developed) Hybrid/Liquid Category
- 2nd place Jim Furfaro Award for Technical Excellence
- 2nd place Charles Hoult Award for Simulation and Modelling

Dean's Merit List 2021

Western Sydney University

Working with Children Check 2021

Service NSW

High School Vice-Captain 2020

St Mary's Cathedral College

Duke of Edinburgh Award (Gold) 2017 - 2019

St Mary's Cathedral College

REFERENCES

Available upon request