Siddhant Tandon

siddhant.tandon@hotmail.com
(+61) 488 050 488
Melbourne, Australia

SKILLS

Linux Software Development
Experience working developing applications for Linux-based operating systems. Well versed with using the command line interface.

Python

C#

C

Avionics Engineering
Experience working with electrical systems, sensors, and actuators used in an aviation context.

Embedded Programming
Working on devices including Arduino, Raspberry Pi and NVIDIA Jetson.

Inter-application Networking
Developing data streaming interfaces between applications using TCP/UDP.

UI/UX Programming & Design

Drones
CASA certified drone pilot with extensive experience working with drones.

Git

PROFILE

Recent engineering graduate with software engineering experience in the aerospace R&D domain, gained through work experience and internships. Key strengths include Python programming, UI design, software development practices, and working in agile, impact-focused technical environments. I am passionate about aerospace and eager to contribute to advancing the state of the art in this field.

EDUCATION

Master of Mechanical Engineering, Monash University
2023 – 2023 | Australia
Completed coursework spanning mechanical design, systems engineering & fluid dynamics. Graduated with Distinction (with a Weighted Average Mark of 81%).

Bachelor of Mechatronics Engineering (Honours), Monash University
2018 – 2022 | Australia
Completed a minor in Materials Science. Inducted on the Dean's Honour Roll in 2019 and 2020. Graduated with a Weighted Average Mark of 77.839% (second class honours, upper division) & honours project grade of High Distinction/81% (see project here).

PROFESSIONAL EXPERIENCE

Department of Defence - Defence Science & Technology Group (DSTG), Robotics Research Engineer II
January 2024 – Present

DSTG is the research and development agency within the Australian Department of Defence. I am a part of the Aerial Systems Autonomy Group. Some projects & details have been omitted due to classification.

- Developed and led commissioning a 3D environment and simulation suite (built on Unreal Engine, and **Python**) for test and evaluation of computer vision algorithms for Uncrewed Aerial Systems (UAS).
- Developed experience in software development best practices, such as **Git version control, jira issue tracking** etc.
- Developed custom AI-based object detection algorithms for use aboard UAS.
- Made **PyQt-based utility tools** for use within the team, for instance for aircraft path planning and data analysis.
- Led strategic engagements with key international and industry partners through official foreign visits and joint R&D activities.
- Promoted to Engineer II in September, in half the time usually taken, due to strong performance.

> **Intern**
> December 2020 – January 2024
> - Developed and exhibited a research prototype Microsoft HoloLens augmented reality application in Unity (programmed in C#), and using ROS, which allowed control of a 5-DOF robotic arm using gaze tracking.
> - Collaboratively worked on a diverse range of research projects with topics ranging from UAS navigation to optimisation algorithms for Neural Networks.
> - From November 2020 to March 2022, I completed a fulltime placement with DSTG, and was a part-time from 2022-January 2024 on a STEM cadet scholarship.
>
> **Accomplishments- Completed three projects exhibited at internal conferences, with an additional one currently under peer review for publication at the Australian International Aerospace Congress 2025. Many of the capabilities and technologies I worked on have gone on to be demonstrated for, and implemented by clients.**

SCHOLARSHIPS

STEM Cadetship, Department of Defence
2022
Offers university tuition payment and research placements with the Department of Defence to high-performing STEM students.

Summer Research Scholarship, Monash University
2019
A grant to allow high performing students to undertake research projects over the summer break.

Masters' Pathway Scholarship, Monash University - Faculty of Engineering
2018
Conferred based on achievement in high school, providing a stipend for both undergraduate and postgraduate studies.

TEACHING

Teaching Associate, Monash University - Faculty of Engineering
February 2023 – July 2023
Academic Tutor for ENG1012 - Engineering Design, where I ran practical classes with 120+ students and managed the group work and assessment of 40+ students.

Tutor, Fruition Tuition Vermont Learning Center
April 2018 – April 2020
Taught students math, English, biology and chemistry at a junior and senior high school level.

VOLUNTEERING

Monash Young Persons Reference Group, Committee Member
January 2018 – January 2021

Monash Student Association, Academic Affairs Committee Faculty Representative
March 2019 – December 2020

Engineers Without Borders - Monash Chapter, Appropriate Technology Subcommittee
March 2018 – January 2019

Immersive Analytics Laboratory (Monash University), Research Student
November 2019 – November 2020

Employed as a summer research student, and subsequently rehired as a research officer, on a year-long contract with the Immersive Analytics lab at Monash University, working under Professor Tim Dwyer & Dr Maxime Cordeil on problems in human-computer interaction & data visualisation.

- Worked on development of the "MADE-Axis"- a set of multi-purpose controllers used for data visualisation, and interaction with augmented reality visualisations.
- Coded the **firmware running aboard the microcontrollers** of the devices, as well as protocols for inter-device communication over wired and Bluetooth connections.
- **Programmed standalone applications in C, C# and Visual Basic** to allow the controllers to be used with custom research software as well as commercial products like Adobe Photoshop, allowing me to develop **strong UI/UX experience.**
- Gained experience working in an agile research environment- managing development of features from the concept stage to final research prototype.

Accomplishments: This work formed the basis for a conference paper I co-authored (found here) which was awarded best paper runner-up at ACM ISS 2021.

Monash High Powered Rocketry Student Team, Student Engineer
July 2018 – January 2022

Worked on the telemetry/communications payloads, as well as airbrake systems designed to control the altitude reached by the rocket.

- Joined the team at its inception, and as a result worked on a breadth of tasks to develop prototypes and test concepts novel within the team.
- In a team, designed and built the team's first retractable airbrake system which was tested on an experimental rocket.
- Led design, manufacture and test of all electrical systems aboard the rocket and performed CFD on designs to verify performance during design.
- Worked in a team to **develop a web-based app** showing live rocket flight statistics (using HTML and JavaScript).
- Managed testing in the university wind tunnel to experimentally determine drag characteristics of competition parachutes, which were subsequently used in trajectory simulations.

Accomplishments: Contributed to rockets that competed in the Australian Universities Rocketry Competition (AURC) in the 10K and 30K ft categories in 2018, placing 2nd in the 30K ft category and 2nd in the 10K ft COTS division at the 2021 Spaceport America Competition.

PUBLICATIONS

The MADE-Axis: A Modular Actuated Device to Embody the Axis of a Data Dimension,
ACM International Conference on Interactive Surfaces & Spaces
5th November 2021
Awarded a best paper honourable mention at the conference.

Augmented Reality for Assisted Drone Landings,
Monash University (Honours Thesis)
November 2023

A3TESS – A virtual proving ground for UAS computer vision-based object detection and localisation algorithms,
Australian International Aerospace Congress- Royal Aeronautical Society
2024
An accepted abstract describing a 3D simulation environment and testing suite for UAS computer vision algorithms.