Vedant Tyagi

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EXPERIENCE

Research Assistant June 2024 – January 2025

University of New South Wales

- Organised an extensive dataset of 90,000 galaxies, demonstrating meticulous attention to detail and developing skill in Python.
- Collaborated seamlessly with Professor Brough, instrumental in achieving key project milestones and elevating data interpretation capabilities.

Research Assistant

Embry-Riddle Aeronautical University January 2025 – July 2025

- Assisted in advanced research on Direct Simulation Monte Carlo (DSMC) collision models under Prof. Roohi, focusing on high-fidelity numerical methods for rarefied gas dynamics.
- Contributed to the analysis of a novel DSMC collision model for improved shock wave simulations, leading to an accepted abstract for presentation at ISSW 35 (International Symposium on Shock Waves).
- Currently supporting research on shockwave dynamics in supersonic flows, using computational fluid dynamics (CFD) and DSMC techniques to advance the understanding of high-speed aerodynamics and rarefied gas effects.

Aerostructures Specialist / Head of Business Operations September 2023 - Present

UNSW Rocketry

- Spent over 30 hours at TAFE for a General Machining course to learn the intricacies of metal manufacturing, through manual and CNC processes.
- Designed and manufactured two rockets, a single stage and a two-stage, both reaching 10,000ft, utilising CAD and CAM procedures for precise construction, and currently working on a 50,000ft rocket with the team.
- Led hands-on construction of rockets, showcasing initiative and unwavering commitment, while adeptly utilizing CAD. Acquired and applied skills in OpenRocket and beginning to learn CFD for drag calculations.
- Certified to fly rockets with an impulse up to 640 Ns

Team Secretary August 2024 - Present

Space Research Student Committee

- Organized and managed industry networking nights, connecting over 150 students with professionals in aerospace and space research.
- Coordinated five student-led research projects, overseeing budgets, resources, and collaboration with academic and industry experts.
- Led outreach initiatives, increasing student engagement by 60% and doubling participation in research events.

CEO and Co-Founder March 2024 - Present

Duke Education

- Started own tutoring business, after working for one essentially taking initiative to better student development managing recruitment and student retention.
- Crafted tailored support to address individual needs, leading the creation of a customised and enriching the learning journey for each student increasing marks by ~40% on average.

EDUCATION

B. Computer Science/ B. Aerospace Engineering (Honours) January 2022 - June 2027

University of New South Wales

- Initiated collaboration with a distinguished Physics Professor as a dedicated Physics Major, amplifying academic and research impact.
- Skilled in CAD Softwares - Onshape, Autodesk Fusion 360, Solidworks. Programming Languages- C, Python, Topcat, HTML, Java. CFD simulations in ANSYS, FEA simulations in ANSYS and simulations in DSMC OpenFOAM, FORTRAN and NASTRAN
- Relevant Coursework: Thermodynamics, Numerical Methods, C Programming, CAD & CAM Proficiency, Advanced Linear Algebra & Calculus and Adherence to Engineering Standards.

B. Aerospace Engineering January 2025 - June 2025

Embry-Riddle Aeronautical University

- Initiated research on DSMC collision models under Prof. Roohi, contributing to advancements in shockwave simulations for high-speed aerodynamics.
- Rocket Propulsion, Aerodynamics, Spacecraft Design, Aerostructures