Tarun Ramireddy

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Education

University of Michigan, Masters in Aerospace Engineering — Aug 2024 – July 2026

- GPA: 3.89/4.0
- **Modules Taken:** Linear Systems Theory, Multidisciplinary Optimisation, Navigation & Control Theory

Swansea University, Bachelor of Engineering in Aerospace Engineering (BEng) — Sept 2020 – July 2023

- GPA: 3.74/4.0 - First Class Honors
- **Relevant Modules:** Aerodynamics, Aerospace Control, Dynamics, Fluid Mechanics, Propulsion , Satellite Systems, Space Propulsion and Power Systems, Structural Mechanics, Thermodynamics

Academic Projects

Flight Control Systems Lead on a High-Altitude Long-Endurance (HALE) UAV Design — July 2022 – June 2023

- Led the design and development of flight control systems for a HALE UAV, ensuring stability and performance at high altitudes.
- Integrated advanced PID control algorithms, enhancing the UAV's flight stability by 25% under turbulent conditions.
- Utilised MATLAB/Simulink for flight dynamics and control simulations, resulting in a design that met all specified performance criteria.

Developed machine learning models for Rotorcraft Stability — July 2022 – June 2023

- Investigated and implemented machine learning algorithms to enhance the stability and control of rotorcrafts.
- Trained neural networks using flight data, achieving a 20% improvement in predictive accuracy for rotorcraft behaviour under various conditions.

Statistical Analysis and Numerical Simulation of Two-Stage Sounding Rocket Trajectory — March 2022 – Augusr 2022

- Conducted a comprehensive statistical analysis of a two-stage sounding rocket's performance, utilizing MATLAB to develop both analytical and numerical models for velocity, altitude, and maximum height calculations.
- Designed and implemented simulations accounting for multiple launch phases, thrust variations, and atmospheric drag to predict real-world flight behavior accurately.
- Employed statistical methods to quantify the discrepancy between analytical and numerical results, achieving less than 2% error margin by optimizing integration parameters ('abstol', 'reltol').
- Generated data visualizations to illustrate key performance metrics, including velocity and altitude profiles, demonstrating the effectiveness of the model in capturing stage separations and coast phase dynamics.
- Applied regression analysis to assess the sensitivity of maximum altitude to varying specific impulses and mass ratios, informing potential design optimizations for future missions.

Experience

Technology Associate, Infosys Ltd – Canary Wharf, London — Sept 2023 – Sept 2024

- Achieved a score of 94% in JAVA and DBMS training, surpassing the average score by 15%.
- Developed and implemented an internal server using Ubuntu, Raspberry Pi, and Linux, leveraging Proxmox and Docker to deploy applications. Ensured external accessibility via a VPN service, utilising Cloudflare DNS domain services, and reducing deployment time by 3 seconds.
- Utilised generative AI and prompt engineering to develop a self-hostable AI application for solving internal queries, achieving a 25% reduction in query resolution time
- Completed a course on SAP, focusing on end-to-end business processes for the intelligent enterprise. Learned specifically about the design-to-operate process.

Senior Tutor, Explore Learning – Purton, Wiltshire Oct 2023 – Aug 2024

- Assisted students in achieving Level 8 and 9 (equivalent to grades A* and A) in English and Mathematics, boosting their academic performance.
- Created comprehensive lesson plans and maintained regular communication with parents, ensuring students were engaged and maximizing their session benefits.

Intern, Infosys Lmt – Canary Wharf, London July 2022 – Sept 2022

- Developed and deployed a carbon calculator API using JavaScript and React for internal use to help reduce overall carbon emissions. This project was then used to help shift our data servers to a more eco-friendly alternative and reduce carbon emissions by 6%.
- Analysed and evaluated business models and existing IT solutions, resulting in a 5% acceleration in project timelines to stay ahead of competitors.
- Created a comprehensive Business Case for Stakeholders, securing an additional £5000 in project funding.

Skills

Software: MATLAB, SOLIDWORKS, Simulink, Python, Java, AutoCAD, DBMS, Microsoft Office Suite (Excel, Powerpoint, Word), Linux, Raspberry PI