Falak Mandali

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Portfolio: https://fmandali82.github.io/portfolioApp/

EDUCATION:

PURDUE UNIVERSITY, West Lafayette, Indiana ***August 2020 – December 2024***

- **Major:** Aeronautical and Astronautical Engineering (AAE) **Current GPA:** *3.96/4.00*
- **Relevant Courses:** Optimal Control | Estimation and Controls Lab | Embedded Coding | Dynamics

WORK EXPERIENCE:

MAGLEV AERO Inc., Boston, Massachusetts

- **Aeromechanical Engineering Intern** ***January 2023 – August 2023***
  - Assisted in the formulation of the dynamics and simulation of an eVTOL in MATLAB.
  - Established connection between MATLAB and AWS to improve optimization computation time.
  - Conducted scalability analysis of propulsion system to understand its performance with size.
  - Performed testing for the state estimation system for a propellor to tune the Kalman filter.

RESEARCH EXPERIENCE:

FLIGHT DYNAMICS AND CONTROLS LABORATORY, Purdue University**,** West Lafayette, Indiana

- **Undergraduate Research Assistant** ***January 2024 – present***
  - Creating a vehicle model using data-driving modelling techniques and optimizing its path while considering vehicle and physical constraints.
  - Developed and tested ROS2, Gazebo, and PX4 drone research environment using Docker on Linux; performed successful software-in-the-loop analysis.

JAIN RESEARCH LABORATORY, Purdue University**,** West Lafayette, Indiana

- **Undergraduate Research Assistant** ***September 2022 – December 2022***
- **Summer Undergraduate Research Fellow (SURF)** ***May 2022 – August 2022***
  - Optimized controller and TES device design in a thermal management system using control co-design, demonstrating enhanced robustness over sequential design methods.

PUBLICATIONS:

F. Mandali, M. Shanks and N. Jain, "Control Co-Design of a Thermal Management System with Integrated Latent Thermal Energy Storage and a Logic-based Controller," 2023 22nd IEEE ITherm, Orlando, FL, USA, 2023, pp. 1-10, doi: 10.1109/ITherm55368.2023.10177617.

HONORS & AWARDS:

- **ITherm 2023 Best Poster Award** in the System Level Thermal Management Track by IEEE.
- **Outstanding Second-Year Student Award 2022** by AAE.

SKILLS:

Python	C	C++	MATLAB	Simulink	ROS2
Gazebo	PX4 SITL	Ubuntu OS	Windows OS	Docker	GitHub
Amazon Web Services EC2	Arduino	Excel	Fusion CAD & CAM	CNC Machining	Overleaf LaTex