SHREYANSH SHETHIA

Lafayette, IN USA | (765)775-9732| Visa Status: H1B | shreyanshjain987@gmail.com |

Education

Master of Science in Aeronautics and Astronautics — May 2021

School of Aeronautics and Astronautics, Purdue University, GPA: 3.97/4.0

Relevant Coursework: Multi-Agent Systems, Systems Analysis and Synthesis, Linear Algebra, Applied Optimal Control, Reinforcement Learning, Nonlinear Dynamics, Vehicle Dynamics

Bachelor of Technology in Aerospace Engineering — May 2019

Indian Institute of Technology, Kharagpur, India, GPA: 8.55/10.0

Self-Driving Car Engineer by Waymo, Udacity — March 2023

Skills and Expertise

- **Languages/Libraries**: C, C++, Python, LATEX, MATLAB, Kotlin, PyTorch
- **Software/Systems**: Simulink, Vector CANape/CANalyzer, ROS, Gazebo, Arduino IDE, MS Office, Android Studio

Experience

Engineer – II, Systems Engineer, ZF Active Safety and Electronics US LLC — Aug 2022 – Present

- Autonomous Control of Terminal Tractor using ZF ProAI and ROS
  - Used 2x GPS Antennas with Ublox boards and Vehicle yaw sensor, and developed EKF with bicycle model
  - Experimented with various data reception intervals and presented robust framework for localization
  - Cubic splines were used for online path generation and proposed lateral steering controller for path tracking
- AutoConnect for Terminal Tractors, autonomous coupling solution for Tractors in Warehouses
  - Designed the Electrical and Pneumatic systems using Arduino, ESP32, Motor Drivers and Solenoid Valves
  - Developed programs for storing data on SD Card through SPI between Arduino and ESP32
  - Developed Android Mobile Application for a smooth Graphic User Interface for drivers using Android Studio
  - Using Solidworks, designed CAD models for electrical connectors, D25 and Anderson Power

Engineer – I, Systems Engineer, ZF Active Safety and Electronics US LLC — July 2021 – Aug 2022

- Redundant Steering System Solution for Automated Commercial Vehicles
  - Worked on embedded code (C++) with fault detection functionality for Hard Steering in Steering System
  - Developed a data driven method using Autoencoders to detect faults earlier and with less false positives
  - Tested algorithms on Semi-Trucks and developed data analysis scripts in CAPL, MATLAB and Python
- Position Control diagnosis for ReAX: ZF Steering System for Autonomous Commercial Vehicles
  - Performed Frequency and Step Analysis with control parameters and optimized them to improve response
  - Developed MATLAB App to plot, do system identification with second order step response characteristics

Publications

1. Empirical Analysis of Battery Performance with Ambient Temperature for Small Electric UASs
   Akshita Gupta, **Shreyansh Shethia**, Wie Cheng, I. Hwang, AIAA Aviation Forum 2021
2. Distributed Fast-Tracking Alternating Direction Method of Multipliers with Optimal Convergence Rate
   Shreyansh Shethia, Akshita Gupta, Omanshu Thapliyal, I. Hwang, IEEE SMC 2021
3. Empirical Analysis of UAS Performance under External Wind
   Akshita Gupta, Wie Cheng, **Shreyansh Shethia**, I. Hwang, AIAA Scitech Forum 2022

Awards, Achievements and Others

- **Second Position**, MathWorks Minidrone Competition, IFAC 2020
- **Sushil Kumar Chowdary Memorial Award,** B. Tech in Aerospace Engineering (Hons), IIT Kharagpur, 2019
- **Best B.Tech Project Award**, IIT Kharagpur, 2019
- **Boeing Student Scholarship**, IIT Kharagpur, 2017-18 and 2018-19
- **Passed NCEES FE Exam – Other Disciplines**