

Abhimanyu Suthar

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EDUCATION

NYU Tandon School of Engineering, New York

Sept 2023 - May 2025

Master of Science in Robotics (4.0/4.0 GPA)

Courses: Robot Localization and Navigation, Mechatronics, Mathematics for Robotics, Foundations of Robotics

DJ Sanghvi College of Engineering, Mumbai University

August 2019 - June 2023

B.Tech in Mechanical Engineering

SKILLS

Languages: Python, MATLAB, C/C++

Tools: Git/GitHub, Unix Shell, VS Code, ROS, MS Office, RaspberryPi

Programming frameworks: Pytorch, OpenCV

PROJECTS

State Estimation of a drone using Unscented Kalman Filter(UKF)

April 2024

- Implemented an IMU-driven model for the prediction stage of the filter
- Developed an UKF filter to fuse the IMU model with the camera pose and velocity obtained from optical flow

Vision Based Pose estimator for an Micro-Aerial Vehicle

April 2024

- Utilized April Tags to estimate the position and orientation of a Quadrotor by planar homography.
- Detected keypoints in consecutive images in order to estimate the motion of the pixels in regions of interest
- Applied RANSAC to make the estimation of linear and angular velocity for the camera robust to outliers

Drowsiness detection for driver monitoring using Rasperry Pi

April 2024 - May 2024

- Employed Arduino Uno to interface with the vitality sensors and sent this data to the RPi via USART bus
- Integrated RaspiCam v2. to detect drowsiness of the person based on the facial landmarks in dlib image processing library
- Utilized this information to start the car or to bring it to a stop depending on the state of the driver

RESEARCH EXPERIENCE

Defense Research and Development Organization (DRDO) | Project Intern July 2022 - August 2022

<https://www.drdo.gov.in/labs-and-establishments/centre-artificial-intelligence-robotics-cair>

- Collected and synchronized raw data from IMU and GNSS, ensuring temporal alignment for seamless fusion.
- Analyzed and interpreted data plots in areas with lost Global Navigation Satellite System (GNSS) signals, addressing challenges associated with signal loss and optimizing localization algorithms.
- Conducted comprehensive evaluations under various scenarios, quantifying key performance metrics such as position error and trajectory deviation.

EXTRACURRICULAR ACTIVITIES

K-12 Center at NYU | STEM Educator

June 2024 - August 2024

<https://engineering.nyu.edu/academics/programs/k12-stem-education>

- Developed and delivered a DTCC-sponsored 4-week curriculum on computer science, networking, cybersecurity, and relevant laws for high school students, enhancing their STEM skills and digital literacy
- Integrated real-world examples and case studies to illustrate the intersection of technology and law, preparing students for the ethical and legal considerations in the rapidly evolving tech landscape