Suraj Kiron Nair

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Education

New York University Tandon School of Engineering,
Master of Science in Mechatronics and Robotics, Sept 2022 - present
GPA 4.0

Relevant courses: Foundation of Robotics, Robot Localization and Navigation.

Ramaiah Institute of Technology,
BE Mechanical Engineering Bangalore, India, Aug 2017 - July 2021
GPA 8.48/10
Relevant Courses: Control Systems, Engineering Mechanics, Automotive Engineering, Python

Skills
Office Productivity
Slack, Git

Programming Languages
Python, C, C++, ROS
MATLAB and Simulink

CAD Design
Solidworks, Fusion 360

Projects

Pose and Velocity estimation using feature tracking:
Determine the pose and velocity of a quad-copter flying over a map of April Tags.

State Estimation using Extended Kalman Filter:
Estimate the state of a quad-rotor given control inputs from onboard IMU and measurements from Mo cap Vicon.

Dynamic Control of SCARA robot Inverse Dynamic Controller.
Generated Joint space trajectories for SCARA robot and simulated a Inverse Dynamic Controller.

Profile

Graduate Student with background in Mechanical Engineering and Robotics looking for internship positions for summer 2023.

Experience

Agile Robotics and Perception Lab (ARPL): *January 3rd 2023 - present*
- Worked on developing quad-rotors using ModalAI VOXL2 flight controller and PX4.
- Board setup and installation of ROS packages.
- Maintained and flight tested fleet of quad-rotors.

Thermal Systems Lab (Tata Institute),
Research Assistant, Sep 2021 - May 2022
- Simulated and optimized Printed Circuit Heat Exchangers(PCHEs) using 2D Thermal Resistance Networks (TRNs).
- Modeled and analyzed Co_2 Brayton-cycle power generation loop and performed CFD simulations using Python.

Formula Electric Vehicle, Ramaiah Institute of Technology:
Vice Captain, Dec 2017 - July 2021
- Placed 1st in Formula Green 2020 and Ranked 5th internationally at Formula Bharat 2020.
- Designed and manufactured the Battery container. Integrating the drive train electrical and mechanical components with chassis.
- Optimized lap times and simulated vehicle dynamics using MATLAB and Simulink.