



Anirudh Addagada

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EXPERIENCE

NYU Mechatronics, Controls, and Robotics Lab

New York, USA

Research Assistant

Sept 2022 to Current

- Developed an indoor localization system using WiFi RTT ranging technology while simultaneously mapping WiFi devices in 3D space with errors under 1 meter.
- Performed sensor fusion for indoor localization using Python, C++, ESP32S2, and BNO055 IMU to achieve accuracy of $\pm 60\text{cm}$, using Extended Kalman Filtering to improve the accuracy of the IMU and WiFi ranging systems.

NYU Tandon School of Engineering

New York, USA

Course Instructor

Sept 2022 to May 2023

- Instructed students in Automatic Controls and Measurement Systems on topics such as filters, PID/LQR controllers.
- Conducted hands-on experiments using oscilloscopes and opamps, and building controllers with HIL systems interfaced with MATLAB, using DACB, from sensor calibration to fully operational controllers.

Pravaig Dynamics

Bangalore, India

Internship

Aug 2020 to Sept 2020

- Worked on building mockup for the front subframe assembly to validate the front suspension geometry.
- Worked on validation of brake system performance and created high precision CAD models for off the shelf parts.

Team Haya Racing

Bangalore, India

Vehicle Dynamics, Brake system and wheel assembly engineer

Sept 2018 to May 2021

- Managed project to develop compact brake system using novel pedal box design resulted in 15% shorter bulkhead.
- Designed the braking system resulting in a 78% reduction of weight and shortened chassis overhang.
- Collaborated with vehicle dynamics and chassis team to iteratively optimize wheel assembly reducing overall weight by 48% improving vehicle maneuverability.

EDUCATION

New York University

New York, USA

Master of Science in Mechatronics and Robotics|Specialization in Mobile Robotics

Sept 2021 to May 2023

Courses: Robot Localization and Navigation, Robot Perception, Reinforcement Learning and Optimal Control, Advanced Mechatronics

PES University

Bangalore, India

Bachelor of Technology in Mechanical Engineering|Specialization in Automotive Engineering

Aug 2017 to May 2021

Courses: Vehicle Dynamics, Mechanical Vibrations, Automotive Systems, Control Engineering

PROJECTS

Control of Cross-Spherical gear

Teensy4.0, Motors, closed-loop control, PCB

Prototyped 360-degree gear and developed hardware controller to drive actuators and perform inverse kinematics.

- Implementation does not require offline computation and runs on a single microcontroller running at 1GHz.

3DOF Mobile robot

Mechatronics

Fully autonomous robot using Basic STAMP 2, picks and places object using 2DoF manipulator in designated area.

- Utilized 3D printing technology to build and optimize the physical structure of the robot, and wrote PBASIC code to control its movements and actions.

Autonomous public safety robot

Propeller Multi Core, Raspberry Pi, Camera

Robot uses PID control to maintain trajectory and deliver COVID-19 test kits to parking lots in NYC like infrastructure.

- The project involved 3D printing, C++, Python, OpenCV, and Fiducial markers, for public health and safety applications, enabling efficient and autonomous delivery of goods and services.

SKILLS SUMMARY

- Languages:** Python, C++, C, MATLAB, Bash
- Frameworks:** Scikit, TensorFlow, Keras, ESPIDF
- Tools:** SolidWorks, GIT, Eagle CAD, Fusion 360, Network protocols
- Platforms:** Linux, Windows, Arduino, Single Board Computers, ROS/2
- Other:** 3D Printing, Rapid Prototyping, Simulation, Digital control systems