

Mustafa Bhadsorawala

New York | 1 (518) 556-8271 | mb8595@nyu.edu | [linkedin.com/in/mustafabhadsorawala/](https://www.linkedin.com/in/mustafabhadsorawala/)

EDUCATION

New York University

May 2023

Master of Science, Mechatronics, Robotics and Automation

3.75

Specialization: Mobile Robotics

Reinforcement Learning | Localization and Navigation | Advanced Mechatronics

K.J Somaiya College of Engineering

May 2017

Bachelor of Engineering, Mechanical Engineering

3.4

Machine Design | Theory of Machines | Robotics

EXPERIENCE

Graduate Teaching Assistant, Mechatronics, Controls, and Robotics Lab / New York, NY

Feb 2023 – Present

Taught automatic controls, control theory and showcased how to design controllers for motors, maglev, electric circuits

- Delivered lectures and led laboratory sessions, providing hands-on experience with traditional controllers, PID, LQR

Robotics Project Engineering Intern, Amazon Robotics / Seattle, WA

Jun 2022 – Aug 2022

Supported deployment of robots and their infrastructure at Amazon Sort Center

- Developed and documented a process for robotics floor expansion joint validation, improving time efficiency by 56%
- Tracked product cycle of Amazon storage units, analyzed issues, and created a visual health tracking system
- Supported KUKA robot setup for package entry stations, performed calibration and validation of perception systems

Production/Operations Engineer, Baari Labs / Indore, India

Oct 2019 – Jan 2021

Managed the daily operations of a 3D printing startup, production, and development

- Managed 3D printing lab production and inventory, built a system to log data for each printing file and directed development of a software to log data automatically, Reduced failure rate from 20% to 3%
- Worked directly with clients on new product development, consulting on design process and manufacturing feasibility
- Oversaw design and prototype of UV-C disinfection chamber delivered within a 6-week timeline during the pandemic
- Trained people in 3D printing and CAD design, built processes to track maintenance, production, inventory, logistics

Founder, 3Axes Printing Solutions / Mumbai, India

Dec 2017 – Sep 2019

- Founded and operated a 3D printing business offered CAD design and prototyping services using FDM fabrication
- Conducted new product development, creating CAD designs and prototyping using laser cutting, sheet metal manufacturing, and 3D printing

RELEVANT PROJECTS

Indoor Localization using IMU and Wi-Fi FTM, Mechatronics and Robotics lab

Jan 2022 – Present

- Designed an extended Kalman filter for pedestrian state estimation with BNO055 9-axis inertial measurement unit
- Developed sensor fusion algorithm to fuse Wi-Fi FTM data with IMU data, improved localization accuracy by 20%

UR16e ROS2 interface and training, Tandon Makerspace

Aug 2022 – Present

- Setup UR16e educational robot, developed training for Polyscope and ROS2, built launch files for hands on training
- Trained students for setting up sensor and microcontroller interface, and using robot states to program the robot

NeRF based Navigation for the blind

Aug 2022 – Dec 2022

- Built localization pipeline in PyTorch for visually impaired persons employing NeRF (Neural Radiance Field) models
- Used visual odometry for tracking and localizing in the real world and trained NeRF scene representation of the same

Optimal Control of quadcopter (iLQR)

Aug 2022 – Dec 2022

- Implemented iterative LQR control algorithm for trajectory planning of a 2D quadcopter with dynamic cost functions

Autonomous Delivery Robot

Jan 2022 – May 2022

- Interfaced Raspberry Pi with multi-core Propeller microcontroller using UART communication protocol
- Implemented Dijkstra's algorithm for path planning based on real-time target and obstacle detection with camera

Smart Window Blinds

Nov 2021 – Dec 2021

- Engineered a smart window blind that regulates indoor temperature by controlling the amount of light and insulation
- Re-engineered infrared NEC communication algorithm for wireless control of Basic Stamp2 microcontroller

SKILLS

- **Tools:** Solidworks, C++17, Python, PyTorch, Nvidia Jetson, R-Pi, Linux, ROS, OpenCV, MATLAB, Simulink,
- **Technical Skills:** Robot Manipulation, Robot Perception, Localization, Sensor Fusion, Path planning, State Estimation, Model Predictive Control, iLQR, Additive Manufacturing