Mayur Bhise

LinkedIn| bhise.m@northeastern.edu | Portfolio | 617-606-1103

EDUCATION

Northeastern University, Boston– *Master of Science in Robotics – GPA 3.6/4.0* **Expected Dec 2023**
Coursework – *Advanced Control Systems, Reinforcement Learning, Robot Sensing and Navigation, Assistive Robotics, Robot Mechanics and Control, Autonomous Field Robotics, Machine Learning and Pattern Recognition*
Simplilearn, New York City – *Master Certificate in Artificial Intelligence – GPA 3.9/4.0* **Dec 2022**
University of Pune, INDIA – *Bachelor of Engineering in Mech Engineering – GPA 3.7/4.0* **May 2019**

SKILLS

Programming Languages: python, C++, MATLAB, SQL, ladder logic, SCADA
Libraries: numpy, pandas, matplotlib, sklearn, keras, tensorflow, pytorch, seaborn, plotly, scipy
Other Tools: ROS, PLC, simulink, AWS SageMaker, GitLab, PyCharm, solid works, ansys, LaTeX, linux, unix, arduino

EXPERIENCE

Research & Development Co-op | Waters Corporation, Milford, MA (Python, Pytorch, ProtoPie) **Jan 2023–Jul 2023**

- Implemented Model Predictive Control (MPC) for dynamic pressure regulation in LCMS pump system, ensuring optimal performance and accurate pressure control. Collaborated with a team of researchers and engineers to develop a mathematical model, integrate it into the MPC framework, and fine-tune controller based on real-time sensor data
- Developed prototypes for next-generation liquid chromatography (LC) system with intelligent features using Protopie for interactive user interfaces, Solidworks for mechanical component design, and 3D printing for physical prototyping
- Collaborated with cross-functional teams to integrate intelligent features into the LC system, participated in design reviews, and iteratively refined prototypes based on feedback and testing.
- Performed anomaly detection and segmentation techniques deploying SageMaker, contributing to development of Intelligent LC systems. Cooperated with a multidisciplinary team to refine models for real-time anomaly detection and data segmentation, enhancing system analysis and optimization

System Engineer | Tata Consultancy Services, Pune, India (MATLAB, SQL, tensorflow) **Mar 2021–Aug 2021**

- Collaborated on CAD project for generative models of automotive parts, optimizing design and conducting stress testing. Utilized CAD software and 3D printing for prototyping. Enhanced skills in generative design, prototyping, and multidisciplinary collaboration
- Constructed and trained Data Cleaning pipeline with python and ETL, as a part of data wrangling for further data clustering
- Conducted **Exploratory Data Analysis** for YoY comparison and presented **SWOT analysis** to design a supplier selection strategy & led to cost savings of $100k

Autonomy Engineer | Force Motors Ltd, Pune, India (PLC, arduino, ROS) **Aug 2019–Apr 2021**

- Developed and tested various aspects of autonomous robots- Sensing and Perception through Arduino, Robot path planning and Navigation via ROS and interaction with different messaging channels leveraging Python libraries
- Created sensor fusion algorithm with MATLAB/Simulink utilizing data from motor encoders and ultrasonic sensors for an Autonomous Mobile Robot to stop if an obstacle is detected or velocity exceeds 6 km/hr
- Built, tested, and deployed NLP model with data collected from AMR's input & achieved 73.68% accuracy to predict maintenance system to detect Machine life, Anomalies and mitigation of failures and maintenance
- Engaged in full product lifecycle management (Design, Reviews, Testing, Debugging and Documentation)

Research & Development Intern | Force Motors Ltd, Pune, India (ANSYS, Solidworks, LaTeX) **Aug 2018–Dec 2018**

- Researched and applied semantic segmentation techniques to prioritize paths for semi-autonomous operations in agricultural machinery, enhancing perception capabilities
- Proposed and executed a project on visual inspection for defect detection through computer vision pipeline to increase reliability and speed of manufacturing line, reduced overall inspection time by **10%**
- Researched on reforming coolant usage required to devise milling operation and reduced coolant usage by **15%**

ACADEMIC PROJECTS

Operated SLAM via ORB-SLAM 3 and Lego-LOAM, on NUANCE Car (python, C++, matplotlib, ROS, Linux, GitLab) **May 2022**

- Employed ORB-SLAM3 and Lego-LOAM to estimate pose administering real data collected with the NUANCE autonomous car, leveraging SLAM techniques
- Devised a visual odometry pipeline for stereo and mono vision, implementing Bayesian filters such as the Extended Kalman Filter (EKF), and compared performance of both algorithms for loop closures and quantitative analysis on an AGV.

Grip Rectifying Assistive Sensor Pen (G.R.A.S.P) (Arduino, MATLAB, Solidworks) **Dec 2021**

- Modeled and manufactured an assistive pen to aid in writing for people with motor control issues
- Enacted live interactive feedback via streaming through **Thing Speak** to provide graphical visuals and sensory feedback
- Built, tested, and modified over 5 product prototypes, employing working models constructed through computer simulations, formulated **3d print attachments** for any ball-point pen to further improve accessibility of device