Rucha Pendharkar

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Boston, MA

Education

- **Northeastern University** — **Boston, MA**
  Master of Science - Robotics. GPA: 3.96/4.0 — Sept 2022 -Dec 2024
  Courses: Mobile Robotics, Pattern Recognition and Computer Vision, Robot Sensing and Navigation, Reinforcement Learning.
- **College of Engineering Pune** — **Pune, India**
  Bachelor of Technology - Mechanical Engineering. GPA: 8.94 (Rank 9/170) — Aug. 2018 -June 2022
  Courses: Optimization, Mechanical Measurement and Automatic Control, Finite Element Analysis, Robotics and Automation.

Skills

Programming and Analytics: Python, C++, MATLAB, ROS, Bash, MS Advanced Excel
CAD Software: Creo Parametric, Fusion360, SolidWorks, ANSYS, AutoCAD.
Tools: PyTorch, Tensorflow, Numpy, OpenCV, Linux, Git, Docker, Jenkins

Experience

Shield AI — **San Diego, CA**
Systems Integration and Test Intern — June 2024 - Aug 2024

- Developed and implemented an automated testing and debugging pipeline using MQTT, C++ and Python, achieving a 75% reduction in interfacing time and ensuring seamless integration of the autonomy stack on a Type 3 UAS
- Collaborated with cross-functional teams to conduct Hardware-in-Loop (HIL) and Vehicle-in-Loop (VIL) testing, ensuring comprehensive validation of system performance prior to Flight Testing.
- Managed the deployment of solutions during the integration phase, efficiently resolving integration issues and significantly enhancing the overall performance of the autonomy stack

MORSE Corp — **Cambridge, MA**
Robotics Engineer Co-Op — June 2023 - December 2023

- Optimized the performance of the sUAS by analyzing flight data and fine-tuning control algorithms, increasing flight reliability by 70% and enabling more precise mission planning
- Implemented innovative debugging techniques for sUAS utilizing custom Python scripts and PX4-Autopilot firmware, MAVSDK and Modal AI hardware, reducing troubleshooting time by 50%
- Designed and executed comprehensive field tests to validate the successful integration of avionics, custom firmware, and hardware, resulting in a 90% success rate

SKF India — **Bengaluru, India**
Product Engineering Intern — June 2021 - Aug 2021

- Built a Multi-CAD Parametric Automation tool using Visual Basic and MS Excel, deploying more than 200 design rules, reducing design customization and modeling time from 7 hours to 45 minutes (85%).
- Produced accurate manufacturing drawings of Deep Groove Ball Bearings in Creo Parametric, leveraging Windchill PDMLink, Excel E-BOM Generator to optimize global processes at SKF Aerospace factories.

Academic Projects

Autonomous Reconnaissance using Turtlebot3 — Feb 2023 - May 2023

- Designed a ROS package for deploying real-time autonomous SLAM and AprilTag detection in Rviz with 80% accuracy.

Navigation using IMU and GPS — Oct 2022 - Nov 2022

- Built a navigation stack using IMU and GPS in Python. Performed digital signal processing to mitigate noise and drift in data. Performed dead reckoning and route reconstruction with 90% accuracy by implementing sensor fusion from IMU data leveraging MATLAB.

Honors and Awards

- Dean's Graduate Tuition Scholarship by College of Engineering, Northeastern University — Sept. 2022
- DESIS Ascend Fellowship'20 by D.E Shaw India awarded to 30 female engineers (3500 applicants) — Oct. 2020
- Gold Honor by International Astronomy and Astrophysics Competition 2020 (top 5 percent of scorers) — July 2020

Leadership and Volunteer Experience

- **Editor in Chief, Abhiyanta**: Led a team of 50 peers, designed and edited the trilingual 107th Edition of the annual college magazine. (July'21 - June'22)
- **Secretary, COEP Astronomy Club**: Led a team of 35 peers. Initiated projects such as in-house radio telescope, and variable mount telescope, organized outreach sessions with Rotary International, quizzes, and increased social media visibility. (June'20 - June'21)