Atharva Pusalkar

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Education

Carnegie Mellon University - School of Computer Science **Aug 2022 – May 2024**
Master of Science in Robotic Systems Development (3.72/4.0) *Pittsburgh, PA, USA*

University of Mumbai - DJ Sanghvi College of Engineering **Aug 2018 – May 2022**
BEng in Electronics Engineering (8.81/10.0) *Mumbai, MH, India*

Relevant Coursework

- Manipulation, Estimation, and Control
- Introduction to Computer Vision
- Systems Engineering and Management for Robotics
- Robot Mobility in Land, Air, and Sea

Experience

Hello Robot Inc **May 2023 – Aug 2023**
Robotics Engineer Intern *Martinez, CA*

- Building mobile robots that help make embodied AI and robotics more accessible to people.
- Serving demands of Al research groups at Meta Al, Allen Institute (AI2), Apple, CMU, MIT, and more, by delivering quality software components.
- Developing the ROS 2 infrastructure of our flagship product - Stretch 2.

Robotic Caregiving and Human Interaction Lab - CMU Robotics Institute **Oct 2022 – present**
Research Volunteer and MRSD Capstone Project *Pittsburgh, USA*

- Working with Zackory Erickson and Kavya Puthuveetil on the project titled "Bodies Uncovered" for autonomous bedding manipulation using Stretch RE1

DJS Racing **Mar 2019 – May 2022**
Design Engineer *Mumbai, India*

- Led a team of 20 members to develop an autonomous Formula Student race-car.
- Designed a data acquisition system using the CAN protocol for automotive-grade safety.
- Developed a robotic system using 3D perception, planning, and motion control for race-cars.

Open Robotics **May 2021 – Aug 2021**
Google Summer of Code Student Developer *Remote*

- Worked at Open Robotics to add new features in Gazebo Simulator, funded by Google.
- Added the capability to visualize joints, inertia, and center of mass of robot models in simulation worlds.
- Added transparent and wireframe modes to 3D models using Ogre3D rendering engine and NVIDIA Optix.

Research

- Puthuveetil, K., Wald, S., **Pusalkar, A.**, Karnati, P., & Erickson, Z. (2023). Robust Body Exposure (RoBE): A Graph-based Dynamics Modeling Approach to Manipulating Blankets over People. arXiv preprint arXiv:2304.04822. Accepted at IEEE RA-L 2023

Projects

Telepresence mobile manipulator robot (MRSD capstone) **Sep 2022 - present**

- Developing a mobile manipulator robot with telepresence capability to assist the elderly in nursing homes.
- Leading the human-robot interaction and software architecture design.
- Implemented remote tele-operation, speech recognition, and verbal response generation on the robot.

Wireless Data Transceiver **Dec 2020 - Apr 2021**

- Worked on an IIoT product for wireless data transmission using the LoRa mesh system.
- Added MODBUS protocol and Ethernet interface for increased compatibility.
- Implemented the MISRA C standard and an OTA update system for the device.

Technical Skills

Languages: Python, C++, JavaScript
Libraries: OpenCV, PyTorch, Eigen, CGAL
Technologies/Frameworks: Linux, AWS, Git, CMake, Jenkins, Google Test (C++), Robot Operating System, Ogre3D