ASHIQ RAHMAN ANWAR BATCHA

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LinkedIn | Portfolio | Github

TECHNICAL SKILLS

- **Interested Area** - Perception, Path-Planning, Motion Control, SLAM, Kinematics, and Dynamics (Robotics).
- **Programming Language** - C, C++, MATLAB, Python, Linux Terminal, rospy
- **Coding Software** - Matlab - Simulink, ROS - Gazebo, MoveIt, Arduino, OpenCV, Docker.
- **Hardware Used** - RaspberryPi, Jetson Nano, Jetson TX2, Teensy, Arduino, STM32
- **CAE Software** - Inventor, Solid Works
- **Other Software** - Microsoft Office, Google Workspace.
- **Operating System** - Windows, Linux.

RESEARCH EXPERIENCE

Video Visual Place Recognition |AI4CE NYU lab (link) **2023**

- Conducted extensive research on integrating Seqmatchnet and NetVLAD models using the CLIP architecture to leverage their unique strengths and capabilities.
- Utilized descriptors generated by models as inputs to the CLIP architecture and achieved enhanced performance and improved results for the Visual Place Recognition.

Flexible gripper | Anna University (link) **2022**

- Conducted extensive research on flexible gripper configurations and identified an efficient design for gripping various objects.
- Successfully implemented and integrated two finger gripper configuration with a UR5 robot, achieving an impressive 90 percent success rate in object pickup through electrical actuation.

PROFESSIONAL EXPERIENCE

Mechatronics Intern | Solinas Integrity Pvt. Ltd.: March 2022 - June 2022| Chennai, Tamil Nadu, India (link)

- Designed and developed an advanced inspection bot specifically for industrial pipelines up to 250 meters in length.
- Implemented a highly accurate localization system with a precision of 0.5 meters, enabling precise positioning within 300-meter pipeline segments.
- Combined data from LiDAR, Encoders, and IMU to create detailed internal structure maps of the pipelines, which facilitated effective inspection and analysis.

PATENTS and PROJECTS

BakerBot - Smart Kitchen Robot (Patent) (link) **Filed on 25 December 2022**

- Designed and built an active hotbox capable of maintaining a constant temperature and humidity.
- Feedback from various sensors to correctly execute a sequence of operations.

Autonomous Package Delivery Drone - Robotics Club of CEG (link) **2021 - 2022**

- Led A* path planning algorithm implementation and dynamic obstacle avoidance/tracking with trained models.
- Developed sensor fusion-based localization and utilized camera input for package detection/delivery, achieving successful destination reach with Google API assistance.

Intelligent Line Marking Bot - Kurukshetra CEG (link) **2021 - 2022**

- Led development of localization and obstacle avoidance algorithms using ROS on Raspberry Pi.
- Implemented onboard 2D lidar-based obstacle avoidance algorithm and executed hardware implementation with ROS architecture, achieving 10 cm path tracking accuracy.

Design and Fabrication of a 3-UPS 1-UPU Parallel Manipulator - Final Year Project (link) **2021 - 2022**

- Researched and developed a 5 DOF parallel manipulator configuration with an additional 1 DOF at the end effector, achieving mobility in the workspace.
- Developed kinematics for studying the behavior of the configuration at various points, with successful simulation results.

ScavengeX (Manhole operating bot) - Kurukshetra CEG (link) **2019 - 2021**

- Developed fusion algorithms to combine sensor data from multiple modalities for accurate perception.
- Conducted research on environment mapping using camera data and contributed to developing control algorithms for the bot with 5-10 cm accuracy.

ACADEMIC PROFILE

New York University Tandon School of Engineering **2022 – 2024**
Master of Science in Mechatronics and Robotics Engineering **3.5/4.00 CGPA**