

Shailesh Pranav Rajendran

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Skills

- **Programming Language:** Python, C, C++, C#, MATLAB,
- **Python Libraries:** OpenCV, Keras, PyTorch, TensorFlow, Scikit-Learn, Pandas, MySQL
- **Modeling Software:** Unity, Blender, SolidWorks
- **Other Software:** Git, GitHub, Docker, ROS, ROS2, Android Studio
- **Hardware:** Arduino, Raspberry Pi, Siemens PLC, Quest 2, Android

Education

May 2023	UNIVERSITY OF MARYLAND Master of Engineering: Robotics Engineering GPA: 3.6/4	College Park, MD, USA
May, 2020	PSG College of Technology Bachelor of Engineering: Robotics and Automation Engineering GPA: 8.0/10	Coimbatore, TN, India

Experience

New York University Tandon School of Engineering: Mechatronics, Control and Robotics Lab Feb 2020 - May 2020

- Designed and fabricated a rehabilitation device for stroke patients with partial loss of arm maneuverability under the guidance of Dr. Vikram Kapila
- Utilized 3D printing to manufacture required device components.
- Integrated the Dynamixel servo library to control the motor and a force sensor to measure the force feedback applied by the patient.
- Contributed to the development of a customized solution to improve the quality of life for stroke patients through the application of engineering principles.

L.G. Balakrishnan & Bros Ltd – Automation Intern

DEC 2017 - APR 2018

- Developed and deployed a custom data logging system to accurately track and analyze production output of individual machines at L.G. Balakrishnan & Bros Ltd.
- Leveraged expertise in cloud computing to design and implement a cloud-based database, streamlining inventory management and facilitating real-time production planning.
- Contributed to the development of a more efficient and effective production process using data analysis and cloud-based technology.
- Worked collaboratively with the team to ensure the successful implementation and deployment of the data logging system and cloud-based database.

Projects

Trash Detection and Collection Robot in an Unknown environment ([GitHub](#))

- Developed and simulated a robot for traversing an unknown environment, utilizing software development techniques such as ESC methodology, Agile Development Process, and Test-Driven Development.
- Implemented CI and CD pipelines using GitHub Actions for continuous integration and continuous deployment.
- Developed the robot's ability to detect and deliver objects using its cameras to a pre-specified goal position

Autonomous Vehicle Trajectory Generation using Vision Transformer (ViT) ([GitHub](#))

- Developed and implemented a trajectory generation system for autonomous vehicles using a Vision Transformer (ViT) algorithm.
- Utilized the Level5 planning dataset for training and testing in a simulation environment using Lyft's gym library.

Autonomous Urban Search and Rescue Robots ([GitHub](#))

- Simulated a system that uses a pair of robots for search and rescue in urban environments.
- Designed the lead robot to traverse the map and identify victim locations using AR tags.
- Programmed the second robot to receive victim information and carry out rescues in the specific order where patients with higher danger receive higher priority.

Human Detection and Tracking Project ([GitHub](#))

- Developed a human detection and tracking feature for a 4-wheeled robot to be used for package delivery inside office buildings.
- Utilized computer vision techniques to locate all instances of human beings and other dynamic obstacles present in the robot's path and generate persistent paths of their movement.
- Utilized software development techniques such as ESC methodology, Agile Development Process, and Test-Driven Development.
- Implemented CI and CD pipelines using GitHub Actions for continuous integration and continuous deployment.

Leadership Experience

TIDES Conference

September 2016

- Volunteered as an organizer for the TIDES Leadership Summit, conducted by the Confederation of Indian Industry (CII).

ENEXT Conference

April 2016

- Lead the team for the console at the E-NEXT Conference hosted by the Entrepreneurs Club of PSG College of Technology

KRIYA – Intercollege Technical Fest

January 2019

- Organized and managed a maze solver and memory-based path planner competition.