

Srijal Shekhar Poojari

Embedded Systems · Robotics · Controls

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EDUCATION

UNIVERSITY OF MARYLAND

M.S. in Systems Engineering (Control Systems) · GPA 3.97/4.0

- Advisor: Dr. Derek A. Paley
- Thesis: ReZoom: A self-driving electric scooter

College Park, USA
2021–2023

SARDAR PATEL INSTITUTE OF TECHNOLOGY | UNIVERSITY OF MUMBAI

B.E. in Electronics Engineering · GPA 8.49/10

- Capstone: Design of Tethered Multirotor System for High Payload Applications

Mumbai, India
2015–2019

APPOINTMENTS

ROBOTICS AND AUTONOMY LAB

Graduate Research Assistant · 1 year 7 mos. (ongoing)

- Leading the development of autonomous e-scooters with Prof. Derek Paley.
- Developed state estimation fusing IMU, GPS and Wheel Odometry accurate within 2 meters upon travelling 350m in a dense urban environment.
- Developed planning + navigation of scooter and demonstrated autonomous travel for 230 meters along campus roads.

College Park, USA
2021–

SP PRODUCT DEVELOPMENT CELL

Research Associate · 1 year

- Worked on industrial power electronics consultancy projects with Prof. R. R. Sawant and Prof. Y. S. Rao.
- Developed robust embedded software for Microchip dsPIC, TI C2000, and Microchip ATmega family of microcontrollers.
- Implemented the above with high power driver circuits for sensorless (no encoder) brushless and brushed DC motor control using back EMF sensing.
- Developed a 4.5 kW (135V, 35A) battery charger for the Indian Railways with run time short circuit recovery, earth fault detection and other protections.

Mumbai, India
2019–2020

DRISHTI WORKS

Robotics Engineer Intern · 2 mos.

- Developed the sensing, power distribution and IMU system for AURUS, a beach cleaning robot.
- Implemented a fault-tolerant communication pipeline between the computing stack and hardware stack using ROS.

Mumbai, India
2018

FRACTAL ANALYTICS

Project Intern · 1 mo.

- Developed applications using Unity (C#) on the Microsoft HoloLens Mixed Reality (MR) headsets for displaying statistical results in the form of interactive holograms.

Mumbai, India
2017

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

Summer Intern · 3 mos.

Mumbai, India

2017

- Created self-reconfigurable robot modules inspired by the Dttto Modular Robot.
- Developed virtual simulations of the same modules on V-REP (now CoppeliaSim) with bluetooth control.

SELECT PROJECTS



PROJECT ATLAS

B.E. Capstone Project · 9 mos.

Mumbai, India

2018–2019

- Built a *tethered* multirotor with an All Up Weight (AUW) of 10 Kgs.
- Designed 140V to 32V@20A step-down switching converters (855kHz) after simulating the design for efficiency and two PCB revisions to optimize for heat, small form-factor, and low weight.
- **Second place** across all undergraduate departments for Technical Paper Presentation.

ROOM OCCUPANCY INDICATING SYSTEM

B.E. Semester VI Project · 3 mos.

Mumbai, India

2018

- Created a network of small (3"x3") wireless sensors to detect human presence in a office room, across multiple such rooms.
- Developed PCBs and 3D printed cases to integrate low power sensing and wireless communication across multiple devices placed in different rooms of an office space.

EYANTRA ROBOTICS COMPETITION

All-India Robotics Competition · 5 mos.

Mumbai, India

2016–2017

- **First place** amongst 162 teams across India.
- Led a team of 4 in implementing algorithms for localization and motion planning of a Firebird V robot.
- Used OpenCV with Python for image segmentation of the arena to detect and distinguish shapes, areas and colors of objects for the given challenge.

CYKLO

Startup · 1 year 6 mos.

Mumbai, India

2015–2017

- Led hardware development at CYKLO, a point-to-point bicycle sharing service, started in 2015 at SPIT, Mumbai.
- Designed, built and programmed several hardware prototypes for the automated cycle locking system - including the locking mechanism, electronic controller and network interface.
- **First place** and award of INR 300,000 in InterThrone 2017 for the automated cycle locking prototypes.

OTHER AWARDS AND HONORS

2022 University of Maryland's Outstanding Graduate Research Assistant Award — awarded to the top 2% (80 of over 4000) of campus Graduate Assistants each year.

- 2022 First place (Mad Scientist) for best overall design in IEEE USA R2 Brown Bag - Analog and Digital Circuit Design.
- 2016 First place in department level Circuit Troubleshooting Competition at undergraduate institute.
- 2016 Second place out of 459 entries in the Arduino All-The-Things Contest on Instructables for my project called “The Companion IC” [↗](#).
- 2015 First place in CodeChamps, a programming competition for all freshman students at my undergraduate institution. Used C++.

TEACHING EXPERIENCE

DYNAMICS OF AEROSPACE SYSTEMS

College Park, USA

Graduate Teaching Assistant

2021

- Teaching Assistant for ENAE 301: Dynamics of Aerospace Systems, taught by Prof. Derek Paley.
- Responsibilities included conducting weekly recitations, office hours and grading for 80 students.

SIGNAL PROCESSING ON DSPs

Mumbai, India

Instructor

2019

- Invited for workshops to train faculty on incorporating embedded Digital Signal Processor (DSP) development boards in their curriculum at three institutes of the University of Mumbai: K.J. Somaiya, MPSTME and AIKTC.

ROBOTIC VISION

Mumbai, India

Undergraduate Teaching Assistant

2019

- Teaching Assistant for ETRX OE2: Robotic Vision, taught by Prof. K.T. Talele.
- Responsible for designing, conducting and instructing lab sessions for a batch of about 20 students.

MULTIPLE WORKSHOPS ON EMBEDDED SYSTEMS DEVELOPMENT

Mumbai, India

Instructor

2016–2019

- Conducted four workshops titled “Embedded Systems Design”, “Microcontrollers, Sensors and Arduino”, “ESP8266 and MQTT” and “PCB Making and Robotic Systems” throughout my undergraduate years.
- Instructed about 15 to 30 students in these workshops spanning 2 days each.

OTHER ACTIVITIES

- 2022 Facilitator for the Maryland LEAD Program for two semesters [↗](#).
- 2021 Graduate Innovation Fellow [↗](#).
- 2018 Student Technical Committee Member in Circuit Troubleshooting Event 2018 at Sardar Patel Institute of Technology.
- 2018 Certified on edX for course Robotics: Fundamentals [↗](#).
- 2016 Participated in workshop on MSP-FPGA Hardware and Software Co-design.