Srijal Shekhar Poojari

Robotics · Controls · Embedded Systems

✉ srijal@umd.edu
📞 +1 240 906 4837
🌐 srijalshekhar.com

EDUCATION

UNIVERSITY OF MARYLAND College Park, USA

Ph.D. in Electrical and Computer Engineering, Robotics and Control 2023–2027
- *Advisor: Dr. Derek A. Paley*

UNIVERSITY OF MARYLAND College Park, USA

M.S. in Systems Engineering, Control Systems · GPA 3.97/4.0 2021–2023
- *Advisor: Dr. Derek A. Paley*
- *Thesis: Outdoor Localization and Path Planning for a Self-driving Electric Scooter*

SARDAR PATEL INSTITUTE OF TECHNOLOGY | UNIVERSITY OF MUMBAI Mumbai, India

B.E. in Electronics Engineering · GPA 8.49/10 2015–2019
- *Capstone: Design of Tethered Multirotor System for High Payload Applications*

PUBLICATIONS

JOURNAL ARTICLES

2024 **S. S. Poojari**, J. Lee, and D. A. Paley. "Outdoor Localization and Path Planning for Repositioning an Autonomous Electric Scooter." *IEEE Transactions on Intelligent Vehicles.* doi: 10.1109/TIV.2024.3477271

APPOINTMENTS

ROBOTICS AND AUTONOMY LAB College Park, USA

Graduate Research Assistant · 1 year 7 mos. (ongoing) 2021–
- Co-leading the hardware and software development of Boston Dynamics Spot UGVs for the DARPA Triage Challenge Systems Competition.
- Developed state estimation fusing IMU, GPS and Wheel Odometry accurate within 2 meters upon travelling 1 km in a dense urban environment.
- Developed planning + navigation modules in ROS and demonstrated autonomous travel for over 400 meters along campus roads.

SP PRODUCT DEVELOPMENT CELL Mumbai, India

Research Associate · 1 year 2019–2020
- 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.

DRISHTI WORKS   Mumbai, India
Robotics Engineer Intern · 2 mos.   2018

– 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.

FRACTAL ANALYTICS   Mumbai, India
Project Intern · 1 mo.   2017

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

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY   Mumbai, India
Summer Intern · 3 mos.   2017

– Created self-reconfigurable robot modules inspired by the Dtto Modular Robot.

– Developed virtual simulations of the same modules on V-REP (now CoppeliaSim)
with bluetooth control.

AWARDS AND HONORS

2024   Our team RoboScout placed third out of eleven teams in the DARPA Triage Challenge
Systems Competition Event 1.

2022   University of Maryland's Outstanding Graduate Research Assistant Award.

2022   First place (Mad Scientist) for best overall design in IEEE USA R2 Brown Bag - Analog and
Digital Circuit Design.

2019   Second place across all undergraduate departments for Technical Paper Presentation of my B.E.
Capstone Project on implementing high-efficiency DC-DC converters on a tethered
multirotor.

2017   First place amongst 162 teams across India in the eYantra Robotics Competition for
implementing localization and motion planning of a Firebird V robot in a given challenge.

2017   First Place and award of INR 300,000 in InterThrone 2017 for the automated cycle locking
prototypes developed for CYKLO, a point-to-point bicycle sharing service.

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
Instructor

Mumbai, India
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
Undergraduate Teaching Assistant

Mumbai, India
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
Instructor

Mumbai, India
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.