Rishie Raj

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LinkedIn: linkedin.com/in/rishieraj **GitHub**: github.com/rishieraj

Education

University of Maryland (UMD) *College Park, MD*
Master of Engineering in Robotics, GPA 4.0 *Expected May 2025*

- Relevant Coursework: Control of Robotic Systems, Robot Modeling, Robot Programming

College of Engineering and Technology (CET) *Bhubaneswar, India*
Bachelor of Technology in Mechanical Engineering *2014-2018*

Skills

- Programming Languages: C/C++ ∗ Python
- CAD Tools: CATIA ∗ SOLIDWORKS
- Other Tools/Environments: ROS ∗ Gazebo ∗ RViz ∗ ANSYS ∗ MATLAB ∗ LaTeX ∗ MS Office
- Spoken Languages: English, Hindi, Odia

Technical Experience/Projects

Intro to Robot Modelling *College Park, MD*
Pick & Place Robot Design and Simulation *Oct 2023-Dec 2023*

- Designed a 6-DOF manipulator (inspired by UR10) with a vacuum gripper using CAD.
- Implemented joint trajectories of the manipulator using inverse kinematics through ROS packages.

RoboCar: Point-to-Point motion using PD control *Sep 2023-Nov 2023*

- Designed a wheeled robot with Ackermann-type steering using CAD.
- Built a Python script in ROS to implement PD control for steering.

Control of Robotic Systems *College Park, MD*
LQR & LQG controllers for Twin Pendulum-Cart system *Oct 2023-Dec 2023*

- Modelled the dynamic system and developed LQR/LQG controllers using MATLAB & Simulink.

Implementing Back-Stepping Sliding Mode Control (SMC) *Sep 2023-Nov 2023*

- Implemented an IEEE Access paper on the trajectory control of self-driving cars.
- Simulated the steering angle response in Simulink.

Maruti Suzuki India Ltd. (MSIL) *Gurugram, India*
Assistant Manager (Product Development-R&D) *Dec 2018-Apr 2021*

- Worked as project manager of Ertiga & all its variants, India's highest-selling MPV.
- Worked on Diesel BS-6/EURO-6 powertrain development (MSIL's 1st self-designed engine).
- Implemented a cost-saving proposal of ~2,500 INR/vehicle through seat fabric change.
- Won Star Performer of the division (~150 employees) in Q2 of FY 2020-21.

Graduate Engineering Trainee *Jul 2018-Nov 2018*

- Proposed a new layout for the ventilation system in the Weld shop to reduce wastage by ~30%.
- Proposed changes in assembly processes to reduce wrong/miss-fitment chances by ~50%.
- Presented a VA/VE proposal for design change in brake system layout for cost saving by ~3 INR/vehicle.

Personal Project:

Design of Tesla Turbine for High RPM Pumping Applications *IIT Kharagpur, India*
Research Intern (under Prof. Sandeep Saha) *Feb 2018-Jun 2018*

- Developed a CAD model of a bladeless compressor based on principles of the Tesla Turbine.
- Have applied for a **patent** titled "Bladeless Multistage Compressor" which is currently under review.