Prajwal Bhaskar Bharadwaj

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Education

Georgia Institute of Technology (Georgia Tech) — Atlanta, Georgia
Masters in Robotics (*Courses - AI, Controls, Perception and Navigation*) : *CGPA* - 3.85/4 — *May 2024*
Graduate Teaching Assistant: CS 3630 Introduction to Perception and Robotics

National Institute of Technology (NIT) Karnataka, Surathkal — Surathkal, India
Bachelor of Technology in Mechanical Engineering : *CGPA* - 9.05/10 — *May 2019*

Technical Skills

Application Softwares: ROS, Gazebo, OpenCV, PyTorch, Simulink, MSC Adams, V-REP, Docker, Git
Programming: Python, C++, Visual Basic, MATLAB, Mathematica

Publications

Bhavik Parmar, **Prajwal B Bharadwaj**, *"Design, Implementation of Gaits and Control of a Quadruped Robot"*, 8th International Engineering Symposium, Kumamoto University, Japan, 2019 · [Publication]

Experience

Bastian Solutions — *Boise, Idaho*
Robotics Engineer Intern — *May 2023 - August 2023*

- Developed auto-tuning software that can build custom forklift control maps, shrinking lead time by 2+ hrs
- Reduced human interaction by 94.7% compared to the baseline method of tuning/ testing a control map

Caterpillar India — *Bangalore, India*
Associate Engineer, Power Systems and Controls Division — *July 2019 - June 2022*

- Delivered ML-based performance optimization projects reducing emissions of CAT mining trucks by 16%
- Improved test cell operational efficiency (TEEP) by 24.5% through remote monitoring and analysis
- Translated Simulink-based turbocharger controls tool to Python-based software eliminating license costs

Mechanical Chef *(Cooking Robot Startup)* — *Bangalore, India*
Mechanical Design and Robotics Intern — *May 2019 - June 2019*

- Devised a robotic system for volume-based delivery of cooking ingredients that reduced the required number of actuators to 50% of the original count and slashed production costs [Video]

Indian Institute of Space Science and Technology (IIST) — *Thiruvananthapuram, India*
Research Intern, IIST Summer Internship Programme — *June 2017 to July 2017*

- Designed leg trajectories, simulated them using Fourier techniques for computational advantage in cyclic operation, and accomplished reference tracking using five-bar inverse kinematics
- Achieved stable walking, turning and trotting gaits using MATLAB-Adams Co-simulation [Video]

Projects

Autonomous Mobile Robot, *Mobile Robotics Lab, Georgia Tech* [Video]

- Implemented state machine to switch robot behavior. Developed scripts for LiDAR, Raspicam data fusion
- Integrated fail-safe measures for successfully navigating a directed maze despite unclassified direction signs

Autonomous Flight for Multiple Quadrotors (Ongoing), *The Robotarium, Georgia Tech*

- Controls and software development for fault detection & recovery of quadrotors in indoor environments

Quadruped Robot, *Locomotion Team Lead, ABU Robocon 2019* [Video]

- Created a framework to automatically generate leg trajectories on quadruped robot based on pose values obtained from IMU and proximity sensors. Robot accomplished climbing stairs and 35% gradient incline

Snake Robot, *Winning Team: e-Yantra National Robotics Competition(2018), IIT Bombay* [Video]

- Devised 2 algorithms for a snake robot - Rapid Pitching and Fall Recovery, simulated them alongside caterpillar, side-winding, serpentine gaits in V-REP, and executed using Arduino code

Extra-Curriculars and Leadership

- First place among 5932 participating teams at the e-Yantra National Robotics Competition, IIT Bombay
- Led a 25-member team in organizing 6 concerts with 400+ audience and competitions for 550+ students
- Mentored two underprivileged undergrad students to secure jobs in robotics and automation firms