Reeithu R G

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EDUCATION

PES University
Bangalore, KA

Bachelor of Technology, Electronics and Communication
Aug. 2021 – May 2025

- **CGPA**: 7.5
- **Relevant Courses**: Digital Image Processing-1 (UE21EC342AC1), Digital Image Processing-2 (UE21EC343AC2), Linear Algebra (UE21MA241B), Principles of Digital Signal Processing (UE21EC252B), Signals and Systems (UE21EC243A), Artificial Neural Networks (UE21EC343AC1), Robotic Systems (UE21EC342BC3), Machine Learning and Applications (UE21EC352B), Control Systems (UE21EC241B).

Primus Public School
Bangalore, KA

12th Grade, Percentage: 96.5%
June 2019 – May 2021

Lawrence High ICSE
Bangalore, KA

10th Grade, Percentage: 95.1%
June 2009 – May 2019

EXPERIENCE

Project Intern
June 2024 – July 2024

Indian Institute of Science - Robert Bosch Centre for Cyber Physical Systems
Bangalore, KA

- Worked on the control and dynamics of a humanoid bipedal robot.
- Assisted in the development of high-level and low-level controllers employing Model Predictive Control (MPC) and Reinforcement Learning (RL).

Teaching Assistant - Robotic Systems
Jan. 2024 – Present

PES University
Bangalore, KA

- Assisting in developing and delivering course content for the "Robotic Systems" course (UE21EC342BC3)
- Providing mentorship and guidance to students, facilitating their project development and implementation using ROS2, Gazebo.
- Mentoring students with basics of micro-controllers and robotics.

Research Intern
May 2023 – July 2023

Centre For Robotics Automation And Intelligent Systems, PES University
Bangalore, KA

- Developed a voice-controlled manipulator.
- Implemented computer vision algorithms and techniques for the manipulator's vision system, enhancing its perception and object recognition capabilities.

Student Mentor - Digital Image Processing
Jan 2024 – Present

IEEE Robotics and Automation Society, PES University
Bangalore, KA

- Proficient in tools like MATLAB, Python, and OpenCV.
- With a strong foundation in signal processing, machine learning, and pattern recognition, I apply my expertise in computer vision and robotics to mentor and guide newcomers.

ROLES OF RESPONSIBILITY

Student Chair
Jan. 2024 – Jan. 2025

IEEE Robotics and Automation Society, PES University
Bangalore, KA

- Leading a team of 51 core members across 11 domains and 2000+ community members.
- Supervising numerous research projects and competition teams in various domains of robotics and automation.
- Organizing national-level events, workshops, and hackathons.

Internship Organizer
May 2024 – Aug. 2024

Center for Robotics Automation and Intelligent Systems (cRAIS), PES University
Bangalore, KA

- Connected with industry (robotic ventures) and academic experts (faculty) to curate 11 project problem statements in various rapidly growing fields in robotics.
- Recruited 64 interns from 366 applicants through thorough resume review and interviews.

PROJECTS

Dual-arm Manipulator for Surgical Incision | *MuJoCo, OpenAI Gym, SOFA*
- Currently working on implementing a dual-arm manipulator for surgical incision, as a part of our final year capstone project.
- Employs Reinforcement Learning (RL) algorithms to achieve desired functionality.

Voice Controlled Manipulator | *OpenCV, ROS*
- Developed an integrated voice and vision system for a manipulator, enabling voice-controlled operation and object identification via computer vision.
- Simulated an environment to evaluate system performance and behavior.

Detection of Microplastics in Ocean Water Samples using Blob Detection and comparison of various Filtering Methods (DoG, LoG, DoH) | *OpenCV, MATLAB*
- Implemented blob detection to detect and count microplastics in ocean water samples using thresholding, morphology and filtering methods such as Difference of Gaussian, Laplacian of Gaussian and Difference of Hessian.
- Compared the results of each method successfully and concluded the best methods considering several key parameters such as size of microplastic, morphological method, kernel sizes of filters, kernel sizes of morphological structuring elements, and threshold values.

Heart Rate Detection using Smart Phone Camera | *OpenCV, Mediapipe*
- Poly Plethysmographic (PPG) signal is extracted from the video recorded using a smartphone camera which is used to detect volumetric changes in blood in the peripheral region.

Pose Estimation using various Low Light Image Enhancement Techniques | *OpenCV*
- Developed a project focused on enhancing pose estimation accuracy in low-light conditions through the implementation of advanced image enhancement techniques.
- Compared six different low-light image enhancement algorithms.

Alzheimer's Detection | *scikit-learn*
- Using Support Vector Machines (SVM) based on various cognitive parameters using OASIS dataset.

SKILLS

Languages: C Programming, C++, Python, JAVA, MATLAB.
Frameworks: Robotic Operating System (ROS), Gazebo, Rviz, MuJoCo, OpenAI Gym.
Developer Tools: Git, VS Code
Libraries: OpenCV, Moveit, Tensorflow, Pytorch, Matplotlib, Gym

Concepts: Image processing, Computer Vision, Signal Processing, Robotics, Machine Learning, Deep Learning, Reinforcement Learning, Control Systems.

Soft Skills: Management, Communication, Operations, Leadership, Teamwork, Problem-Solving, Adaptability, Project Management, Presentation, Proposal Writing.

REFERENCES

Dr. Shikha Tripathi   PES University
Professor and Chairperson, Dept. of Electronics and Communication Engineering   *Bangalore, KA*
   Email: shikha@pes.edu
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Dr. Venkatarangan M J   PES University
Professor, Dept. of Electrical and Electronics Engineering   *Bangalore, KA*
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   Contact: +91 9900250758

LANGUAGES

English, Hindi, Tamil, Kannada