MAYUR S GOWDA

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EDUCATION

Carnegie Mellon University — ***Pittsburgh, PA***
Master of Science in Electrical and Computer Engineering **(GPA: 3.80/4.00)** — ***May 2025***
Ramaiah Institute of Technology (RIT) — ***Bangalore, India***
Bachelor of Engineering in Telecommunication Engineering **(GPA: 9.74/10)** — ***August 2022***

RESEARCH

Carnegie Mellon University — ***Pittsburgh, PA***
Graduate Research Assistant — ***May 2024 - Present***
Advised by Prof. José M. F. Moura
Project: Recovery of Underlying Graph Networks and its Application in Behavioural Classification

- Leading research on behavioral classification problems and the recovery of graph network structures for identified behaviors, involving advanced network analysis and modeling to enhance behavioral pattern recognition.

Project: Gesture Recognition in Amyotrophic Lateral Sclerosis (ALS) Patients

- Developing and refining gesture recognition systems specifically for ALS patients. Focuses on improving the accuracy and usability of gesture-based communication aids for individuals with motor impairments.

Indian Institute of Science (IISc) — ***Bangalore, India***
Research Intern — ***November 2021 - December 2023***
Project: Sports Analysis using Computer Vision.

- Basketball Analysis: Implemented an object detection system for basketball and hoop identification. Devised algorithms to estimate the release angle using pose estimation, with shot prediction based on ball trajectory. The system was able to achieve an overall accuracy of 86.2% at predicting the shots. ***Published in CVIP 2023***.
- Built an algorithm to perform Foot-Ground Contact detection based Segmentation framework and Computer Vision techniques. The algorithm was able to predict the foot-ground contact instances with an accuracy of 85.17% over the test dataset.

Center for Imaging Technologies, Ramaiah Institute of Technology — ***Bangalore, India***
Research Associate — ***July 2022 - December 2023***

- Led a project named Novel in-cabin sensing and analytical systems for enhancing the safety, health, and comfort of drivers and occupants (***Sponsored by STELLANTIS).***
- Built a novel method for the detection of different cognitive states of the driver by combining Feature detection (Yolov5 Algorithm), Head-pose estimation (HPE), and Eye-Gaze Tracking (EGT). The HPE and EGT algorithms were developed using the existing mediapipe framework. The work was conducted using both RGB and IR sensors. An accuracy of around 90% was obtained for the RGB sensors for the proposed method.

Indian Space Research Organization (ISRO, LEOS Lab) — ***Bangalore, India***
Project Trainee — ***December 2021 - July 2022***
Worked on a project entitled, Design and Development of a Controller for Piezo-based Fast Steering Mirror.

- Developed a Verilog code for controlling the Fast-Steering Mirror present in space equipment to establish the line of Sight between two devices communicating with one another. The system was tested and executed in real-time on FPGA.

Ramaiah Institute of Technology — ***Bangalore, India***
February 2021 - June 2021

- Worked on a project entitled Smart Detection and Mitigation of DDoS Attacks. Distributed Denial-of-Service attack is a cybercrime in which the attacker floods a server with internet traffic to prevent users from accessing online services.
- Constructed a system for detecting the DDoS attacks and mitigating those DDoS attacks in real-time attack scenarios. The system was tested in a LAN network and resulted in an attack prediction accuracy of 84%.

WORK EXPERIENCE

Delta Electronics, Inc. — ***Bangalore, India***
R&D Engineer (Intern) — ***March 2022 - July 2022***

- Enhanced DelREMO (Delta Remote Monitoring) by developing and implementing features for data collection from solar site sensors and streamlining data transmission to Delta's Remote Monitoring Server.
- Resolved critical timing and location-related bugs across multiple software versions, improving system reliability and performance in real-time monitoring applications.

Smart Health Global Technologies Pvt. Ltd — ***Bangalore, India***
Project Intern — ***August 2021 - September 2021***

- Worked on the development of a product named SMART VISION Glasses. SMART VISION Glasses are developed to help people with visual impairment.
- With the knowledge and hands-on experience in Machine Learning and Deep Learning, I was able to work on the development of the smart glasses in which the dataset (about 100 objects) was built based on the items that we come across in our day-to-day life, and the model was built for object detection and was implemented.

PUBLICATIONS and GRANT

Publications:

- "Free-Throw Prediction in Basketball Sport using Object Detection and Computer Vision", ***Mayur S Gowda****, Dhruv Shindhe S, S N Omkar.* Published in Proceedings of 8th International Conference on Computer Vision and Image Processing (CVIP), 2023. (https://link.springer.com/chapter/10.1007/978-3-031-58174-8_43)
- "A Multimodal Approach to Detect Driver Drowsiness", ***Mayur S Gowda****, Viswanath Talasila, S A Raafay Umar, Rashmi Alva*. Published in Proceedings of 5th International Conference on Circuits, Control, Communication and Computing (I4C), 2024. (https://ieeexplore.ieee.org/document/10748433).
- "A Robust Driver Distraction Estimation Technique for ADAS Applications", *Sriman, Ashwin, Manish, Nishanth S Shukapuri,* ***Mayur S Gowda****, Viswanath Talasila.* Published in Proceedings of 2nd International Conference on Advances in Data-driven Computing and Intelligent Systems, 2023. (https://link.springer.com/chapter/10.1007/978-981-99-9521-9_22)
- "Survey on Crop Production and Crop Protection", *Rakshitha H S,* ***Mayur S Gowda****, Akshata S Kori.* Published in Proceedings of International Conference on Computational Intelligence, 2022. (https://link.springer.com/chapter/10.1007/978-981-99-2854-5_4)

Grant: Dr. Viswanath Talasila and I have jointly received a grant of 7000$ (around 6 Lakh rupees) for the project: Novel in-cabin sensing and analytical systems for improving the safety, health, and comfort of drivers and occupants. Which is sponsored by STELLANTIS (an automotive company).

SKILLS

Programming Languages: Advanced: C, C++, Python; **Basic:** Java., **Hardware Description language:** Verilog; VHDL.
Frameworks & Libraries: PyTorch, TensorFlow; CUDA (basic), OpenCV, MediaPipe.
Tools: Xilinx ISE, MATLAB, Arduino, Intel Quartus Prime, LabVIEW, WireShark, VoTT, LOIC Tool, AWS, AWS Trainium.

ACHIEVEMENTS

- **Best Outgoing Student** in Electronics and Telecommunication Engineering, RIT. Awarded this honor for excellence in academics, co-curricular and extracurricular activities, and community service.
- **Gold Medallist** in Undergraduate Studies from the Department of Electronics and Telecommunication Engineering, RIT. Awarded the gold medal for achieving the highest GPA of 9.74, securing 1st rank in the department.
- Won the 2nd prize in the Quiz competition conducted by the Institution of Electronics and Telecommunication (IETE), Bangalore, Karnataka.