FASLU RAHMAN TP

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Professional Summary

Self-motivated and hard-working individual with a B.Tech in Computer Science and Engineering from MEA Engineering College and currently pursuing a B.S. in Data Science and Applications from IIT Madras. Passionate about leveraging technology to create impactful solutions. Proficient in Python development, deep learning, generative AI, Linux, and machine learning. Skilled in building applications and exploring the transformative potential of deep learning. Committed to continuous learning and skill-building for holistic growth as a technologist.

General Skills

Soft Skills : Problem-Solving, Communication, Team-Mangement, Decision-Making

Technical Skills

Languages : Python, C, Java, SQL, HTML, CSS
Libraries : Tensorflow, Numpy, Pandas, Matplotlib, Langchain, Flask
Databases : Sqlite
Dev Tools : Visual Studio Code, Git

Experience

Junior Research Fellow July 2024 – Current
National Institute of Technology Calicut (NITC) *On-site – Kozhikode, Kerala, India*

- Engaged in the Ministry of Education (GoI) funded project COEAI - Centre of Excellence in Artificial Intelligence "Sustainable Applications for Mobility, Urban Development and Resilience using Artificial Intelligence (SAMUDRA)."
- Focused on developing intelligent traffic control systems for smart cities to optimize traffic flow and reduce congestion.
- Demonstrated strong problem-solving and analytical skills by implementing state-of-the-art AI models.
- Collaborated with a team of researchers, enhancing teamwork, communication, and presentation skills.

INTERNSHIPS

Project Intern May 2023 – Jul 2023
National Institute of Technology Calicut (NITC) *On-site – Kozhikode, Kerala, India*

- Worked on a funded project for the development of an intelligent traffic control system for smart cities, optimizing traffic flow and reducing congestion, demonstrating strong problem-solving and analytical skills.
- Implemented state-of-the-art deep learning models including **YOLOv8 for vehicle detection**, achieving **82.8% mAP**, and **DeepSort for multi-object tracking**, enabling real-time traffic monitoring.
- Collaborated with a team of researchers and presented findings. Honed teamwork, communication and presentation skills in delivering impactful solutions for smart cities.

Intern March 2024 – Jul 2024
National Institute of Technology Calicut (NITC) *Remote – Kozhikode, Kerala, India*

- Participated in an internship program focused on "Image Processing-Oriented Traffic Signal Control using AI/ML" under the guidance of Dr. M Prabu.
- Collected and analyzed a custom dataset of Indian traffic, including emergency vehicles, to enhance traffic signal control systems.
- Trained and compared various YOLO models, including YOLOv8, YOLOv9, and YOLOv10, for vehicle detection.
- Developed a vehicle detection model using YOLOv10 and simulated a dynamic traffic control system using SUMO.

Education

MEA Engineering College — Malappuram, Kerala, India
BTech, Computer Science and Engineering — *June 2020 – June 2024*

Indian Institute of Technology Madras — Chennai, India
BS, Data Science and Applications — *April 2020 – Present*

PPMHSS Kottukara (Higher Secondary Education) — Malappuram, Kerala, India
Science — *Jun 2018 – Mar 2020*

Projects

Dental Structure Scanner Using LiDAR Technology *Arduino, LiDAR Sensor, 3D Point Cloud, Python*

- Led a team to develop an innovative dental structure scanner integrating LiDAR technology with Arduino microcontrollers to capture 3D models of dental anatomy.
- Designed and implemented algorithms for data acquisition, processing, and visualization, resulting in relative point clouds of dental structures.
- Identified performance issues due to the use of a single point cloud, including noise and incomplete data coverage, which affected the accuracy of the 3D models.
- Demonstrated the feasibility of using LiDAR technology for dental applications through successful prototype development and testing.
- Project repository: GitHub Link

Smart Walking Stick for the Visually Impaired *Micropython, ESP8266, Ultrasonic Sensor, Buzzer, Vibrator*

- Developed a pioneering project to create a smart walking stick for the visually impaired, integrating technologies like ESP8266, ultrasonic sensor, buzzer, and vibrator.
- Implemented real-time notifications and haptic feedback to enhance users awareness of their surroundings.
- Demonstrated commitment to leveraging technology for societal betterment, especially for individuals with visual impairments.
- Project repository: GitHub Link

Blog Application using HTML, CSS, and Bootstrap *Python, Flask, HTML, CSS, Sqlite*

- Developed a responsive blog application with dynamic content and user authentication.
- Implemented front-end using HTML, CSS, and Bootstrap, and back-end using Flask and SQLite.
- Gained experience in front-end web development, project management, and collaboration.
- Project repository: GitHub Link

Object Detction using Yolo and Faster RCNN *YOLO, Faster RCNN, Roboflow*

- Developed object detection models using YOLO and Faster R-CNN architectures as part of a seminar research.
- Project ”Object Detection Algorithm Evaluation in the Context of Indian Transportation”
- Preprocessed dataset of images and annotated bounding boxes for model training using Roboflow Platform.
- Trained and evaluated models on a custom dataset. Compared performance of YOLO and Faster R-CNN for real-time detection.

Blog Generation Application Using Langchain *Python, Streamlit, Langchain, Hugging Face Model Hub*

- Developed a web application for automated blog generation using Langchain library, Python, and Streamlit.
- Integrated Hugging Face Model Hub to access state-of-the-art language models like Gemma-2B and Mixtral-8x7B.
- Users can input topics, select writing styles, and specify word counts to generate personalized blog posts.
- Project repository: GitHub Link

Recipe Generator Using Gemini Pro Vision *Python, Streamlit, Google Generative-AI*

- Developed a web application for generating recipes based on analyzing images of prepared dishes using the Gemini Pro Vision model from Google GenerativeAI.
- Utilized Python for backend development and Streamlit for creating an interactive user interface.
- Configured and integrated Google GenerativeAI’s Gemini Pro Vision model to accurately identify main ingredients and quantities from uploaded images.
- Project repository: GitHub Link

Publications

Object Detection Algorithm Evaluation in the Context of Indian Transportation
IEEE 9th International Conference for Convergence of Technology (I2CT) 2024

Affordable Navigation Aid: A Smart Walking Stick for the Visually Impaired
6th International Conference on Recent Advances in Intelligent Computational Systems (RAICS) 2024

Certifications

- AI Programming with Python, Udacity
- Python for Data Science, NPTEL
- Foundational Level in Programming and Data Science, Indian Institute of Technology, Madras
- Crash Course On Python, Google
- Python, GUVI Geek Networks, IITM Research Park
- Barclays LifeSkills Programme, GTT Foundation
- Nation Wide Roadshow on Digital India RISC-V Vega Processors - CDACINDIA
- Departmental Workshop of YIP 5.0 - Kerala Startup Mission