Muhmmad Abrar R

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Education

Vellore Institute of Technology, Chennai   **2021 - 2025**
B.Tech in Computer Science & Engineering with specialization in AI and Robotics   *9.08/10 CGPA*

Work Experience

Niyata Infotech   **October 2023 – January 2024**
AI Intern   *Chennai, India*

- Worked on **Tiny Machine Learning** - a paradigm that involves using **Machine Learning on resource constrained edge devices.**
- Contributed to the conceptualization of **Anomaly Detection and Real-Time Machine State Detection**, and implemented the same in **ESP32 and STM32 Microcontrollers**.

iCover Insure   **February 2022 – August 2022**
Web Development Intern   *Remote*

- Engaged in a comprehensive program covering essential topics including **HTML, CSS, AngularJS and Node.js**.
- Developed a functional Chat-bot for the firm using the **Angular framework,** which was successfully implemented.

Projects

DroneGuard - A Geospatial Flood Surveillance System   View Github

- This Streamlit application facilitates **drone image stitching for map generation and image segmentation**, primarily designed for **flood surveillance in disaster-stricken areas.**
- Performs **Segmentation** of water affected areas using **UNET** a deep neural network for accurate mapping and monitoring of flood-affected areas.
- Future iterations aim to integrate this functionality into **autonomous drone systems.**

Website for Social Entrepreneurship Club   View Website

- Developed a fully functioning **front-end website** for my club **Centre for Social Entrepreneurship and Development CSED VITC**.
- Used **ReactJS along with VITE** for integrating the front end components.

Animal Intrusion Detection System   View Github

- **A real-time animal monitoring and intrusion alarm system** that detects the **intrusion of wild animals** in an observed environment.
- Used **YOLOv8** for detection and **Twillio API** for sending real time alerts.

Alzheimer Predictor   View Github

- Implemented **VGG16**, a deep learning neural network using **Tensorflow**, to analyze uploaded MRI scans for determining the presence or absence of Alzheimer's disease.
- Recognized with the **3rd prize at HAXIOS**, a university-level hackathon hosted by the **IEEE Student Branch at VIT Chennai**.

Honours and Awards

Best Research Paper Award   **April 2024**
NMIC 2024   *Indian Society for VLSI Education (ISVE)*

- Got Accepted and awarded the **Best Research Paper Award** at the **4th International Conference on Nanoelectronics, Machine Learning, Internet of Things and Computing Systems (NMIC-2024)**.
- Presented my work on **Conditional Monitoring of Ship Engines using Tiny Machine Learning.**

Haxios Competition Winners   **March 2023**
IEEE Student Branch, VITC   *Vellore Institute of Technology, Chennai*

- Developed a **Real Time Alzheimer Predictor using Deep Learning** that detects the presence of Alzheimer disease in a MRI scan.
- Secured the 3rd Position in **HAXIOS** a flagship 24 hr hackathon conducted by the **IEEE** Student Branch, VIT Chennai

Technical Skills

Languages: Python, Java, C++, C
Backend Web Development: Node.js, Express.js, Flask
Frontend Web Development: React, TailwindCSS, HTML, CSS, Bootstrap
Databases:MySQL, POSTGRESQL ,MongoDB, SQLAlchemy
Web Technologies: Streamlit, Firebase
Android Development:Kotlin, Dart, Flutter
Developer Tools:VS Code, GitHub
Relevant Python Frameworks and Libraries: Numpy, Pandas, Matplotlib, Seaborn, Canva, Tensorflow, Keras, MySQL, Scikit-Learn, NLTK, OpenCV
Tools: MATLAB, Keil, STM32CubeIDE, Arduino, MS Office Tools

Relevant Courses

Data Structure and Algorithms	Design and Analysis of Algorithms
Probability and Statistics	Complex Numbers and Linear Algebra
Database Systems	Internet of Things
Operating Systems	Software Engineering
Computer Networks	Computer Architecture and Organization
Robotics Kinematics and Motion Control	Sensors, Actuators and Signal Condtioning
Google Data Analytics Professional Certificate	Data Analysis with R Programming, Google, Coursera
TinyML Specialization, Harvard, EDX	Linux for beginners

Extra Curriculars and Achievements

Core Member and Editorial Lead   **Feb 2024**
Club for Social Entrepreneurship and Development   *Vellore Institute of Technology, Chennai*

- One of the founding members of a club dedicated to promoting Social Entrepreneurship.
- Recognized by club leadership for outstanding contributions to club initiatives.

Programme Migration   **May 2022 – present**
Batch of 2021   *Vellore Institute of Technology, Chennai*

- Secured a spot among the **top 2%** of my department who were **eligible** for a **change** of **department** based on rigorous academic grounds and interest expressed.
- Migrated **from Electronics and Communication Engineering** stream **to Computer Science Engineering** stream due to enormous interest in the field.