

MUHAMMAD ABRAR R

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Education

Vellore Institute of Technology, Chennai

B.Tech in Computer Science & Engineering with specialization in AI and Robotics

2021 - 2025

9.08/10 CGPA

Work Experience

Niyata Infotech

AI Intern

October 2023 – January 2024

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

Web Development Intern

February 2022 – August 2022

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 **Twilio 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 Conditioning
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.