Amrutha E

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Education

- **Bachelor of Technology in Computer Science** — *2022 - 2026*
  Vellore Institute of Technology, Chennai — CGPA: 9.05
- **Grade XII** — *2021 - 2022*
  Srimathi Sundaravalli Memorial School, CBSE — Percentage: 94.6%
- **Grade X** — *2019 - 2020*
  Srimathi Sundaravalli Memorial School, CBSE — Percentage: 90.6%

Personal Projects

- **NeuroScan: Brain Tumor Detection using CNN**
  Deep learning-based model for detecting brain tumors using Convolutional Neural Networks (CNN).
  – Trained on medical imaging datasets to classify tumor types with high accuracy.
  – Utilized TensorFlow and Keras for model implementation.
- **SmartShop Price Finder**
  A Chrome extension integrated with UiPath and Python to automate price comparison across e-commerce platforms.
  – Developed a Chrome extension enabling users to search products and fetch best prices from Amazon and Flipkart.
  – Integrated UiPath to automate web scraping for extracting real-time product prices and details.
  – Implemented a Flask backend using NLP-based filtering and tokenized keyword search to optimize price matching and comparisons.
- **PaveSense: Smartphone-based Pothole Detection and Mapping**
  An IoT-based system leveraging smartphone sensors and machine learning to identify and visualize road surface damage.
  – Built a real-time data pipeline using accelerometer, gyroscope, and GPS sensors from Android devices via WebSockets.
  – Engineered 25+ statistical and signal features to train an XGBoost classifier for pothole detection.
  – Implemented a Flask backend with SQLite for storing location-tagged events and developed a Leaflet.js web map for visualization.
- **EventEase: College Event Management System**
  A full-stack web application enabling clubs and faculty to create, manage, and register for events efficiently.
  – Built a FastAPI backend with SQLite, JWT-based authentication, and role-based access control for organizers and participants.
  – Implemented event CRUD and participant registration features with real-time validation and data integrity.
  – Designed a responsive frontend using HTML, Tailwind CSS, and vanilla JavaScript for smooth user interaction.
- **PathFinder: Navigation System Using Parallel Algorithms**
  A web application designed to optimize route planning for autonomous vehicles through advanced pathfinding techniques.
  – Developed a pathfinding system utilizing parallelized algorithms, including Dijkstra's, A*, and Bellman-Ford, achieving significant performance improvements in route calculations.
  – Integrated a Flask backend with an interactive interface to visualize routes on OpenStreetMap, allowing for dynamic user input and real-time obstacle management.

Technical Skills

Languages: C, C++, Java, Python, JavaScript, HTML, CSS
Frameworks & Libraries: C++ STL, Flask, FastAPI, NumPy, Pandas, Matplotlib, Scikit-learn, TensorFlow, Pytorch
Tools: Git, GitHub, VS Code
Databases & Cloud: MySQL, MongoDB
Coursework: Data Structures & Algorithms, Operating Systems, OOP, DBMS, Software Engineering
Soft Skills: Problem-Solving, Time Management, Self-Learning, Presentation, Teamwork, Adaptability

Certifications and Achievements

Azure AI-900 Certificate – Successfully completed Microsoft Azure AI-900, demonstrating expertise in AI fundamentals and cloud-based AI solutions. **Nov 2024**

Machine Learning A-Z: AI, Python & R (Udemy) – Completed an in-depth machine learning course, gaining proficiency in ML models, NLP, and Deep Learning. **Feb 2025**

Published Research Paper – Published in IEEE Xplore: *"Comparative Analysis of Firmware Security: A Proactive Paradigm for Enhancing Efficiency and Adaptability through Anomaly Detection"* at ICRTAC. **Dec 2023**