Vivek M G

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OBJECTIVE

Applying for admission to the MS in Computer Engineering program at the University of National University of Singapore for Fall 2026.

EDUCATION

B Tech in Computer Science and Engineering, SRMIST, Kattankulathur	CGPA- 9.22/10	May 2026*
12th Grade, Kola Perumal Chetty Vaishnav Senior Secondary School, Chennai	70.4%	Jul 2022
10th Grade, National Public School, Chennai	78.8%	Jun 2020

RESEARCH INTERESTS: Embedded AI, Internet of Things (IoT), Artificial Intelligence (AI)

COURSEWORK TAKEN: Computer Organization and Architecture, Artificial Intelligence, Internet of Things (IoT), Embedded System Design Using Arduino, Machine Learning (ML)

INTERNSHIPS

Research and Development Intern, **Samsung R&D Institute India** **Mar 2024 – Dec 2024**

Detecting Anomaly in Smart Home Events using GenAI

- Designed a smart lock anomaly detection system using LLAMA2-7b Chat for event classification and isolation forest for detecting anomalies, enhancing home security by proactively identifying unusual access patterns.
- Created a synthetic dataset using Python & SmartThings API for simulating realistic lock/unlock activity, ensuring robust model training despite limited real-world data.
- Pre-processed data to reduce bias and train ML models learn for user patterns and visualized event trends using Matplotlib library in Python, improving model fairness and providing actionable insights into user behavior.
- Evaluated the preprocessed dataset with five unsupervised learning algorithms; isolation forest outperformed other unsupervised learning algorithms in anomaly detection; used LLAMA2-7b to generate real-time natural language explanations, delivering explainable AI alerts to increase user trust and system usability.
- Achieved 80.2% accurate real-time anomaly identification with <100ms latency, enabling faster responses to potential security breaches.

UNDERGRADUATE PROJECT

Embedded Machine Learning for Early Heart Attack Prediction Symptoms **Jan 2025 – May 2025**

- Designed a real-time heart attack prediction system using Arduino Nano BLE 33 sense Rev 2 and Embedded AI, making predictive health analytics possible on small, resource-constrained devices.
- Integrated MAX30102 (Heart rate and SpO_2), TMP117 (body temperature) and GSR (Skin Resistance) sensors to collect physiological signals, capturing multi-modal data for more reliable symptom detection.
- Created a synthetic dataset simulating heart attack symptoms using Python, NumPy, Pandas and statistical sampling, performed preprocessing, labeling and visualization using Matplotlib, addressing the scarcity of annotated medical datasets.
- Trained a binary classification mode using a TensorFlow Lite neural network to address the lack of real time medical sensor data; Achieved 96% accuracy with ongoing improvements to reduce bias.

COMPETITION PROJECTS

Enduraverse 25, Endurance Technologies

Low-Cost Telematics Dongle **18 Feb 2025 – 20 Feb 2025**

- Designed and built a low-cost telematics dongle using ESP32 and an IMU sensor to monitor real-time acceleration, gyroscope, direction, speed, and jerk, enabling accurate motion tracking for automotive and industrial applications.
- Handled the complete hardware implementation and developed the mobile application for Bluetooth based data transmission; Integrated ThingSpeak for cloud-based data logging and graphical visualization of motion data. enabling seamless remote monitoring and faster analysis of vehicle performance.

- Implemented the product with a focus on low latency, achieving 85 ms real-time response compliant with company specifications, ensuring timely and reliable motion data for automotive and industrial applications.
- The product can support future applications such as estimating part lifetime and mechanical wear by analyzing long term motion patterns from sensor data, providing a foundation for predictive maintenance and reducing operational costs.

ULTRON 8.0 FUTURIX.CTECH, SRMIST

IoT based vision glasses for the blind **30 Jan 2025 -31 Jan 2025**

- Developed an IoT-based vision aid using Jetson Nano and MiDaS depth estimation to detect obstacles and provide real-time spatial feedback, enhancing mobility and safety for visually impaired users.
- Developed a Bluetooth-connected mobile app delivering audio and haptic alerts for intuitive environmental awareness, enabling intuitive environmental awareness, allowing users to navigate unfamiliar spaces independently.
- Achieved 87% obstacle detection accuracy in real-time testing during the hackathon prototype, demonstrating the system's practical effectiveness in real-world scenarios.

COURSE PROJECTS

Robotic Arm Using ESP32 **Mar 2024 – Apr 2024**

- Designed a robotic arm using ESP32-WROOM with Wi-Fi control, WebSocket communication, and PWM-based movement.

Road Damage Detection using Detectron 2 **Jan 2024 – Apr 2024**

- Designed and trained a computer vision Model using Detectron 2 for detecting road damage such as potholes and cracks; Designed a flask backend for serving model prediction and a frontend using HTML and Tailwind CSS
- Achieved 85% accuracy on city road datasets through proper preprocessing and augmentation

Beyond Pages Trust Website **May 2024 – Apr 2024**

- Designed a website using HTML and Tailwind CSS with Razorpay integration for donation processing

Blog-App **Jan 2024 – Apr 2024**

- Built a real-time blogging platform using React.js, Prisma with MongoDB for structure data management, and Firebase for Authentication and live updates.

CERTIFICATIONS

- GitHub Foundation, GitHub, Feb 2025 – Feb 2025
- Networking Basics, Cisco Networking Academy, Cisco, Sep 2024
- Operating System Basics, Cisco Networking Academy, Cisco, Mar 2024
- Introduction to IoT, Cisco Networking Academy, Cisco, Mar 2024
- Computer Architecture, IIT Madras, NPTEL, Oct 2023
- Programming in Java, IIT Kharagpur, NPTEL, Oct 2023

TECHNICAL SKILLS

- **Operating Systems:** Windows, Linux
- **Languages:** C++/Python/JavaScript/Arduino C
- **Database and Client/Server Technologies:** MySQL
- **Software Tools:** VS Code, GitHub, Git, Figma
- **Web Applications:** React Native, React JS, Next JS
- **Others:** Embedded System Programming

AWARDS AND EXTRA-CURRICULAR ACTIVITIES

- Placed 3rd among 6 teams, Enduraverse'25 Hackathon, Endurance Technologies Ltd, Feb 2025; Developed a low-cost telematics dongle
- Led a 4-member design team for the Creatives domain of Alexaverse, the flagship tech event organized by Alexa Developers SRM, held at SRMIST, Kattankulathur Personally, designed the event poster and established a consistent visual identity, significantly enhancing branding and attendee engagement.

- Volunteer, Beyond Pages Trust: Developed and maintained the NGO's website, organized fundraising initiatives, taught Computer Science to 11th-grade state board students, and coordinated grocery and clothing donation drives to support rural communities, Jun 2024 – Jul 2025.
- Logistics Volunteer, GIT101: Handled troubleshooting for a hands-on session on Git and GitHub conducted at SRMIST, Kattankulathur, for 250+ attendees across all Engineering Departments, Nov 2023.
- Completed Initial to Grade 6 examinations (2011–2020), reflecting long-term dedication, discipline, and advanced musical proficiency.

LANGUAGES

- English, Tamil (Read/Write/Speak)