AJJAY ADHITHYA V

Chennai, Tamil Nadu, India

✉ ajayadi2005.aa@gmail.com   in LinkedIn   Github   ⊕ Portfolio Website

Education

Vellore Institute of Technology   Chennai, India
*Bachelor of Technology in Computer Science and Engineering; **CGPA: 9.02** (till 7th Sem)*   *2022 – 2026*

Experience

Centre for Cyber Physical Systems (CCPS), VIT Chennai ↗   May 2025 – Aug 2025
Summer Research Intern   *Chennai, India*

- Conducted research on "Trade-Offs in AI-Text Detection," performing a comparative study of lightweight Transformer models including DistilBERT, ALBERT, and TinyBERT.
- Designed and implemented experiments to evaluate efficiency vs. performance trade-offs in detecting AI-generated text.
- Analyzed experimental data with faculty mentors, resulting in a research paper accepted for conference proceedings.

InstiBuzz - Campus Brand of IIT Madras ↗   Aug 2024 – Oct 2024
Technical Team Intern - Full Stack   *Chennai, India*

- Contributed to the maintenance and optimization of the company website, ensuring smooth performance and scalability.
- Enhanced User Experience (UX) by implementing responsive design improvements and interactive features.
- Collaborated with the technical team to execute bug fixes, feature updates, and performance tuning.

Publications

LoRaWAN-Based Blood Sugar Monitoring to Enhance Diabetes Management in Rural Areas ↗
Accepted & Presented at the International Conference on Information and Communication Technology (CICT 2025).

Trade-Offs in AI-Text Detection: A Comparative Study of DistilBERT, ALBERT, and TinyBERT ↗
Accepted & Presented at the International Conference on Sensing and Communication Networks (ICSCN 2025).

Transforming Road Infrastructure Management: A Multimodal Road Quality Rating System ↗
Published in IEEE ICCMC 2025 | DOI: 10.1109/ICCMC65190.2025.11140874

Projects

Automated Disaster Damage Assessment | *Deep Learning, PyTorch, U-Net, ResNet-34*   Aug 2025 – Nov 2025

- Developed a unified deep learning model (U-Net with ResNet-34 encoder) for simultaneous building localization and multi-class damage classification from satellite imagery.
- Innovated a custom "CombinedLoss" function with masking to focus classification loss solely on relevant building pixels, significantly improving training efficiency.
- Trained on the large-scale xBD benchmark dataset using stacked 6-channel tensors (pre- and post-disaster images).
- Achieved high quantitative performance with 0.9726 pixel accuracy in clear-sky scenarios, proving viability as a scalable alternative to inefficient two-stage systems.

Adaptive Traffic Signal Optimization ↗ | *Reinforcement Learning, Python, AI*   Sep 2024 – Nov 2024

- Designed an AI-based traffic management system utilizing Reinforcement Learning (RL) algorithms for adaptive signal control.
- Incorporated predictive modeling to dynamically optimize signal timings, reducing congestion and average waiting times.
- Simulated complex urban traffic flow scenarios to validate efficiency improvements in throughput and delay reduction.

Technical Skills

Languages: Python, Java, C/C++, SQL, JavaScript, HTML/CSS, MATLAB, R Studio

Frameworks & Libraries: React.js, Node.js, Tailwind CSS, PyTorch, MongoDB, TensorFlow, JUnit

Tools & Platforms: AWS, Git, GitHub, Linux, Android Studio, VS Code, Arduino, LTSpice, IoT