

# AJJAY ADHITHYA V

Chennai, Tamil Nadu, India

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## Education

<b>Vellore Institute of Technology</b> <i>Bachelor of Technology in Computer Science and Engineering; CGPA: 8.98 (till 6th Sem)</i>	Chennai, India 2022 – 2026
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## Experience

<b>Centre for Cyber Physical Systems (CCPS), VIT Chennai</b> ↗ <i>Summer Research Intern</i>	May 2025 – Aug 2025 Chennai, India
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- 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.

<b>InstiBuzz - Campus Brand of IIT Madras</b> ↗ <i>Technical Team Intern - Full Stack</i>	Aug 2024 – Oct 2024 Chennai, India
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- 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

<b>Transforming Road Infrastructure Management: A Multimodal Road Quality Rating System</b> ↗ Published in IEEE ICCMC 2025   DOI: 10.1109/ICCMC65190.2025.11140874
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<b>LoRaWAN-Based Blood Sugar Monitoring to Enhance Diabetes Management in Rural Areas</b> ↗ Published in Zenodo Oct 2025   DOI: 10.5281/ZENODO.17309300
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<b>Trade-Offs in AI-Text Detection: A Comparative Study of DistilBERT, ALBERT, and TinyBERT</b> ↗ Accepted at the International Conference on Sensing and Communication Networks (ICSCN 2025).
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## Projects

<b>Automated Disaster Damage Assessment</b>   <i>Deep Learning, PyTorch, U-Net, ResNet-34</i> 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.

<b>Adaptive Traffic Signal Optimization</b> ↗   <i>Reinforcement Learning, Python, AI</i> 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