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[LeetCode](#)

RESEARCH PROJECTS

MobilePlantViT-LDA | Plant Disease Classification System | [Published Paper](#)

- **Published IEEE research paper** at ICCNCT-2026 (ISBN: 979-8-3315-9020-8) proposing MobilePlantViT-LDA, a lightweight hybrid CNN-Transformer architecture for plant disease detection; presented online at the conference.
- Achieved 97.48% test accuracy with macro-F1 of 0.97, AUC-ROC of 0.9999, Cohen's Kappa of 0.9732 on the 38-class PlantVillage dataset (49,370 images).
- Reduced parameter count by **45%** (1.94M vs 3.54M) compared to MobileNetV2 while improving Top-1, Top-3, and Top-5 accuracy, enabling deployment on mobile and edge devices.
- Improved inference speed by **8×** (1.05 ms/image) with throughput of 956 images/sec, validated on Tesla P100 GPU benchmarking.
- Integrated Linear Differential Attention (LDA) from the DIFF Transformer into the hybrid architecture, adapting the dual attention subtraction mechanism ($\alpha \times (A_1 - A_2)$) to suppress background noise and enhance disease leaf features.

PROJECTS

MatchHub | AI-Powered Movie & Book Recommendation Platform | [Live Demo](#)

- Developed a full-stack recommendation platform supporting movies and books, leveraging content-based filtering, NLP preprocessing, CountVectorizer, and cosine similarity to generate real-time personalized recommendations from large-scale datasets.
- Optimized recommendation inference using precomputed similarity matrices compressed to float16, reducing memory consumption by 75% and enabling deployment on resource-constrained cloud instances; integrated TVDB and Google Books APIs with caching and fallback mechanisms for enriched media metadata.

Code Deconstruction Learning Tool | AI-Powered Repository Understanding Platform

- Built an AI-powered platform that analyzes GitHub repositories and automatically generates step-by-step learning roadmaps, helping developers understand and recreate projects from scratch using repository structure, source code, and dependency analysis.
- Architected a multi-stage background processing system handling repository ingestion, code indexing, project analysis, learning-plan generation, and code-to-concept mapping through distributed Celery workflows.
- Automated repository decomposition by extracting project architecture, dependency graphs, implementation flow, and technology stack, converting complex codebases into structured learning paths.

EXPERIENCE

Infosys Springboard Internship | Web Development Intern (Remote)

November 2024 - January 2025

- Contributed to the development of a full-stack food delivery website as part of a 20-member agile team under mentorship.
- Implemented backend functionality using Flask and SQLite, including database schema design, CRUD operations, and role-based data access.
- Developed responsive frontend components for features such as order management, cart, checkout, and admin dashboards.
- Assisted in implementing analytics and reporting modules for order trends, revenue metrics, staff performance, and customer feedback visualization.
- Practiced collaborative development using GitHub for version control, code reviews, structured team-based development.

CERTIFICATIONS

- **Google Cloud** Cloud Digital Leader Certification
- **Cisco** CCNA: Introduction to Networks
- **AWS** Solutions Architecture Job Simulation
- **IBM** IT Support Specialization by Coursera
- **Google** Prompting Essentials by Coursera

EDUCATION

Neil Gogte Institute of Technology

Bachelors of Engineering in Computer Science and Engineering

August 2024 - July 2027

CGPA: 8.35/10 (current)

Government Institute of Electronics

Diploma in Artificial Intelligence and Machine Learning

August 2021 - May 2024

CGPA: 8.88/10

SKILLS AND INTERESTS

Python, Java, PyTorch, NumPy, Matplotlib, Deep Learning, Machine Learning, REST APIs, Flask, FastAPI, SQL, MongoDB, Docker, Git/GitHub, Azure, Google Cloud, React.js, JavaScript, Unit Testing, Kaggle

RELEVANT COURSEWORK

Data Structures & Algorithms, Database Management System, Object Oriented Programming, MySQL, Machine Learning, Artificial Intelligence, Natural Language Processing