

Ganesh Kumar

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Education

Vellore Institute of Technology | Aug 2022 - Present
B.Tech Computer Science and Engineering

Chennai, Tamil Nadu
CGPA: 9.12/10

Experience

Samsung R&D Institute — *PRISM Intern*

Jun 2024 - Jan 2025

- Identified an innovative facial feature extraction model for AI-based segmentation of facial features, leading to a **10% increase in accuracy**.
- Optimized the ROI Tanh-Polar Transformer Network (RTNet50) using techniques like pruning, knowledge distillation, and student networks, achieving a **35% reduction in model size** and a **20% faster inference speed**.
- Enhanced segmentation performance by integrating Attention U-Net and GAN prior networks, resulting in a **minor improvement in segmentation accuracy** under occlusions.

Tech Stack: *Python, OpenCV, scikit-image, TensorFlow, PyTorch, ONNX, NVIDIA TensorRT*

Infihel Healthcare Pvt Ltd — *AI & Backend Intern*

Aug 2023 - Oct 2023

- Implemented diverse classifier models and transformers using HuggingFace, increasing model **accuracy by 20%** for user detail extraction in the welcome pathway.
- Designed and deployed personalized LLM-based chatbots using OpenAI and Langchain, improving **response time by 30%**.
- Optimized chatbot efficiency by removing redundant dialogue pathways with Microsoft Bot Framework Composer, reducing **loading time by 30%**.

Tech Stack: *Python, HuggingFace Transformers, OpenAI, Langchain, Microsoft Bot Framework Composer, FastAPI, AWS, Docker, Git*

Projects

OnTheGo Platform

[GitHub Link](#)

Vite, React, TypeScript, Tailwind CSS, shadcn/ui, Supabase, PostgreSQL

- A full-stack platform for carpooling, car rental, and bike pooling with real-time booking and listing management.
- Analyzed secure authentication, user profiles, and a user rating system using Supabase Auth and PostgreSQL triggers.
- Reactive and modern built-in user interface with shadcn/ui and Tailwind CSS, including custom dark mode and mobile-friendly bottom navigation.

Voyagyr

[GitHub Link](#)

React Native, Firebase, Nativewind CSS

- Developed a mobile-first expense tracker with real-time synchronization and secure user authentication powered by Firebase, increasing data retrieval speed.
- Created interactive transaction history and category-wise spending analytics presented through a visually engaging CSS and Nativewind interface.

inStock

[GitHub Link](#)

Next.js, Redux, Node.js, AWS (RDS, EC2, S3, Amplify), Prisma, Tailwind CSS

- Engineered a scalable backend using Node.js and Prisma ORM connected to AWS RDS, reducing average query response times under concurrent load.
- Devised RESTful APIs with robust role-based access control, ensuring fine-grained permission management across different user roles.
- Integrated AWS infrastructure including EC2 for server hosting, S3 for asset storage, and Amplify for continuous deployment, resulting in a fully managed, scalable production environment.

Technical Skills

Languages: C/C++, Python, Java, JavaScript, SQL

Web Development: React.js, Vite, MongoDB, Node.js, FastAPI, NoSQL, MySQL, PostgreSQL, CouchDB, AWS

App Development: React Native, Nativewind, Firebase

Machine Learning: PyTorch, TensorFlow, NumPy, Pandas, Scikit-Learn, HuggingFace

Achievements

3-Star on CodeChef: With strong critical thinking and coding skills using Data Structures and Algorithms (DSA).
Centre of Advanced Data Science, VIT: Co-authored a paper on estimating the remaining useful life of Li-Ion batteries, achieving a predictive accuracy of 98.5% ([View Paper](#)).

Microsoft Learn Student Ambassador: Organized over 10 machine learning workshops both online and on-campus.

Distributed Database: CouchDB: Course Certification by CDC at VIT in association with CouchBase.