Gokulakrishnan

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Education

Hindustan Institute of Technology and Science, Chennai, India — *Sep 2022 – May 2026*
B.Tech. in Computer Science (Specialization: AI & Data Science) — CGPA: 8.26/10

Skills

Languages & Frameworks: Python, R, JavaScript, Node.js, TensorFlow, PyTorch, Scikit-learn, NumPy, Pandas
AI/ML: Hugging Face, NLP, Federated Learning, Regression, Classification, Clustering
Cloud & DevOps: Google Cloud Platform (GCP), Vercel, Docker, Git, CI/CD
Databases: Supabase (PostgreSQL, Auth, Storage, Realtime APIs)

Freelance Experience

Eye Hospital, Chennai – Myopia Prediction Platform — *Freelance AI Developer*

- Developed an AI-powered clinical decision support platform for predicting therapeutic lens (Stellest Lens) uptake in myopia progression management, assisting ophthalmologists in treatment planning.
- Built and trained machine learning models on 251+ patient clinical records, implementing predictive algorithms for risk assessment and treatment outcome forecasting.
- Designed interactive visual analytics dashboard with real-time charts and graphs for clinical risk stratification, enabling doctors to interpret patient data efficiently.
- Automated generation of comprehensive PDF clinical reports with personalized treatment recommendations based on patient history and predictive model outputs.

Academic Projects

Intelligent Query Routing Framework for LLM Orchestration — *Sep 2025 – Jan 2026*
IEEE Conference Presentation, March 2026 | GitHub

- Designed and implemented a web-based intelligent routing system that dynamically classifies user queries and routes them to optimal language models (GPT-4, Claude 3.5, Llama 3) based on task complexity, achieving 93.7% routing accuracy.
- Developed a lightweight intent classification algorithm using heuristic-based keyword matching and complexity scoring, completing query categorization in under 20ms with minimal computational overhead.
- Built a production-ready serverless architecture using Next.js 14 and Vercel Edge Functions, demonstrating 42% cost reduction and 39% latency improvement over monolithic single-model approaches across 100 diverse test queries.
- Implemented real-time streaming responses via Server-Sent Events, security measures including PII redaction and prompt injection mitigation, achieving scalability up to 10,000 concurrent requests.

REX Healthify – AI Health Assistant — *Oct 2025 – Nov 2025*
4th Place, OpenAI × NxtWave Buildathon | GitHub

- Developed an AI-driven health assistant using Gemini AI for personalized medical guidance with features for medical record management and emergency doctor discovery.
- Built medication reminders, voice interaction capabilities, and NFC-based emergency access to critical health data for rapid response scenarios.
- Competed against 1,000+ teams and secured 4th place for building a high-impact technical solution.

Privacy-Preserving Federated Learning for Drone Swarm — *Sep 2025 – Nov 2025*
IEEE International Conference, Singapore (2025) – Best Paper Award GitHub

- Proposed a privacy-preserving federated learning framework enabling decentralized exploration in autonomous drone swarms without centralized control.
- Designed a 3D voxel-based environment with room-like obstacles and implemented LiDAR sensor simulation using 3D spherical ray marching with 8m sensing range.
- Developed frontier-based exploration strategies and applied Federated Averaging (FedAvg) to aggregate drone models while preserving local data privacy.
- Built real-time 3D visualization tools to monitor drone trajectories, environment coverage, and swarm coordination.

Publications

- Gokulakrishnan S, *A Web-Based Intelligent Query Routing Framework for Heterogeneous Large Language Model Orchestration*, **IEEE International Conference, March 2026** (To be presented).
- Gokulakrishnan, *Privacy-Preserving Federated Learning Framework for Decentralized Drone Swarm Exploration*, **IEEE International Conference, Singapore, Nov 2025** – Best Paper Award.

Honors & Leadership

- Best Paper Award, IEEE International Conference, Singapore 2025 for research in privacy-preserving federated learning.
- 4th Place Winner, OpenAI Academy × NxtWave Buildathon among 1,000+ participants.
- Technical Lead, Blue Screen Programming Club: Led Innothon 2025 CodeArena hackathon with 1,000+ participants.
- Organized multiple technical events and hands-on workshops, driving student engagement and programming skill development.