# Vyshakh G Nair

AI/ML Engineer

vyshakhgnair.cvr@gmail.com — +91 85908 29892

Kerala, India — LinkedIn — GitHub — Kaggle


## Objective

AI/ML Engineer with strong foundations in building **enterprise-grade**, **cloud-native** AI solutions. Specialized in **Large Language Models (LLMs)**, **Retrieval Augmented Generation (RAG)**, and **AI Agents**. Proven track record in developing scalable **microservices**, **REST APIs**, and automated workflows. Seeking to leverage expertise in **statistical modeling**, deep learning, and software engineering to deliver innovative, high-impact AI products.

## Education

**NSS College of Engineering, Palakkad (KTU)** Sept 2020 – July 2024
B.Tech in **Computer Science and Engineering**

**Indian Institute of Technology, Madras** Jan 2021 – July 2024
B.Sc in **Programming and Data Science**

## Experience

**AI/ML Engineer – Rappit** Jul 2024 – Present

- Architected **enterprise-grade RAG pipelines** using Gemini APIs and LangGraph, utilizing **AI Agents** for complex reasoning and improving document automation scalability by **5x**.
- Designed **multi-agent workflows** to automate complex business operations, ensuring system reliability and high performance.
- Developed and deployed scalable **REST APIs** and **microservices** for OCR pipelines, enabling semantic processing of **1200+ documents**.
- **Runner-up** at Rappit Agentic AI Hackathon 2024.

**Software Engineer Intern – Saint-Gobain** May 2023 – Oct 2023

- Optimized enterprise data workflows by **60%** via a QR-based tracking system integrated with PostgreSQL.
- Built responsive front-end applications using React and integrated **RESTful APIs** with core Autodesk systems.

**Software Head – Corr Robotics** Sept 2022 – May 2024

- Applied **classical computer vision** and **deep learning** (ESRGAN) to enhance underwater ROV performance in low-light conditions.
- Led the software development lifecycle (SDLC), mentoring interns and building the control OS using Python and Vue.js.

## Projects

**ModRes – AI-Powered Career & Resume Platform**
Built an end-to-end AI platform utilizing foundational LLMs to offer dynamic resume optimization and an **agentic mock interview system**. Designed as a scalable application handling user data and complex inference tasks.
**Highlights:** LLM-powered analysis, **AI Agents** for simulation, and scalable backend architecture.
**Stack:** Python, Flask, Supabase, Vue.js, LLM APIs

**Document Parser Integrated with Tally**
Developed an intelligent backend system using **LLMs + FastAPI** to extract structured financial data from invoice PDFs. Implemented **REST APIs** for seamless integration with enterprise software (Tally).
**Highlights:** Structured field extraction, local persistence with SQLite, and automated batch verification.
**Stack:** FastAPI, Gemini API, SQLite, Vue.js

**Target Parameter Estimation from Noisy Signals**
Designed a statistical modeling pipeline using **DDPM (UNet)** for denoising followed by a **CNN regression model** to estimate target parameters from noisy radar data.
**Stack:** PyTorch, Diffusers, scikit-learn (Regression)

**Target Detection and Classification**
Implemented a GAN-based framework followed by **CNN classification** to distinguish between single and multiple targets under extreme noise conditions, utilizing statistical signal processing techniques.
**Stack:** PyTorch, scikit-learn (Classification)

---

## Research & Publications

**Fusion Learning for Drug Discovery using Molecular Graph and Sequence Representations** 2024
Springer KAIS Journal *(DOI: 10.1007/s10115-025-02514-2)*

- Designed a **fusion framework** combining molecular graphs and SMILES sequences, improving representation learning.
- Outperformed **graph-only** and **sequence-only models** on benchmark datasets.
- Code available on GitHub.

**Leveraging Deep Learning and Molecular Representation for Optimization of Drug Discovery** 2024
IEEE ICIC3S Conference *(DOI: 10.1109/ICIC3S61846.2024.10603258)*

- Proposed **hybrid Transformer–GNN architecture** for drug property prediction.
- Achieved **superior accuracy** compared to traditional QSAR methods.

---

## Technical Skills

**Languages:** Python, Java, SQL
**AI/ML & GenAI: AI Agents**, **RAG**, **GraphRAG**, LLMs, LangGraph, TensorFlow, PyTorch, **Regression**, **Classification**, **Clustering**, Statistical Modeling
**Databases:** PostgreSQL, MongoDB, Neo4j, Supabase, MySQL, SQLite
**Backend & Cloud:** FastAPI, Flask, **REST APIs**, **Microservices**, **Cloud-Native Architecture**, GCP Vertex AI
**DevOps & Tools:** Docker, **CI/CD**, Git, Redis, Celery, Jupyter

---

## Honors & Awards

- **Runner-Up** – Rappit Agentic AI Hackathon 2024
- **Winner** – HackFiesta V2.0 (Smart Bin System with Route Optimization)
- **Top 1%** – Kaggle Vector-Borne Disease Classification (World Rank: 205)