

Karthik Nair

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EDUCATION

Indira Gandhi National Open University, New Delhi |

January 2025 - Present

Master of Computer Applications

Vivekananda Institute of Professional Studies | Guru Gobind Singh Indraprastha University, New Delhi |

July 2021 - June 2024

Bachelor of Computer Applications (Data Science & Analytics) | 9.2 CGPA

WORK EXPERIENCE

AI Engineer, Tata Consultancy Services

Aug 2024–Present

PoC Development and Production Transition

- Transitioned multiple AI and Data Engineering projects from **proof-of-concept to production**, enhancing data processing and analysis capabilities for a major US pharma client.

AI Systems for Data Insights and Workflow Optimization

- Engineered an AI system that processes datasets, optimises schema for **Large Language Models**, and generates custom scripts for analytics. The system has **reduced data analysis and visualisation efforts by 90%**, boosting insights and drug discovery. Built FastAPI endpoints to integrate it into the client's existing infrastructure.
- Built a conversational **Retrieval-Augmented Generation (RAG)** system using **LangChain** and LLMs over the client's documentation and codebase, streamlining information retrieval for everyone involved.
- Developed a reusable and scalable Python package to seamlessly integrate AI capabilities, including **multimodal support** and diverse LLMs, enabling rapid adoption of advanced AI features across current and future projects by multiple teams.

Automating Workbook Generation for Clinical Trials

- Designed algorithmic solutions using openpyxl to automate the creation of complex, interconnected workbooks, **improving data engineering efficiency and cutting manual effort by 95% (from ~5 minutes to under 15 seconds per workbook) with 100% accuracy**.

R-to-Python Migration & API Development

- Assisted in the partial migration of an R codebase to Python to improve maintainability, performance, and team accessibility. Developed FastAPI endpoints to **expose core functionalities as scalable web services**.

PERSONAL PROJECTS

Personal Finance Tool (July 2025 - Present)

- Building an AI-powered personal finance tool that parses bank statements, auto-categorises expenses using Google Gemini, and visualises spending trends. Integrated smart caching and regex-based heuristics to reduce inference costs over time. Focuses on **sustainable AI** and data privacy by minimising data transfer and processing overhead.

markdown-resume (April 2025 - May 2025)

- Markdown-based resume generator using CSS and WeasyPrint, designed for customisability, speed, and professional output. **This resume was created using it.**

SeniorSage (Jan 2024 - Present)

- WIP AI platform offering resume reviews, GitHub analysis, and roadmap suggestions for CS students. A customised ATS-friendly resume generator and course recommendation system are also in development.

SKILLS

- Technical: Programming and scripting languages (Python, C++, Bash), Backend Development (FastAPI, Flask), Cloud Platforms (Azure, AWS, Vercel, Render), Database Management (MySQL, Firestore), Version Control (Git), Linux, Data Engineering and Analytics, Generative AI (Prompt Engineering, LangChain, LangGraph, RAG, API call optimisation)
- Non-Technical: Content Writing, Video Editing (DaVinci Resolve), Photography, Digital Marketing

AWARDS

- Technical Excellence Award from TCS** for outstanding contributions to AI projects 2025
- Bug Bounty Award from Google Buganizer Android 12/13** 2021

LANGUAGES

- Professional Proficiency: English, Hindi, Malayalam
- Limited Working Proficiency: Tamil