Om Nagvekar

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EDUCATION

Bachelor of Technology in Computer Science Engineering
KIT's College of Engineering, CGPA: 8.41 Dec 2021 - Jun 2025

EXPERIENCE

Data Scientist Intern
AlgoAnalytics *Pune, Aug 2025 - Present*

- Conducted quantative financial modeling and statistical analysis to design and optimize trading strategies.
- Calculated alpha and beta coefficients for diverse equities to assess risk-adjusted performance and portfolio sensitivity.
- Developed a Value–Momentum-based trading strategy, achieving a 32% Annualized Return with an Annualized Volatility of 25% over a 10-year backtest on NSE stocks.

Research Intern
Shivaji University (Nanoscience Department) *Kolhapur, Aug 2024 - June 2025*

- Applied machine learning techniques (time series analysis and change point detection) to material science data.
- Developed a RAG-based system for research paper analysis to extract key scientific insights, improving efficiency by up to 50%.
- Secured 2 copyrights for innovative contributions in applied machine learning and scientific data analysis.

Machine Learning Intern
ArthaVedh Consulting Pvt Ltd *Pune, May 2024 - Dec 2024*

- Contributed to the development of machine learning models and synthetic data generation, streamlining training pipelines by 30%.

PROJECTS

Information Retrieval RAG for Research Papers
Python, Streamlit, HuggingFace, Ollama, Gemini API, MongoDB, ChromaDB, Pydantic *Demo*

- Built a RAG-based system to extract structured insights from research papers using HuggingFace, Ollama, and Gemini API.
- Designed dynamic schema extraction with runtime Pydantic models and integrated citation-linked outputs.
- Developed a Streamlit UI with PDF uploads, schema CRUD, and MongoDB-backed multi-user chat history.
- reducing manual processing by 40%.

Chef-Agent Knowledge-Graph Cooking Assistant
Python, RAG, FastAPI, FastMCP, LangGraph, Neo4j, Redis, BeautifulSoup *Demo*

- Developed a streaming AI "Chef" agent using FastMCP + FastAPI, orchestrated via LangGraph workflows and backed by a Neo4j recipe knowledge graph.
- Implemented end-to-end tools for web search (Tavily/DuckDuckGo), web scraping (FireCrawl + BeautifulSoup), sandboxed Python execution, natural-language → Cypher graph queries, and URL-to-graph recipe ingestion.
- Enabled session personalization with in-memory/Redis store and auto-summarization of long conversations for enhanced user experience.

AI Garbage Prediction API (SIH 2024 Project)
Python, YOLOv11, FastAPI, OpenCV, Ollama, Streamlit *Demo*

- Designed a FastAPI-based API to analyze images and videos in real time for garbage prediction.
- Integrated advanced LLMs (Phi-3 Mini and Florence-2) to classify and quantify waste, improving monitoring efficiency by 20%.

PUBLICATIONS

Managing Spam Images on Android: An Approach Utilizing Machine Learning and NLP
Authors: ***Om Nagvekar****, Sumeet Kurbetti, Parth Sarnobat, Uma Gurav, Tanvi Patil* *July 2024, DOI: 10.1007/978-981-97-2550-2_59*

SKILLS

- **AI/GenAI Tools:** RAG, LangChain, LangGraph, ChromaDB, FAISS, Pydantic, LLM, Neo4j, Agentic AI, OpenAI
- **Data Science & ML:** Scikit-Learn, Pandas, NumPy, Keras, PyTorch, OpenCV, Matplotlib, Seaborn, Tensorflow
- **Programming Languages:** Python, Java, SQL
- **Web & API Frameworks:** FastAPI, Flask, Streamlit, FastMCP
- **Tools & Utilities:** Git, GitHub, AWS Cloud, Docker
- **Language :** English, Japanese

ACHIEVEMENTS

- Amazon ML Challenge 2024 ranked 277 out of 2430 teams in top 12%.
- SIH 2024 Grand Finalist
- Copyright on Hysteresis Change point detection and Auto Text Extraction.
- Japanese Language N5 level Certification NAT 5Q