

Om Nagvekar

📍 Kolhapur, Maharashtra, India ✉ omnagvekar29@gmail.com ☎ +91-7666220323
 🔗 <https://omnagvekar.github.io/> in Om Nagvekar 🌐 OmNagvekar

About me

Aspiring AI professional with robust expertise in Python, API development, and advanced NLP techniques (including Retrieval-Augmented Generation). Proven track record in research and hands-on projects, consistently delivering quantifiable improvements. Seeking opportunities to leverage my skills to drive innovative AI solutions.

Education

KIT's College of Engineering (Autonomous), Kolhapur 2021-2025 (expected)
B.Tech in Computer Science (Artificial Intelligence and Machine Learning) Engineering
 ○ GPA: 8.11/10.0 Equivalent to 76.10%
 ○ **Coursework:** AI, Linear Algebra, Statistics and Probability, Machine learning, Deep learning,

Experience

Research Intern Remote
Shivaji University (Nanoscience Department) Aug 2024 – Present
 ○ Applying machine learning techniques (time series analysis and change point detection) to material science data.
 ○ Developing a RAG-based system for research paper analysis to extract key scientific insights, potentially increasing data extraction efficiency by 50%.

Machine Learning Intern Remote
ArthaVedh Consulting Pvt Ltd June 2024- Dec 2024
 ○ Contributed to the development of machine learning models and synthetic data generation, improving training workflows by streamlining data pipelines by over 30%.

Intern – Business Contract Validation Remote
Intel Unnati Industrial Training Program May 2024 – Aug 2024
 ○ Automated validation of hundreds of business contracts by classifying and comparing them against standard documents, reducing manual review time by an estimated 40%.
 ○ Implemented a RAG pipeline with a fine-tuned Phi-3 mini LLM to accurately identify deviations.

Publications

Managing Spam Images on Android: An Approach Utilizing Machine Learning and NLP July 2024
Om Nagvekar Sumeet Kurbetti, Parth Sarnobat, Uma Gurav, and Tanvi Patil.
[10.1007/978-981-97-2550-2_59](https://doi.org/10.1007/978-981-97-2550-2_59) 🔗

Projects

AI Garbage Prediction API (SIH 2024 Project) [AI Predictions API](#) 🔗
 ○ Designed a FastAPI-based API to analyze images and videos in real time for garbage prediction.
 ○ Using advanced LLM (ollama Phi: 3mini and Florence-2) to classify and quantify waste, achieving an estimated improvement in monitoring efficiency 20%.
 ○ Tools used: Python, FastAPI, YOLOv11

GAN Research Implementation [GAN Implementation](#) 🔗
 ○ Implemented and optimized various GAN architectures (GAN, DCGAN, WGAN, pix2pix) using PyTorch, enhancing training stability and image quality through iterative experimentation with loss functions and

hyperparameters.

- Tools used: Python, Pytorch

Business Contract Validation Tool (BCVT)

[BCVT](#) 

- Built an automated tool for classifying and validating contracts using a TensorFlow model, RAG pipeline, and HuggingFace embeddings.
- Achieved 92.5% semantic similarity, 88.7% response relevancy, and 85.3% factual correctness across test cases.
- Integrated Gemini AOI (Gemini 2.0-Flash) for clause-level evaluation and Streamlit UI for PDF visualization.
- Tools used: Python, TensorFlow, LlamaIndex, Gemini AOI, Streamlit, ragas.

Chef-Agent Knowledge-Graph Cooking Assistant

[Chef Agent](#) 

- 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.
- Tools used: Python, FastAPI, FastMCP, LangGraph, Neo4j, Redis, FireCrawl, BeautifulSoup.

Technologies

Languages: Python, Java

AI & ML Frameworks: PyTorch, TensorFlow, Keras, LangGraph, Langchain, smolagents, FastMCP

NLP & RAG: Retrieval-Augmented Generation (RAG), LangChain, LlamaIndex, fine-tuning LLMs, LLM

API Development & Tools: FastAPI, Docker, Model Context Protocol (MCP)

Research & Data Processing: Data preprocessing, exploratory analysis, model evaluation, pandas, numpy

Version Control: Git, GitHub

DevOps: Docker, Kubernetes

Additional: Android Development, SQLite

Certifications and Awards

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| ◦ LSAT (Lab Setup Automation Tool) PBL Day Winners | ◦ Google AIML Virtual Internship (JAN – MAR 2024) |
| ◦ ML and AI Workshop - Technex,IIT Varanasi | ◦ Amazon ML Challenge 2024 ranked 277 out of 2430 teams in top 12 percent. |
| ◦ Runner-up, Pioneer 2022 Runner-Up (Prakalp) | ◦ SIH 2024 Grand Finalist |
| ◦ Data Analytics Process Automation Virtual Internship (SEP - NOV 2023) | ◦ Introduction to LangGraph by Langchain Academy |
| ◦ Japanese Language N5 level Certification NAT 5Q | ◦ AI Agents Fundamentals by Hugging Face |

Languages

English : Professional working proficiency

Japanese : Elementary proficiency N5 level