Om Nagvekar

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https://omnagvekar.github.io/ 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

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*

- Created an automated tool using a fine-tuned Phi-3 mini LLM with a RAG pipeline and vector indexing, integrated with a Streamlit UI to process PDFs.
- Enhanced processing speed by up to 35% through optimized API usage with the Gradient API.
- Tools used: Python, llamaindex

Technologies

Languages: Python, Java

AI & ML Frameworks: PyTorch, TensorFlow, Keras

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

API Development & Tools: FastAPI, Docker

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

Version Control: Git, GitHub

Additional: Android Development, SQLite

Certifications and Awards

- LSAT (Lab Setup Automation Tool) PBL Day Winners
- ML and AI Workshop - Technex,IIT Varanasi
- Runner-up, Pioneer 2022 Runner-Up (Prakalp)
- Alteryx Foundational Micro-Credential
- Data Analytics Process Automation Virtual Internship (SEP - NOV 2023)
- Japanese Language N5 level Certification NAT 5Q
- Google AIML Virtual Internship (JAN – MAR 2024)
- Amazon ML Challenge 2024 ranked 277 out of 2430 teams in top 12 percent.
- SIH 2024 Grand Finalist

Languages

English : Professional working proficiency

Japanese : Elementary proficiency N5 level