

VIBHANSHU WAGHMARE

AI Engineer | Generative AI | LLMs | Multi-Agent Systems | Computer Vision

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Skills

Programming: Python, SQL, LangGraph, Machine Learning, Computer Vision.

Machine Learning: scikit-learn, TensorFlow, Keras, PyTorch, YOLO, NLP, Deep Learning.

Data Analysis & Visualization: Pandas, NumPy, Matplotlib, Seaborn, Tableau, Power BI

Robotics & IoT: ROS, Edge Computing, LiDAR integration, GPU.

AI Tools: FastAPI, LLMs, n8n , Jupyter Notebook, ChatGPT, Hugging Face, Linux.

Cloud & Deployment: AWS, Flask API deployment.

Analytical Tools: MATLAB, Tableau, Power BI.

Professional Experience

ISRO NRSC - AI & Data Science Intern (Jul 2024 - Dec 2024)

- Developed AIoT autonomous rover for space and agriculture applications.
- Implemented LiDAR mapping and navigation using ROS.
- Designed AI models for image processing and autonomous decision-making.

Tools & Methods: Python, ROS, OpenCV, YOLO, TensorFlow, PyTorch, LiDAR, Edge Computing, AWS.

Brainovision Solutions Pvt. Ltd - Data Science Intern (Jan 2024 - Mar 2024)

- Built ML models for customer segmentation using K-Means clustering.
- Deployed Linear Regression and Random Forest Regression; evaluated using MSE, R², MAE.
- Data cleaning, preprocessing and visualization using Pandas, NumPy, Seaborn.
- Created interactive dashboards for insights.

Tools & Methods: Python, scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, Flask

Aryabhatta Research Institute of Observational Sciences - Research Fellowship Intern (May 2023 - Aug 2023)

- Designed structure for daytime operation of ARIES Micro Pulse LiDAR (AMPL).
- Developed real-time data acquisition and visualization algorithms.
- Integrated cloud-based LiDAR data processing pipelines.

Tools & Methods: Python, MATLAB, ROS, FastAPI, NumPy, Matplotlib.

Education

B.E. in Artificial Intelligence & Data Science - Sandip Institute of Technology and Research Centre – CGPA: 8.61

HSC (12th) - School of Brilliant & Junior College - 97.5% SSC

SSC (10th) - Alphonsa High School - 92%

Projects

1. LangGraph Customer Support Agent - [Link](#)

Domain: AI Agent

Tech Stack: Python, scikit-learn, Pandas, Matplotlib, LangGraph

- 11-Stage Workflow: Complete customer support pipeline from intake to completion.
- MCP Server Integration: Routes abilities between COMMON and ATLAS servers.
- Multiple Execution Modes: Deterministic, non-deterministic, and human interaction stages.
- State Management: Persistent state across all workflow stages.
- Escalation Logic: Automatic escalation based on solution confidence scores.
- Comprehensive Logging: Detailed execution tracking and monitoring.

2. Image Classification & LLM Tuning - [Link](#)

Domain: Computer Vision & Large Language Models

Tech Stack: Python, PyTorch, YOLOv8, EfficientNet, LLaMA 3.2, Transformers, Jupyter Notebook, NumPy, Pandas

End-to-End Model Pipeline: Trained and validated multiple image-classification models with automated preprocessing, checkpointing, and evaluation.

Real-Time Optimization: Achieved < 20 ms per image inference speed suitable for live or edge deployment.

LLM Fine-Tuning: Customized LLaMA 3.2 to extract structured date/time entities and output validated JSON, replacing brittle regex-based parsing.

Unified Workflow: Combined vision and LLM modules into a single reproducible notebook pipeline for continuous experimentation.

Result: Production-ready model artifacts and automated extraction workflow that eliminated manual data cleanup.

3. CrowdWisdom Trading AI Agent - [Link](#)

Domain: Agentic AI / Financial Data Automation

Tech Stack: Python, CrewAI, LangChain, Pandas, Requests, JSON

- Designed an autonomous CrewAI-based backend to discover and filter X (Twitter) financial creators based on credibility rules (> 5 K followers & > 5 tweets in 2 weeks).
- Automated data ingestion, normalization, and JSON serialization to build clean market-sentiment datasets.
- Improved data reliability and enabled rapid signal refresh cycles for trading-model research.

Awards / Research Paper

Data Science Hackathon - 1st Winner - Brainovision Solutions Pvt. Ltd - [Link](#)

AI Autonomous Rover for Space and Agriculture Application (ISRO NRSC) - [Research Paper](#)