

TUSHAR JAYENDRA MHATRE

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PROFESSIONAL SUMMARY

Software Engineer specializing in AI/ML with 3+ years of experience building machine learning pipelines, workflow automation systems, and agentic AI applications. Proficient in Python and SQL, with experience developing scalable AI-driven systems and DevOps workflows in both large enterprises and early-stage startups. Delivered solutions that saved \$100K+ in operational costs by improving efficiency and helping launch the product lifecycle for a pre-seed startup. Seeking to build scalable generative AI products that deliver real-world impact.

PROFESSIONAL EXPERIENCE

The Aether Loop

AI Engineering Intern

Remote

September 2025 - Present

- Architected and built an Agentic AI recommendation engine by leveraging CrewAI, LangChain, and structured clinical insight extraction with SMEs, achieving NDCG of 0.91.
- Improved model performance from NDCG 0.60 to 0.91 through continuous feedback and human-in-the-loop validation, reducing SME review time from 4 to 1 hour weekly, leading to faster iteration cycles.
- Engineered and maintained a containerized FastAPI backend for deployment cycles, sustaining 99% uptime with reliable monitoring and continuous model improvements, by deploying with Docker on GCP Cloud Run and automated CI/CD pipelines.

Optimal living Systems

Data Architect Intern

Remote

July 2025 - September 2025

- Designed and deployed the data ingestion and ETL pipelines in Airflow, OCR(Docling) and OpenAI API, to transform 1,000+ research PDFs into structured QnA datasets to kick off the organization's first LLM fine-tuning pilot
- Built reusable Python (BeautifulSoup, Requests) scraping scripts for the research team, reducing their manual sourcing by 3-4 hours daily, leading to completion of data targets two weeks ahead of deadline.

University of Oklahoma

Graduate Research Assistant

Oklahoma, USA

February 2024 - May 2025

- Built executable EEG/MRI BIDS transformation pipelines in MATLAB, reducing manual structuring time from 5+ hours per dataset to single-click execution which enabled background preprocessing while researchers prioritized core research work.
- Developed WSL-based Bash scripts integrating Windows/MATLAB workflows with Linux tools (FSL, AFNI), reducing preprocessing runtime by 40% and accelerating experiments turnaround through parallel job scheduling.
- Led a year-long neuroimaging research study applying clustering algorithms across EEG datasets to identify and analyze Cortical Activity Patterns (CAPs), validating findings through statistical testing and co-authored a manuscript under review at Brain Topography.

Tata consultancy Services

Software Engineer

Pune, Maharashtra, India

February 2021 - July 2023

- Developed 9 RPA bots using Automation 360, VBA, and SQL over 6 months, reducing manual workload by 20-25 hours weekly and driving \$80K+ annual cost savings for enterprise clients through SAP and mainframe automation.
- Migrated 13 workflows from Automation Anywhere v11 to Automation 360 in 2 months, ensuring zero downtime and fewer deployment defects while transitioning the team to a more scalable and maintainable automation platform
- Created a Python REST API integrated with Automation Anywhere bots to retrieve ingredient ratings from a third party service, reducing data lookup time from minutes to seconds and accelerating workflow completion time.
- Diagnosed and resolved 20+ incidents in live Python-based ETL pipelines (Airflow) over several months, implementing fixes that improved pipeline stability and reduced recurring production failures.
- Exposed a forecasting ML model via a Python Flask REST API and integrated it into automation workflows, processing 1K+ predictions daily and enabling faster data-driven decisions in finance operations.
- Collaborated with cross-functional teams in Agile sprints to gather requirements, define project scope, and deliver data solutions aligned with business needs.

EDUCATION

University of Oklahoma

Master's, Data Science

August 2023 - May 2025

GPA: 3.97

PROJECTS

Data Analysis Agent - [Link to project](#)

- Engineered an AI data-analysis agent that converts natural-language queries into sandboxed Python code executions, analyses with <2 seconds median end-to-end workflow while blocking unsafe code paths by orchestrating LangGraph workflows with React + FastAPI.

Flappy Kiro: Cloud-Native Kubernetes Gaming Platform - [Link to project](#)

San Francisco, CA, USA

- Architected a Kubernetes-based cloud gaming platform on AWS EKS with ALB/ECR-backed microservices and end-to-end observability, sustaining 99.9% uptime and sub-100ms responses, by containerizing Docker builds and deploying 11 Edge Delta monitors.

SKILLS

- Skills:** Python, TypeScript, Go, C++, MySQL, JavaScript, HTML/CSS
- Python Libraries:** NumPy, Pandas, matplotlib, Scikit-learn, Tensorflow, XGboost, Pytorch, Seaborn, imblearn, Flask
- Devops and Cloud:** Microsoft Azure, Docker, Google Cloud Platform, Vertex AI, CI/CD, Git, BigQuery, MongoDB, Supabase
- Generative AI:** LangChain, Ollama, Langgraph, Crew AI, Hugging Face, RAG, Unsloth AI
- AI Tools:** Cursor, Claude Code, Augment, Github Copilot, Gamma, ElevenLabs
- Certifications:** Google Data Analytics Professional Certification, Advanced C++ certification (Udemy)