

Harshwardhan Fartale

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Work Experience

ZS [↗](#)

Advanced Data Science Associate

October 2025 - Present

- Building GenAI based healthcare solutions for pharma.
- Technologies:** GenAI, healthcare AI workflows, Python.

DRDO & (IISc) Indian Institute of Science, Bangalore [↗](#)

Predoc Associate

July 2024 - September 2025

- Developed low level C++ components to integrate ML models for CASDIC's combat aircraft hardware for low-latency inference.
- Evaluated fine-tuned **IBM Granite** & **Gemma** models for SciML using a custom Graph-RAG pipeline, achieving SOTA accuracy on benchmark datasets.
- Led open source projects **PULSE** & **SciREX** at **AiREX** under **Professor Sashikumaar Ganesan**.
- Technologies:** C++, IBM Granite, Gemma, Graph-RAG, SciML.

Bajaj Finserv Health [↗](#)

Data Scientist

Jan 2024 - June 2024

- Designed and implemented a high-performance statistical model for fraudulent transaction prediction, achieving the **highest** abuse detection rate.
- Spearheaded end-to-end development of a fraud detection pipeline using graph database technologies (**Memgraph, Neo4j, Cypher**).
- Built and optimized SQL queries to aggregate features from relational databases, improving training data quality for fraud detection models.
- Technologies:** Python, SQL, Memgraph, Neo4j, Cypher.

OpenMined [↗](#)

Open Source Technical Writer

Jan 2023 - June 2023

- Collaborated with the writing team to improve existing documentation and beginner tutorials in **differential privacy**.
- Published blog posts on federated learning and privacy-preserving machine learning, resulting in increased product adoption.
- Technologies:** Differential privacy, federated learning, technical writing.

IIT Indore [↗](#)

Machine Learning Intern

June 2023 - July 2023

- Developed ML models for stock-price prediction using Python, achieving **85%** accuracy by incorporating news and market data.
- Implemented time-series analysis and feature engineering, boosting model accuracy by **25%**.
- Technologies:** Python, time-series modeling, feature engineering.

Publications

The Evolution of FlashAttention [↗](#)

ICLR Blog Post Track 2026

Can Linguistically Related Languages Guide LLM Translation in Low-Resource Settings? [↗](#)

Accepted at LoResMT 2026: EACL 2026 Workshop

Disentangling Recall and Reasoning in Transformer Models through Layer-wise Attention and Activation Analysis [↗](#)

AAAI XAI4Science Workshop 2026

RADAR: Mechanistic Pathways for Detecting Data Contamination in LLM Evaluation [↗](#)

NeurIPS 2025 LLM Evaluation Workshop (Sept. 2025).

Equilibrium Dynamics and Mitigation of Gender Bias in Synthetically Generated Data Evaluation [↗](#)

AAAI Workshop on Shaping Responsible Synthetic Data in the Era of Foundation Models

Skills

GATE Exam

Data Science (DA) AIR **663** (2025)

Programming

Python, C++, SQL, Triton

ML & GenAI

PyTorch, Scikit-learn

Data & MLOps

Neo4j, Memgraph, Cypher, Docker, Kubernetes

Frameworks & Platforms

FastAPI, Streamlit, Linux, Google Cloud Platform, LaTeX

Technical Writing

Substack, Medium, Hashnode

Key Projects

AIFred - Secure, Local AI Coding Assistant [↗](#)

Product

March 2025 – Present

- Launched **AIFred**: a desktop coding assistant with real-time AI and **100% data privacy** via a local AI pipeline (**Ollama** for LLM and **NVIDIA NeMo** for ASR).
- Built an entirely on-device **voice command interface** for secure offline querying.
- Optimized for low latency by architecting a fully local AI pipeline and shipped an **Electron** overlay UI for seamless coding workflows.
- **Technologies**: Python (FastAPI, NeMo, pydub), JavaScript (Electron), Ollama API.

Document Tampering Detection using YOLOV8 [↗](#)

Self Project

- Developed a forgery-detection system with YOLOV8 to identify **overwriting**, **scribbling**, and **whitener** use, and built a dataset of 600+ document images for robust detection.
- Designed a **Streamlit** interface for document upload, tampering visualization, and detailed digital-forgery analysis.
- **Technologies**: Python, Streamlit, OpenCV, YOLOV8.

Fundus AI [↗](#)

Guide - Dr. Amit Kaul

- Developed an end-to-end solution to detect ophthalmic and systemic diseases such as **Diabetic & Hypertensive Retinopathy**, **Cataract**, **Glaucoma**, and **ARMED**.
- Built a deep-learning smartphone app for accessible ophthalmic screening and designed a **3D-printed Tinkercad**-based accessory for high-quality fundus image capture.
- **Technologies**: Python, Keras, TensorFlow, Flutter, Tinkercad.

Education

National Institute of Technology, Hamirpur

CGPI – 8.56

B.Tech in Electrical Engineering

Dec 2020 – May 2024

Positions of Responsibility

Teaching Assistant

IISc Bangalore

DS-246, Generative & Agentic AI in Practice

July 2025 - September 2025

Delivered lectures and tutorials, led doubt sessions, and was responsible for **developing and grading assessments**.

Machine Learning & Data Science Trainer

For DRDO Scientists

DRDO Industry Academia Centres of Excellence (DIA-CoEs)

January 2025

Designed & delivered a 3-day training module to DRDO scientists, focusing on foundational Machine Learning and core data science tools