

Devesh Prabhat Singh

ML Engineer — Research-Oriented AI (Federated Learning, Privacy-Preserving Systems)

deveshsingh0503@gmail.com — GitHub — LinkedIn — Portfolio

Education

B.Tech in Artificial Intelligence & Machine Learning (Honours)

Specialization: Artificial Intelligence in Societal Benefits

University of Mumbai

CGPA: **8.89** / 10

2025

Research & Key Projects

ZK-FINet — Zero-Knowledge-Verified Federated Intelligence Network

- Designed a federated learning framework integrating **SCAFFOLD optimization with Zero-Knowledge Proofs** to verify training correctness without exposing institutional data
- Enabled **privacy-preserving, regulator-auditable collaboration** for financial intelligence tasks such as AML and fraud detection
- Aligned system architecture with real-world **financial regulations and compliance constraints**

Federated Learning in Medical Imaging

- Built a federated learning pipeline for **brain tumor (MRI) and lung cancer (CT) detection**, enabling collaborative training across healthcare institutions
- Trained **YOLO-based models** while keeping medical data local to address **GDPR and HIPAA compliance** requirements
- Implemented secure client-server communication and explored encryption strategies for healthcare-grade deployments

Real-Time Violence Detection System

Rajasthan Police Hackathon — Finalist

- Developed a real-time surveillance system to detect **violent activity and weapon presence** from live camera feeds
- Trained **YOLOv8 models** and integrated them into a web-based monitoring pipeline for low-latency inference
- Gained hands-on experience deploying ML systems in **camera-driven, real-world environments**

Internship Experience

ML Engineer — F.T. Solutions Pvt. Ltd.

June 2025 – June 2026

- Developed an **LLM-based invoice extraction system** to automate financial document processing
- Contributed to **FT-DataMind**, an internal AI platform providing zero-code access to live **SAP** data for business users
- Worked across the stack using **React, LLM pipelines, DuckDB**, and enterprise data sources

Technical Skills

Languages: Python, Java

ML / AI: Federated Learning, YOLO, Large Language Models

Security & Privacy: Zero-Knowledge Proofs (applied), Secure Aggregation

Data & Systems: SQL, DuckDB, MongoDB

Tools & Frameworks: Git, VS Code, React

Research (Under Review)

- *ZK-FINet: A Zero-Knowledge-Verified Federated Learning Framework for Regulated Financial Intelligence* — Springer SN Computer Science
- *Federated Learning in Medical Imaging* — Springer Lecture Notes in Network & Systems (LNNS)

Competitions & Leadership

Rajasthan Police Hackathon (2024) — Finalist

Gujarat Hackathon (2023) — Finalist

Technical Head — SORT & Literary Club

- Led technical initiatives, developed the official website, and improved online engagement and event participation