

ABHINAV MISHRA

Machine Learning Engineer / Intern

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Machine Learning and Data Science student with hands-on experience building end-to-end ML pipelines, deploying real-time AI systems, and tracking model performance. Demonstrated ability to deliver measurable results across computer vision, NLP, and MLOps projects.

Education

National Institute of Technology, Hamirpur

B.Tech – Electronics and Communication Engineering

2024–2028

The Scholars' Home, Paonta Sahib

Higher Secondary Certificate

2021–2023

Projects

Brain Tumour Detection & Classification — PyTorch, CNN, Transfer Learning

- Increased MRI tumour classification accuracy to **96%** by fine-tuning ResNet and VGG16 models.
- Improved model generalization by applying normalization and augmentation across **thousands of MRI scans**.
- Reduced training time by **30%** using learning rate scheduling and early stopping.

Email Spam Classifier — PyTorch, NLP, RNN/LSTM

- Built an LSTM-based spam detection system achieving **92% test accuracy**.
- Enhanced classification performance through optimized tokenization, padding, and TF-IDF feature extraction.
- Improved model robustness using dropout regularization and mini-batch training.

Live Facial Emotion Detection — OpenCV, CNN, Streamlit

- Developed a real-time emotion recognition system supporting **7 facial emotion classes**.
- Trained CNN models on **15,000+ images** from RAF-DB, achieving **80%+ validation accuracy**.
- Deployed a Streamlit web application enabling low-latency webcam inference.

InSPECt – Video Chat Assistant Chrome Extension — FastAPI, Gemini AI, Bootstrap

- Launched an AI-powered Chrome extension enabling real-time Q&A on video content.
- Implemented a WebSocket-based FastAPI backend for multi-turn, timestamp-aware conversations.
- Integrated **8 Gemini model variants** with automated fallback handling to improve reliability.
- Built a responsive Bootstrap UI with persistent chat history and real-time connection status.

Technical Skills

Programming:	Python, C++, JavaScript
Machine Learning:	Scikit-learn, Regression, Classification, Feature Engineering
Deep Learning:	PyTorch, TensorFlow, CNNs, RNN/LSTM, Transfer Learning, Hugging Face
MLOps:	MLflow, Evidently, Experiment Tracking, Model Monitoring
Cloud (AWS):	S3, EC2, RDS, Kinesis, Lambda
Data Science:	Pandas, NumPy, Matplotlib, EDA, Data Cleaning
Testing:	Pytest
Tools & Platforms:	Git, Docker, Linux, Jupyter, Google Colab, VS Code, Grafana
Backend:	FastAPI, Flask
Frontend:	HTML, CSS, Bootstrap, React

Experience

Team Vibhav (ECE Technical Club) — Volunteer — 2025

- Delivered technical workshops for **100+ students**, improving hands-on learning outcomes.
- Supported peer project development, accelerating project completion and technical quality.

SPEC (Society for Promotion of Electronics Culture) — Executive Member — 2025–Present

- Led planning and execution of technical events for **200+ participants**.
- Mentored junior students on ML concepts and project execution, accelerating learning readiness.

Summary

ML-focused engineering student with proven ability to deliver measurable results through deep learning, MLOps, and real-time AI systems. Actively involved in mentoring, technical events, and collaborative development.