

Ritvik Sharma

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Patiala, Punjab, 147001

EDUCATION

Thapar Institute of Engineering and Technology

Patiala, Punjab

Bachelor of Science in Computer Engineering

Aug. 2023 – Jul. 2027

- Current CGPA: 9.02
- Relevant Coursework: Data Structures and Algorithms, Object Oriented Programming, Operating Systems, Numerical Linear Algebra, Discrete Mathematics, Probability And Statistics

EXPERIENCE

Carnot Research, IIT Delhi

Jun. 2025 - Present

Research Intern

Hybrid (3 months on-site, 3 months remote)

- Developed a dual-mode RAG chatbot with document comparison, achieving 95% accuracy across 100+ multi-format docs
- Designed web scraper/crawler that ingested 500+ web pages and files (PDF/DOCX/TXT/CSV) into vector store
- Deployed chatbot on GPU-enabled edge systems with Flask-SocketIO and ASGI for sub-1s latency
- Collaborated with 10+ researchers to integrate AI pipelines into real-world industrial analytics stack

Thapar Summer School Hackathon

Jun. 2024

Participant

Patiala, Punjab

- Achieved 97.21% accuracy in disease risk prediction using XGBoost, LightGBM, and RF on dataset with 15+ features
- Optimized preprocessing pipeline with label encoding, scaling, and cross-validation; placed in top 20 out of 200+ participants

PROJECTS

Real-Time Multilingual Voice Assistant | Python, JavaScript, Flask, Whisper, WebRTC

Jun. 2025 – Present

- Built real-time voice assistant capturing mic input via WebRTC, achieving sub 1 sec latency
- Integrated OpenAI Whisper for multilingual transcription (10+ languages), Gemini Flash for LLM responses, and gTTS for speech synthesis
- Implemented responsive UI with real-time waveform visualization and custom Voice Activity Detection
- Achieved 300ms TTS latency using Flask-SocketIO on ASGI server with lazy-loading inference pipeline

GARUD - Autonomous Surveillance Drone | Python, PyTorch, ArduPilot

Feb. 2025 – Present

- Designed and built quadcopter drone with 30-minute flight time using 3x 30A + 1x 40A ESCs and ArduPilot firmware
- Implemented PyTorch-based facial recognition model with 92% accuracy and 2.7s real-time inference on onboard computer
- Integrated real-time telemetry and autonomous flight planning using Mission Planner and MAVLink
- Engineered onboard control system with fail-safe logic, improving safety in test missions by 40%

TECHNICAL SKILLS

Programming Languages: Python, C++, C

Frameworks & Libraries: Flask, Flask-SocketIO, WebRTC, PyTorch, NumPy, Pandas, SK-Learn, OpenCV, Streamlit

Machine Learning & AI: XGBoost, LightGBM, Random Forest, OpenAI Whisper, LLMs, RAG, Vector Search, NLP, Computer Vision

Tools & Platforms: VS Code, Colab, Anaconda, GitHub, Hugging Face, Ollama, ArduPilot, Mission Planner

CERTIFICATIONS

Thapar Summer School 2024 for ML and DL

May. 2024 – Jul. 2024

Python (ML, DL, NLP, Image Processing)

Certificate