Agam Pandey

⚲ Roorkee,India　✉ Mail　🌐 Website　in LinkedIn　⭘ GitHub　🎓 Google Scholar

Education

Indian Institute of Technology, Roorkee   *August 2022 – Present*
BTech Civil Engineering; Fundamentals of ML, IEC-03 AI Techniques, CSL-537 DL.

GD Goenka Public School, Lucknow   *April 2019 – May 2021*
Senior Secondary Education 95.2%; Physics, Mathematics and Computer Science.

City Montessori School, Lucknow   *April 2008 – May 2019*
Secondary School Certificate 96.6%; Physics, Mathematics and Computer Science.

Experience

AI Intern | Swiggy, CEO's Office   *Bangalore, KA | May '25–Aug '25*
- Built multi-agent conversational recommender for Swiggy Scenes using LangGraph, Llama-2, multimodal (Text and Vision) GraphRAG embeddings, and retrieval-based ranking models, improving user event relevance by 14%.
- Designed LLM backend on Firebase,Cloud Functions, integrating Apify-Snowflake data pipelines for lead analytics and intent-to-action workflows.CRM with Cimba AI, React, and Node.js, to automate lead scoring and assignment.

AI Engineer Intern | Akki AI   *Remote, Delhi | Dec 24–Apr 25*
- Copilot for startups: Built multi-agent conversational and CUA system using CrewAI, LangGraph, and HybridRAG with startup specific personas and dynamic memory (Trends/Core values).
- Designed RLHF-inspired evaluation protocols with preference scoring, feedback logging, and deployed scalable agent clusters on AWS EC2 (FastAPI, Celery) for distributed workloads.

AI Engineer Intern | EzAIx Inc.   *Remote, US | Mar 25–Apr 25*
- Built multi-agent onboarding assistant: OpenAI CUA, LangGraph, GPT-4 Vision, and RAG for Microsoft Suites.
- Selenium for autonomous UI control and real-time context understanding via vision, dialog, and task agents.
- FastAPI + Celery + MongoDB Atlas microservices for async orchestration and vector-based multi-tenant retrieval.

Data Science Intern | Mindshift Analytics   *Remote | LoR Aug 24–Oct 24*
- Built scalable algorithms analyzing fuel efficiency and vehicle dynamics from GIS telemetry across mining fleets.
- RDP trajectory simplification, DBSCAN clustering, pipelines for anomaly detection, performance insights

Machine Learning Intern | Strabag–Efkon India   *Gurgaon | GitHub | Jun –Jul 24*
- Fleet Optimization algorithm tool with custom ML pipelines and Linear Programming (PuLP) for reduced response time of emergency vehicles with double coverage of accident locations, implemented on Hyderabad-ORR, ensuring 8 & 10-min primary & secondary time, 100 % coverage & 80% reliability.
- Built modular scripts in Python which is now being scaled by the company on other Indian National Highways.

Research and Publications

- Agam Pandey, et al. *"CroPA++: Exposing Vulnerabilities in Vision Language Models and Enhancing Adversarial Transferability of Cross-Prompt Attacks"* NeurIPS Reliable ML Workshop [OpenReview]
- Agam Pandey, et al. *"Revisiting CroPA: A Reproducibility Study and Enhancements for Cross-Prompt Adversarial Transferability in Vision-Language Models."* MLRC TMLR [OpenReview] Best Paper Award
- *"Zero-Shot Vision Language Reasoning via Dual-layer Scene Graph Chain of Thoughts"* AAAI-26 Student Abstract Paper
- *"TransPatch: Learning Universal Adversarial Patch for ViT–CNN Cross-Architecture Transfer in Semantic Segmentation"* AAAI-26 Student Abstract, Paper
- Agam Pandey, et al. *"StegGNN: Learning Graphical Representation for Image Steganography."* Submitted to ICCV 2025 (CV4DC Workshop). [Manuscript rejected; under revision for resubmission] Submission

Projects

ByeLabs: Local-First Multi-Agent AI for Automated Roster Processing | HiLabs   *GitHub | Finals*
AIQuest Hackathon 2025
- An end-to-end automated roster system converting diverse raw mails into structured Excel exports and analytics.
- Fine-tuned SLM (Qwen3-4B-Instruct) with GRPO and LoRA adapters for robust schema-aware data extraction, normalization, and validation from noisy unstructured documents.
- A fully local processing pipeline with observability, versioning, rollback, and production-grade monitoring (Prometheus, OpenTelemetry, Grafana), ensuring data quality, auditability, and compliance without reliance on third-party APIs.

FeedCode | Data Science Group, IIT Roorkee   *GitHub Repo*
- Built FeedCode, LLM-driven system infers user's coding style from solved problems for personalized code feedback.
- Designed a dual-LLM pipeline for coding-style reasoning and snippet evaluation to generate context-aware feedback.

○ Lightweight Flask–MongoDB backend integrating ML workflows for real-time style analysis and code comparison.

Knowledge Graph Embeddings for GraphRAG LLMs | Data Science Group *GitHub | Gitbook*
○ Quantitively analyzed CLIP/USE's image & text embeddings with UMAP,t-SNE and PCA for dimension reduction.
○ Integrated knowledge graph embeddings to enhance contextual understanding for RAG-LLMs.
○ Developed deployed pipeline to create Knowledge Graphs for images and text within a same vector space.

Multimodal Agentic GraphRAG: Zomato Nugget | Data Science Group *GitHub*
○ Developed RAH Chatbot, a Gen AI HybridRAG system with multimodal chunking and a MongoDB data lake.
○ Weaviate (vector+BM25), Neo4j (graph) with a LangChain ReAct agent (TinyLlama) for contextual responses.
○ Deployed application with Docker + FastAPI with LangFuse observability, enabling scalable end-to-end analytics.

Spatiotemporal Attention for Trajectory, Conflict Zone Prediction with PET *GitHub*
○ Developed and trained SDT-ATT model for highway trajectory forecasting using real-world lane-change datasets.
○ Modeled vehicle interactions with social tensors, temporal attention for 20-frame history and 30-frame prediction.
○ Optimized PyTorch pipeline for applications, enabling conflict zone prediction and multi-agent collision avoidance.

Tech Enhanced AI Interview Platform| Techshila | STC IITR *AI Interview Platform*
○ Developed ML model for interview question generation, using Mistral 7B LLM fine-tuned with Q-LoRA adapters.
○ Integrated Faster Whisper for Automatic Speech Recognition & CTranslate2 for automatic speech-text conversion.
○ Deployed the model on HuggingFace, with a frontend for inputs and a Flask API backend for audio processing.

Skills

Programming Languages: Python, SQL **Machine Learning/NLP:** PyTorch, scikit-learn, Hugging Face Transformers, LangChain, LlamaIndex, spaCy, NLTK, tokenizers, Pandas, NumPy, CrewAI. **Tools & Technologies:** Docker, Kubernetes, Apache Kafka, Git/GitHub, AWS, GCP, Firebase **Frameworks/APIs:** Django, FastAPI, Flask **Databases:** MySQL, PostgreSQL, Neo4j, MongoDB.

Extra Curricular

Program Committee Member | AAAI 2026 *May 2024 – Present*
○ Invited as Program Committee Member for AAAI-26 SAPP to review and mentor research paper submissions.
○ Coordinated travel attestations and compliance for student authors, supporting smooth participation in AAAI-26.
○ Recognized as senior author at AAAI-26 SAPP, contributing to program quality and academic standards.

Joint Secretary | Data Science Group, IITR *May 2024 – Present*
○ DSG, a undergrad run group works on innovative open source projects in the domain of Machine/Deep Learning.
○ Organized hackathons and industry collaboration with WWT and Drexel University for research projects.
○ Worked on projects in Graph Embeddings, NLP, Computer Vision, VLMs and Model Deployment.

Joint-Secretary |Athletics IITR, Institute Sports Council *July 2024 – Present*
○ Co-Led the institute team of 50+ athletes with the Secretary, fostering a strong track & field culture. Run Club.
○ Coordinated training sessions, events like Annual Athletics Meet and Fitness Camp for campus residents.
○ Inter Hostel'24, Institute Trophy'24: Team Gold (Captain), Gold (5000m), Silver (800m, 4x400m Relay);

Vice President-Analytics | SocBiz, IITR *Feb 2023 – Present*
○ Society of Business (SocBiz) is the business club of IITR covering three domains: Analytics, Consult & Product.
○ Mentored a team of 30 juniors for Analytics, covering Prob & Stats, SQL, EDA, ML models in weekly sessions.
○ Led Industry and research collaborations for analytics and dev with professors and startups