Agam Pandey

📍 Roorkee,India ✉ agam.pandeyy@gmail.com 🌐 Portfolio ☒   in LinkedIn ⧉ GitHub

Education

Indian Institute of Technology, Roorkee	*August 2022 – Present*

BTech Civil Engineering; Courses: BE-350 ML&DL, IEC-03 AI Techniques, CSL-537 DL.

GD Goenka Public School, Lucknow	*April 2019 – May 2021*

High School Diploma (Senior Secondary Education); Percentage: 95.2%; Coursework: Physics, Mathematics and Computer Science.

City Montessori School, Lucknow	*April 2008 – May 2019*

Secondary School Certificate (Equivalent to GCSE/O-Level); Percentage: 96.6%; Coursework: 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, Roorkee | Aug 24–Oct 24*

- ○ Built scalable algorithms analyzing fuel efficiency and vehicle dynamics from GIS telemetry across mining fleets.
- ○ Applied RDP for trajectory simplification, DBSCAN for clustering, and optimized pipelines for anomaly detection and performance insights

Machine Learning Intern | Strabag–Efkon India ☒   *Gurgaon | GitHub ☒ | Jun –Jul 24*

- ○ Developed a Fleet Optimization algorithm tool with custom ML pipelines and Linear Programming library (PuLP) for reduced response time of emergency vehicles with double coverage of accident locations, to be 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 ☒ Transactions on Machine Learning Research (TMLR) ☒ [OpenReview] ☒ Best Paper Award ☒
- ○ Agam Pandey, et al. *"StegGNN: Learning Graphical Representation for Image Steganography."* Submitted to ICCV 2025 (CV4DC Workshop). [Manuscript rejected; under revision for resubmission]
- ○ Agam Pandey, et al. *"Zero-Shot Vision Language Reasoning via Dual-layer Scene Graph Chain of Thoughts"* AAAI-26 Student Abstract ☒ Paper ☒

- Agam Pandey, et al. *"TransPatch: Learning a Universal Adversarial Patch for ViT–CNN Cross-Architecture Transfer in Semantic Segmentation"* AAAI-26 Student Abstract ☑ Paper ☑

Projects

ByeLabs: Local-First Multi-Agent AI for Automated Roster Processing | Hi-Labs AIQuest Hackathon 2025 *GitHub* ☑ *Finals* ☑
- 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.

Algorithmic Strategy on Multi-Feature Time Series | InterIIT Tech-Meet 2025 *[In Progress]*
- Trained LSTM and XGBoost models on 1-sec market data to forecast short-term volatility and price direction.
- Multi-scale temporal & cross-feature embeddings capturing latent price-volume interactions for robust alphas.
- Designed a quant-AI backtesting framework with feature selection, Ridge regression, and dynamic risk calibration, achieving strong Sharpe & Calmar ratios on intraday data.

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

Languages: Python,SQL

Software Packages: PyTorch, AWS, Docker, FastAPI, Firebase, LangChain, scikit-learn, CrewAI.

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