

# Agam Pandey

📍 Roorkee, India    ✉ Mail    🌐 Website    in LinkedIn    🐙 GitHub    🎓 Google Scholar

## Education

<b>Indian Institute of Technology, Roorkee</b> <i>BTech Civil Engineering; Fundamentals of ML, IEC-03 AI Techniques, CSL-537 DL.</i>	<i>August 2022 – Present</i>
<b>GD Goenka Public School, Lucknow</b> <i>Senior Secondary Education 95.2%; Physics, Mathematics and Computer Science.</i>	<i>April 2019 – May 2021</i>
<b>City Montessori School, Lucknow</b> <i>Secondary School Certificate 96.6%; Physics, Mathematics and Computer Science.</i>	<i>April 2008 – May 2019</i>

## Experience

<b>AI Intern   Swiggy, CEO's Office</b> ◦ 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.	<i>Bangalore, KA   May '25–Aug '25</i>
<b>AI Engineer Intern   Akki AI</b> ◦ 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.	<i>Remote, Delhi   Dec 24–Apr 25</i>
<b>AI Engineer Intern   EzAIx Inc.</b> ◦ 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 and MongoDB Atlas microservices for async orchestration and vector-based multi-tenant retrieval.	<i>Remote, US   Mar 25–Apr 25</i>
<b>Data Science Intern   Mindshift Analytics</b> ◦ 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	<i>Remote   LoR Aug 24–Oct 24</i>
<b>Machine Learning Intern   Strabag-Efkon India</b> ◦ 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.	<i>Gurgaon   GitHub   Jun –Jul 24</i>

## 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

<b>ByeLabs: Local-First Multi-Agent AI for Automated Roster Processing   HiLabs AIQuest Hackathon 2025</b> ◦ 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.	<i>GitHub   Finals</i>
<b>FeedCode   Data Science Group, IIT Roorkee</b> ◦ 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.	<i>GitHub Repo</i>

- 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](#)

- Quantitatively 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.

### **Boosting Ensemble Predictive Modeling for Match Outcomes| Amex Superbowl'24**

[GitHub](#)

- Feature engineered batsman/bowler/match statistics temporal windows, generating high-signal team-strength features.
- Trained XGBoost/LightGBM/CatBoost with GridCV tuning, constraints, and leakage-safe temporal validation.
- Built a boosted ensemble inference pipeline with class probabilities and per-model feature attribution.

### **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**

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

## **Extra Curricular**

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### **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