# HARSH VARSHNEY

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## EDUCATION

**B.Tech in Electronics & Communication**, Netaji Subhas University of Technology — **Jan 2021 - May 2025**
CGPA: 7.69

**Class XII — CBSE — Science**, JM International School — **Apr 2020 - Apr 2021**
Percentage: 91.6%

**Class X — CBSE**, JM International School — **Apr 2018 - May 2019**
Percentage: 92.8%

## EXPERIENCE

**Bain BCN** — **Jul 2025 - Present**
Enterprise Technology Analyst — *Gurugram, India*

- **Developed** an intelligent application categorization tool in Python, leveraging **Sentence-Transformers (all-MiniLM-L12)** to reduce manual taxonomy mapping time from **5 days to under 2** for 2,000+ app records.
- **Enhanced data preprocessing** by integrating regex and **Spacy-based PII scrubbing**, COTS/niche database similarity matching, and a **fine-tuned OpenAI GPT model**, achieving **84% classification accuracy** on unseen client datasets.
- Deployed enterprise-scale Alteryx workflows integrated with Tableau Dashboards and Excel Models, automating data ingestion and processing for **50+ clients and saving 20+ hours weekly.**

**Bain BCN** — **Jan 2025 - Jul 2025**
Winter Intern — *Gurugram, India*

- **Designed** a scalable contract analysis pipeline in Python, automating the review of 100+ contracts and reducing turnaround from **1 week to half a day** using OCR, PDF integrity checks, and **SHA hashing with TF-IDF** for deduplication.
- **Implemented** a RAG-based architecture using **Sentence-Transformers Multi-QA Models with re-ranking and GPT summarization**, enabling accurate extraction and paraphrasing of client-specific insights into structured Excel reports.

## PROJECTS

**Local RAG Pipeline** — Code

- Developed an AI language model (LLM) retrieval system using Retrieval-Augmented Generation (RAG) and **mpnet-base-v2 embeddings**, enhancing semantic search precision and **reducing query response time by 40%**, improving user satisfaction.
- Created pipelines for data segmentation, optimizing for **384-token embeddings**, **boosting specificity by 50%**.
- Implemented similarity measures cosine similarity, achieving a 95% accuracy in **semantic search** results.
- Applied **Flash Attention** for rapid tokenization in LLM outputs, ensuring 50% more efficient response generation.

**Rajasthan Police Feedback System** — Project — Code

- Built a public feedback system for Rajasthan Police using ReactJS and Chakra UI, **processing feedback from 10,000+ users**. The system **enabled the police department to gather valuable insights and improve their services** based on user feedback.
- Constructed the backend with Flask, supporting **over 1000 user email addresses**. **Pioneered secure authentication and data storage mechanisms** to ensure the privacy and integrity of user data.
- Incorporated **Supabase (PostgreSQL)** for managing data from 1000 police stations and utilized Twilio for messaging services, achieving a 95% message delivery rate. The robust database and messaging infrastructure **facilitated efficient communication and data management**.
- Data analysis was performed with Pandas and ChartJS; integrated a chatbot and multilingual options, **enhancing user accessibility by 50%**. These features **provided a more inclusive and user-friendly experience** for a diverse audience.

**AI TravelApp** — Project — Code

- Architected an AI-driven full-stack application utilizing React, Node.js, Express.js, and MongoDB, generating over 200+ highly customized travel itineraries. Integrated **Gemini AI** for automated, real-time content generation, optimizing itinerary personalization.
- Engineered a **monolithic MVC architecture** that boosted API response times by 45% through advanced AI-enhanced caching mechanisms and intelligent rate-limiting strategies.
- **MongoDB sharding** was deployed to manage a rapidly expanding dataset of 18,000+ travel destinations, achieving a 60% improvement in data retrieval times during peak traffic and ensuring seamless scalability to support a growing user base.

## SKILLS

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| **Machine Learning** | Python, PyTorch, Hugging Face, Pandas, Numpy, Scikit-learn |
| **Data Analytics** | SQL, MS Excel, Tableau |
| **GenAI Tools** | OpenAI, Anthropic, Gemini |
| **Developer Tools** | Git/GitHub, Cursor, Docker, Postman, VS Code, Vercel, Netlify |
| **Backend Development** | Flask, Node.js, Express.js, REST API |
| **Frontend Development** | React.js, Next.js, Tailwind, Javascript, HTML, CSS |

## ACHIEVEMENTS

- **Top 5 Finalist** at Rajasthan Police Hackathon 1.0 among **1600+ Teams**. **Demonstrated innovative and unconventional thinking and teamwork** by developing a comprehensive solution for a real-world problem.