

Hitesh Kumar Patel

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🌐 hitesh-kumar-patel

Education

VIT Bhopal University

Bhopal, Madhya Pradesh

B.Tech in Computer Science and Engineering (CGPA: 9.22/10.0)

Aug 2023 – Aug 2027

- Strong foundation in **Data Structures, Machine Learning, Databases, and Probability**, with emphasis on applied AI systems

O.P. Jindal School

Chhattisgarh

Class XII (CBSE) – 94%

2021 – 2022

Experience

AI / Machine Learning Intern

May 2025 – June 2025

O.P. Jindal Group

Chhattisgarh

- Worked on **AI-enabled IP surveillance systems** using enterprise-grade camera infrastructure
- Applied **computer vision pipelines** for object detection, intrusion detection, and perimeter security
- Gained hands-on exposure to **real-time video streams, edge devices, and operational AI deployments**

Projects

AI Research Assistant (RAG-Based) | 🧠

- Built a **document-grounded Retrieval-Augmented Generation system** enforcing strict context-only responses
- Implemented semantic retrieval using **Sentence-Transformers + ChromaDB** with locally hosted LLMs
- Generated structured, verifiable outputs using **Pydantic schemas** with explicit source attribution

Agentic Research Pipeline with Verification | 🧠

- Designed a **multi-agent workflow** involving query planning, retrieval, verification, and synthesis
- Implemented cross-paper verification to detect **agreement, disagreement, and research gaps**
- Produced structured research summaries suitable for analytical and academic workflows

Image Caption Generation (CNN-LSTM) | 🧠

- Implemented an encoder-decoder architecture using pretrained CNNs and LSTM-based language modeling
- Applied text vectorization, teacher forcing, and sequence-level training
- Evaluated caption quality using semantic coherence and word-level accuracy

Technical Skills

Programming: Python, C++, SQL

Machine Learning: Scikit-learn, TensorFlow, Keras, PyTorch

Deep Learning: CNNs, LSTMs, Transformers

Generative AI & NLP: Large Language Models, Retrieval-Augmented Generation (RAG)

Agentic Systems: LangChain, LangGraph, Multi-Agent Workflows

Data & Vision: NumPy, Pandas, OpenCV

Databases: MySQL, Vector Databases (ChromaDB)

Tools: Git, GitHub, Jupyter, Google Colab, VS Code, Kaggle

Extracurricular Activities

Tech Member

Oct 2024 – Sep 2025

Software Development Club (SDC), VIT Bhopal

- Contributing to collaborative development, peer learning, and technical initiatives within the university coding community

Certifications

Machine Learning Specialization — Stanford University & DeepLearning.AI (Certificate)

Machine Learning A–Z — Udemy (Certificate)

Deep Learning A–Z — Udemy (Certificate)

Competitive Programming: Solved 100+ problems on LeetCode (Profile)