

Uditanshu Tomar

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Education

- University of Colorado Boulder**, MS in Computer Science. 2024 - 2026
- **Coursework:** Datacenter Scale Computing, GenAI powered Software Engineering, Neural Network and Deep Learning, Database Management Systems, Computer Vision
- SRM Institute of Science and Technology**, B Tech in Computer Science. 2018 - 2022
- **Coursework:** Data Structures and Algorithms, Operating Systems, Computer Networks, Software Engineering and Project Management

Experience

- Software Engineering Intern**, Signadot (Y Combinator, 2020), USA. 2025
- Collaborated on improving **Kubernetes** native infrastructure for local testing using Signadot sandboxing.
 - Identified friction in **CLI**, **Helm**, and Quickstart installation flow and contributed documentation improvements to accelerate onboarding.
 - Contributed to sandbox environment improvements and strengthened understanding of microservices and Kubernetes deployment patterns.
- Software Developer Engineer - 1**, BharatPe (Financial Technology Unicorn), India. 2023
- Developed loan limit decision logic using credit history, existing loans and geographic factors, contributing to a **15% reduction** in Non Performing Assets through improved risk assessment.
 - Integrated Synapsys workflow software into decision logic so product teams could modify metrics without developer intervention, reducing implementation time by **20%**.
- Software Engineering Analyst**, Ford Smart Mobility (Global Tech Center), India. 2022
- Enhanced **Spring Boot** back end services for path estimation and data collection in a corporate ride hailing app, improving API response time by **43%** and increasing route accuracy and reliability.
 - Collaborated with two cross functional teams to improve scalability, enhancing system performance by **8%**.

Skills / Technologies

Languages: Java, Python, SQL, JavaScript, C, TypeScript
Backend & Frameworks: Spring Boot, Node.JS, Microservices Architecture, RESTful API, JUnit Testing
AI / ML: Neural Networks, Deep Learning, Computer Vision, LangChain, LLM, PyTorch, Natural Language Processing, RAG
Databases & Infrastructure: Neo4j, Redis, Snowflake, Linux, MySQL, MongoDB, Docker
DevOps & Tools: Git, Docker, AWS, Google Cloud, CI/CD (GitHub Actions/Jenkins)

Projects

- GENEC, Hypergraph Guided Extract Class Refactoring (Research, CU Boulder)**
- Built an end to end pipeline combining static dependency analysis with evolutionary coupling from Git history to construct a hypergraph and detect cohesive clusters for Extract Class refactorings.
 - Implemented metric driven ranking using LCOM5, TCC and CBO and generated human readable refactoring plans as a CLI tool.
 - Validated on open source systems and added optional LLM based validation and naming for safer recommendations.
- Ansh.ai, Real Time Voice Based Agentic AI with RAG and Avatar**
- Built a real time conversational journaling app using Flask and React with speech to text, memory retrieval, and context aware responses.
 - Implemented retrieval augmented generation using a vector database to fetch memory aware answers across sessions.
 - Integrated an avatar interface for demos and showcased full stack AI engineering from audio streaming to inference.
- LLM Powered Tutoring Platform with Knowledge Graph and RAG**
- Developed an SAT tutoring app with knowledge graph construction and GraphRAG style querying using Neo4j and sentence transformers.
 - Enabled model modularity and GPU acceleration with configuration toggles for personalized question answering.

Publications

Comparing SVM and Neural Networks performance in Face Detection
Shivam Bhatia, *Uditanshu Tomar*, Aryan Vikas Jain
10.1109/CONIT51480.2021.9498383

Accomplishments

- **Winner, American Express CodeStreet 20 Hackathon** Built Knab App, a customer return behavior scoring tool, selected among **6000 plus** teams.
- **Runner Up, HackCU 11 (AMD AI PC Track)** Built Ansh.ai, a real time agentic journaling AI using speech to text, memory retrieval, and avatar APIs.
- **Judge, MHacks 2025 and CalHacks 2025** Evaluated projects for technical design, scalability, and AI automation workflows while mentoring teams on engineering execution.