

Himanshu Singhal

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EDUCATION

Indian Institute of Technology Guwahati, India

Bachelors of Technology in Data Science and Artificial Intelligence

Oct 2022 - Present

GPA: 8.3/10.0

EXPERIENCE

Adobe Research

Summer Intern, Internship

May 2025 - Aug 2025

Bangalore, India

- Worked on the problem of **enterprise-branded asset generation** using **precise trademark colors** with Diffusion Transformers.
- Curated a **plug-and-play mapper** that translates **hex codes into embeddings** enabling **precise colorisation** through prompts.
- Improved generated color accuracy by **64%** over baseline methods across a self-curated **1200 prompt benchmark**.
- Documented and submitted **patent application** detailing the mapper architecture for Adobe internal review and approval.

Arizona State University - CORAL Lab

Research Internship, Prof. Vivek Gupta

Feb 2025 - Present

Remote

- Working on the problem of SQL generation for queries requiring multiple tables **without using LLMs** for table selection.
- Developing an **end-to-end SQL generation pipeline** that leverages **inter-table join relationships** for intelligence table selection and pruning with **multiple required tables**, without using LLMs for pruning and table selection.
- Achieved **2% accuracy improvements** over LLM-based pruning baselines on 3 datasets: **Bird, Spider, and MMQA**.

Devrev Cloud India Private Limited

Contractor, Internship

Feb 2024 - Apr 2024

Remote

- Developed a **customizable NPS survey snap-in** for developer organizations, enabling them to dispatch surveys at selected intervals, streamlining feedback collection, and boosting user engagement.
- Utilized **hooks** and **cron jobs** to facilitate sending emails at specified intervals, and employed frameworks such as **React-Email** to guarantee compatibility and a consistent user experience across different email clients.
- Built **real-time** survey update mechanisms and **interval-based** email dispatch system ensuring consistent user experience.
- Deployed automated survey distribution system serving **more than 1000 users** with improved feedback collection efficiency.

PROJECTS

Agentic RAG Chatbot for LegalQA

Inter IIT Tech Meet 13.0

Oct 2024 - Dec 2024

📄 Github

- Solved the problem of **unreliable legal RAG systems** that **hallucinate** and retrieve inaccurate information in real-time.
- Implemented **parallel DAG-based** task planning and scheduling by modifying **LLMCompiler** for RAG.
- Incorporated **Pathway's vector store** for **real-time data processing** to handle dynamic document **ingestion** and **retrieval**.
- Achieved **86% accuracy** on the **CUAD** dataset (contract law) and **84% accuracy** on the **AILA** dataset (case law).

Adobe Behaviour Simulation Challenge

Inter IIT Tech Meet 12.0

Oct 2023 - Dec 2023

📄 Github

- Leveraged classic ML Models, Transformers, and **LLMs** for **behaviour simulation** and **content simulation** on tweets.
- Trained a **DistilBERT** classifier to bucket tweets, followed by separate **bucket regressors** for likes prediction.
- Generated descriptions of media using **BLIP-2** and combined with metadata to finetune **Llama-2** for captioning.
- Achieved a bucket classification accuracy of **74.3%** and **BLEU-1** score of **0.13** with inference times **0.9s** and **5.4s**.

Devrev's AI Agent 007

Inter IIT Tech Meet 12.0

Oct 2023 - Dec 2023

📄 Github

- Engineered a **conversational LLM chatbot** with **dynamic tool selection** capabilities for intelligent query resolution.
- The chatbot selects and sequences the **appropriate tools**, with necessary arguments to accurately respond to user queries.
- Implemented a pipeline integrating **Retrieval-ICL** for few-shot retrieval, **Chain-of-Thought** prompting, **corrective re-prompting**, and **RAG** with **Dynamic Retrieval** to bolster the model's contextual understanding.
- Achieved high-performance pipeline with **sub-10-second query latency** and cost efficiency under **\$0.02 per query**.

Other Projects

- **Telematics Data Analysis** 📄 : Data pipeline with **real-time Kafka streaming**, **risk prediction**, and **visualisation dashboard**
- **Interview Chatbot** 📄 : Chatbot with **Google Vertex AI** for **stimulated interview** and feedback with **Codeforces API**

TECHNICAL SKILLS

Programming: C++, C, Python, JavaScript, TypeScript, R

Database Management MySQL, Hadoop*, Spark, Kafka

ML/AI: Pytorch, Numpy, Pandas, TensorFlow*, Langchain,

Miscellaneous: Git, Shell, Latex, Docker

Langgraph, Llamaindex

RELEVANT COURSEWORK

Computer Science: Data Structures and Algorithms (Theory & Lab), Database Management Systems (Theory & Lab), Computer Systems, Big Data Analytics, Machine Learning, Deep Learning, Data Mining, Advanced Deep Learning

Mathematics: Linear Algebra, Statistical Foundations of Data Science, Applied Probability & Random Processes

ACHIEVEMENTS

Inter IIT Tech Meet 13.0

Secured **Rank 4** among all **23 IITs** in ML/AI Problem Statement by Pathway

2024

Encode, IITG

Team secured **first position** out of **2342** participants at ML hackathon across India

2024

Amazon ML Summer School

Selected to attend ML lectures from more than **20,000 students in India**.

2024

POSITIONS OF RESPONSIBILITY

• **Secretary, IITG.ai**, IIT Guwahati

2024 - 2025

- **Overall leadership** of the AI Club of IIT Guwahati and its activities, **promoting AI culture** on campus through **recruitment drives, hackathons, intensive AI/ML workshops** and **research paper discussions**.