

# DEEPALI SINGH

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## EDUCATION

### University of Massachusetts Amherst

Aug 2025 – Jul 2027

*Masters of Science in Computer Science, GPA: 4.0*

- **Relevant Coursework:** Advanced NLP, Advanced Machine Learning, BioNLP Independent Study

### Indian Institute of Technology Mandi

Jul 2019 – Jun 2023

*B.Tech. in Computer Science and Engineering (Minor in Management), CGPA: 8.88/10*

- **Semester Exchange:** Technical University of Munich
- **Teaching Assistant:** DSA, Data Science, Large Applications Practicum, Paradigms of Programming, Entrepreneurship
- **Relevant Coursework:** Advanced Deep Learning, Machine Learning, Data Science, DSA, Database, OS, Networking

## PATENTS

Aniruddha Bala, Siddharth Roheda, Rohan Jaiswal, Raghu Vamsi, Deepali Singh, Swarnim Shukla. (2024). **Method for Automatic High Quality Data Generation for Image Editing Application** (India Application No. 202441044916). U.S. patent filing in progress.

## EXPERIENCE

### Google

Oct 2024 – Jul 2025

*Software Engineer II, Geo NBU Local Team*

*Bangalore, India*

- Deployed advanced **ML solutions** to enhance Local Data coverage quality in Next Billion Users (NBU) countries by 25%.
- Developed an end-to-end pipeline for **Exotel to Speakeasy migration** to enable 15% faster feedback loop by phone operators.
- Created a model to assign **Multi-Cuisine attribute** of over 50,000 restaurants globally to improve discoverability.
- Built location intelligence features for **storefront detection**, **phone number retrieval**, and **POI de-duplication** on Maps.

### Samsung R&D Institute

Aug 2023 – Oct 2024

*Advanced Developer, Visual GenAI Team*

*Bangalore, India*

- Developed and optimized **diffusion-based generative AI models** for **Instruction-based Add/Remove** and **Img2Vid** internal research projects.
- Led end-to-end commercialization of Mask Extension PoC for **object reposition** in Samsung S25 phones.
- Collaborated with Google to develop and commercialize GenAI Photo Editor features **instruction-based inpainting**, **sketch-to-image generation**, and **generative selfie** for S24 release.

### Samsung R&D Institute

Jun 2022 – Aug 2022

*Software Developer Intern, Samsung Ads Team*

*Bangalore, India*

- Migrated batch data processing system to **Spark streaming application** utilizing a distributed systems pipeline.
- Handled challenges in **de-duplication** and **anonymisation** of Ad tracking data in a stream process.

## KEY PROJECTS

### Multimodal Patient Education with Videos | *PyTorch*

Aug 2025 – Present

- Designing a **novel benchmark for patient-centric, multi-turn QA** grounded in medical videos to address gaps in single-turn QA datasets.
- Developed a **patient-doctor simulation pipeline** to generate dialogues for diverse profiles, health literacy, and motivations.

### Enhancing Legal LLMs through Metadata-Enriched Hybrid RAG Pipelines | *PyTorch, LangChain*

Oct 2025 – Present

- Proposed a **custom RAG pipeline** for legal text by conducting **metadata ablation studies** to reduce document-level retrieval errors for small LMs.
- Improved decoder-level hallucinations by utilising negative sampling to **align the model with DPO**.

### Video Colourisation using Deep Learning | *Tensorflow, Keras*

Jul 2022 – May 2023

- Conducted Bachelor's Thesis on a **Transformer-based approach** for consistently adding color to monochrome videos.
- Designed a **custom model architecture**, inspired by ViViT (CVPR), layering spatial and temporal components for video understanding.

## SKILLS

Efficient ML, Large Language Models, Computer Vision, Generative AI, Research

**Programming Languages:** Python, C++, Scala, Java, JavaScript, SQL

**Frameworks/Technologies:** PyTorch, Tensorflow, JAX, Scikit, Pandas, Numpy, MySQL, Keras, NodeJS, Firebase

## ACCOMPLISHMENTS

- **Bronze Medalist**, Inter-IIT Tech Meet 2023, High Prep Deep Learning Problem Statement (Domain QA task)
- **Academic Excellence Award in CS**, IIT Mandi, AY 2020-21.
- **First Runner-Up**, ACM-W Algorithm Contest 2021.
- **Google Developer Groups (GDG) Lead:** Conducted hackathons, bootcamps, and study jams for 500+ IIT Mandi students.
- **The Girl Code:** Managed a thriving online community of 2000+ women programmers across India, Singapore, and USA.