

SARTHAK CHITTAWAR

Undergraduate Researcher at IIIT Hyderabad

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Education

International Institute of Information Technology - Hyderabad

Nov. 2021 - July 2026

Bachelor of Technology + Master of Science by Research in Computer Science and Engineering

Experience

IBM Research

May 2025 – Aug 2025

AI Research Intern | NLP, Computer Vision

Bengaluru, Karnataka, India

- Engineered an end-to-end novel pipeline for extracting unstructured tabular data from PDFs into accurate CSVs, improving significantly on previous work. Patent/paper submission ongoing.
- Developed QA & Summary models using RAG based few-shot prompting on an SQL backbone for user interaction.
- Worked on Methane emission rate prediction from hyperspectral satellite data and local wind speeds, finetuning the Prithvi-V1-100 model pretrained with spatial-spectral patching.
- Received a Pre-Placement Offer post completion of the internship.

Robotics Research Centre

May 2023 – Present

Undergraduate Researcher | Mobile Robotics, Computer Vision

Hyderabad, Telangana, India

- Published two research papers on Mast3R-guided topological navigation (achieving SOTA results) at IEEE ICRA 2026 (rated A*) and IEEE/RSJ IROS 2026 (rated A).
- Advised by Prof. K Madhava Krishna.

Stealth Startup

June 2024 – August 2024

Machine Learning Intern | Computer Vision, PyTorch

Hyderabad, Telangana, India

- Developed a YOLO-based framework for detecting defects in electric power lines, incorporating components from various foundational architectures. Coded the model architecture from scratch and managed data pre-processing and training.

Publications

- **“PixelLoop: Shortcut Topological Navigation using Pixel-Level Loops”**
Published at the 2026 IEEE/RSJ International Conference on Intelligent Robots and Systems (Oral) (rated A)
- **“MASt3R-Nav: WayPixel Navigation in Relative 3D Maps”**
Published at the 2026 IEEE International Conference on Robotics & Automation (rated A*)

Projects

Medmini | 🌐 | *NLP, LLM, React.JS, Flask, Docker*

October 2023

- Collaborated in a team to engineer a lightweight LLM-based medical data answering system for edge devices, requiring <3GB RAM, 0 vRAM, and achieving sub-3-second inference times.
- Deployed this on the android Expo Go app; awarded 2nd place by Qualcomm in Megathon 2023.

Image Style Transfer using Transformers | 🌐 | *Computer Vision, NLP*

April 2024

- Enhanced a CVPR 2022 Transformer-based architecture with Content Aware Positional Encoding for image style transfer. Integrated CLIP for text-based image retrieval and optical flow for video style transfer.

Fast Inference using Speculative Decoding | 🌐 | *NLP, Machine Learning, PyTorch*

November 2024

- Collaborated in a team to implement Speculative Decoding using concepts of knowledge distillation and NLP to improve inference times for translation/generation tasks.
- Improved on the baseline using online speculative decoding (i.e. distillation between draft and target models)

A study in Mechanistic Interpretability - Grokking | *NLP, LLM, AI Safety*

April 2024

- Studied mechanistic interpretability in LLMs, focusing on AI safety. Performed grokking experiments on a toy Language Model to explore its underlying mechanisms and interpretability as part of a collaborative project.

Skills

Languages: Unix Bash, C/C++, Python, Java, HTML/CSS, SQL, x86 Assembly, JavaScript, GLSL Shading Language

Technologies: Linux, Git, MERN Stack, Flask, Docker, THREE.js, D3.js, OpenGL, PyTorch, TensorFlow, W&B

Achievements / Extracurricular

- Awarded the IndiaAI fellowship for graduate students in 2025.
- Awarded the 2nd place by Qualcomm in Megathon 2023 (Hyderabad's largest student hackathon).
- Member of the Music Club and ex-Finance Coordinator of the Quizzing Club at IIIT Hyderabad.
- Scored an All India Rank of 3887 in JEE(Main) 2021 and All India Rank of 44 in IIIT-UGEE among 9.4 Lakh students.