

Krishna Sri Ipsit Mantri

<https://ipsitmantri.github.io>

Google Scholar

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Education

Purdue University, West Lafayette, IN, United States
Master of Science in Computer Science
Specialization: Machine Learning
GPA: 3.74/4.0

August 2023 - Present
Graduation: May 2025

Indian Institute of Technology Bombay, Mumbai, India
Bachelor of Technology in Electrical Engineering
GPA: 9.36/10.0
Minor Degrees: (1) Computer Science and Engineering (2) Artificial Intelligence and Data Science

Jul 2018 - May 2022

Publications

Krishna Sri Ipsit Mantri, Xinzhi Wang, Carola-Bibiane Schönlieb, Bruno Ribeiro, Beatrice Bevilacqua, Moshe Eliasof. *DIGRAF: Diffeomorphic Graph-Adaptive Activation Function*. Accepted at The 38th Annual Conference on Neural Information Processing Systems (NeurIPS), 2024 [arXiv]

Krishna Sri Ipsit Mantri, Moshe Eliasof, Carola-Bibiane Schönlieb, Bruno Ribeiro. *Rethinking Fine-tuning Through Geometric Perspective*. Accepted In UniReps: 2nd Edition of the Workshop on Unifying Representations in Neural Models at NeurIPS 2024[OpenReview]

Nevasini Sasikumar, **Krishna Sri Ipsit Mantri**, STAGCN: Spatial-Temporal Attention Based Graph Convolutional Networks for COVID-19 Forecasting, accepted for oral presentation at the 2023 ICLR First Workshop on Machine Learning & Global Health. [OpenReview]

Pritish Chakraborty, Sayan Ranu, **Krishna Sri Ipsit Mantri**, Abir De, *Learning and Maximizing Influence in Social Networks Under Capacity Constraints*, accepted for publication at the 16th ACM International Web Search and Data Mining Conference (WSDM), 2023. [ACM]

Industry Experience

Sony AI
Research Scientist Intern

May 2024 - August 2024
Tokyo, Japan



(a) Initial View



(b) Novel View 1



(c) Novel View 2



(d) Novel View 3



(e) Novel View 4

Figure 1: 3D Scene Reconstruction: Initial view and generated novel views.

- Developed a deterministic zoom-enhancement system to generate sparse views from a single image, preserving fine details without using diffusion models
- Applied diffeomorphic transformations to simulate camera pose shifts, creating realistic viewpoint diversity from one image
- Integrated the framework with MVSplat to render high-quality 3D scenes within 15 seconds, achieving a 120× speed improvement over traditional single-image novel view synthesis
- Addressed challenges in single-image 3D reconstruction for complex scenes, providing a scalable solution for real-time applications like PlayStation games with limited multi-view data
- Technologies:** PyTorch, gsplat, Gradio, AWS

Texas Instruments

Software Enginner, Power Interfaces Firmware Team

July 2022 - July 2023

Bangalore, India

- Worked on FW validation of Power over Ethernet Power Sourcing Equipment controller TPS23881
- Used Pytest and Jenkins automation framework to detect and validate correct state machine execution and automated legacy manual tests bumping up the coverage by 20%.

Microsoft	Software Engineer Intern, Defensive Search @ Bing	May 2021 – July 2021 Hyderabad, India
	<ul style="list-style-type: none"> Automated the query expansion pipeline for Bing Safe Search using C#, enhancing the detection and filtering of racially inappropriate and derogatory content Implemented sampling techniques to reduce query processing time by 62%, significantly lowering crowdsourcing costs and integrated it to a workflow manager. 	
Projects	PropertyManager.ai – GenAI Solution for House Inspection February 2024 – March 2024 Hacklytics 2024 Demo Website Code	
	<ul style="list-style-type: none"> Developed a multi-modal Generative AI solution to assess property damages and expedite insurance claims processing Created a custom dataset through web scraping to fine-tune the BLIP text-to-image model for damage identification and detailed reporting Implemented few-shot prompting with GPT-4 to provide personalized solutions aligned with specific insurance policies 	
	Diagnosing Supply Chain Optimization Problems using LLMs August 2023 – May 2024 Graduate Assistantship under Prof. Can Li	
	<ul style="list-style-type: none"> Developed a GPT-4-powered chatbot to solve industry-scale supply chain optimization problems using Mixed Integer Programming Integrated advanced features like infeasibility troubleshooting, sensitivity analysis, and counterfactual reasoning Proposed and implemented a proof-of-concept leveraging code generation and Retrieval Augmented Generation (RAG) for enhanced capabilities 	
	Code Review Automation using LLMs and RAG January 2024 – May 2024 CS 592 - AI-Assisted Software Engineering Seminar with Prof. Tianyi Zhang - Code	
	<ul style="list-style-type: none"> Developed a novel multi-stage code review generation framework leveraging Retrieval Augmented Generation (RAG) and off-the-shelf Large Language Models (LLMs) Evaluated the framework's effectiveness across LLMs of varying capacities, including GPT-3.5, Mistral 7B, and Llama 3 70B Deployed the framework as a GitHub App for automated code reviews of pull requests, enhancing code quality and developer productivity 	
	xkcd-style Comic Generation using T2I Models January 2024 – May 2024 CS 587 - Foundations of Deep Learning with Prof. Raymond Yeh - Code	
	<ul style="list-style-type: none"> Fine-tuned a Stable Diffusion model using LoRA on 2,240 comics to generate xkcd-style illustrations Enhanced text coherence in generated comics by training a ResNet-18 reward model and applying Direct Preference Optimization 	
Other Experience	Computer Systems Bootcamp, <i>Teaching Assistant for OS</i> IITB CS 419M Introduction to Machine Learning, <i>Head Teaching Assistant</i> IITB MA 108 Ordinary Differential Equations, <i>Teaching Assistant</i>	Summer 2022 Spring 2022 Fall 2021
Skills	Programming Languages: Python, C++, MATLAB, C# Machine Learning Frameworks: PyTorch, PyTorch Geometric, Huggingface, Detectron2	
Scholastic Achievements	2024 NeurIPS Travel Award 2023 Accepted to The Cornell, Maryland, Max Planck Pre-doctoral Research School 2022 Achieved perfect GPA of 10.0/10.0 in the 8th semester at IIT Bombay 2018 Secured All India Rank of 242 in JEE Advanced among 0.2 million candidates 2016 KVPY Fellowship (Declined) by Department of Science and Technology, Government of India	