KRISHNA SRI IPSIT MANTRI

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EDUCATION

Purdue University	West Lafayette, IN, USA
Master of Science in Computer Science – Focus in Machine Learning	*Aug'23 – May'25*
Indian Institute of Technology Bombay	Mumbai, India
Bachelor of Technology in Electrical Engineering	*July'18 – May'22*

- Cumulative GPA: **9.36/10.0**, Teaching Assistant for Machine Learning
- Minor Degrees: (1) Computer Science and Engineering (2) Artificial Intelligence and Data Science

PROFESSIONAL & RESEARCH EXPERIENCE

Graduate Research Assistant | **Purdue University**   *Sept'23 – Present*
Collaborating with Prof. Can Li from the Davidson School of Chemical Engineering

- Spearheading the development of a GPT-4 based chatbot to elucidate optimization models in chemical industries

Software Engineer | **Texas Instruments**   *July'22 – July'23*
Integral member of the Power Interfaces Firmware Team

- Orchestrated the development of a **Firmware validation** suite for the TPS23881 chip using Pytest and Jenkins
- Successfully ported the **I2C** and **UART** drivers to FreeRTOS for the ARM-based **MSPM0** microcontroller

Software Engineer | **Microsoft**   *May'21 – Jul'21*
Key contributor to the Defensive Search team at Microsoft Bing

- Pioneered the **automation** of the query expansion pipeline for Bing's safe search using **C#**
- Achieved a **62%** reduction in query treatment time through innovative sampling techniques

Constrained Influence Maximization in Social Networks   *Jan'22 – May'22*
Bachelor's Thesis, Guide: Prof. Abir De, Prof. Sayan Ranu   *IIT Bombay*

- **Introduction:** *Influence maximization refers to the problem of finding a subset of nodes in a network through which we could maximize our reach to other nodes in the network.* ***TopK-InfluMax*** *aims at finding this set of nodes and* ***TopK-InfluNet*** *is a GNN framework to learn the process of information spreading in the network.*
- Assisted in framing the objective as a difference between γ-**weakly submodular** and a modular function
- Performed a thorough literature survey on **influence maximization** and **submodular optimization**
- Extracted novel datasets from **Digg**, **Weibo** and **Cit-HepPh** networks employing node and cascade pruning
- Developed the TopK-InfluNet by exploiting the **deep submodular** nature of NNs with non-negative weights

TECHNICAL SKILLS

Programming Languages: C, C++, Python, MATLAB, Perl, C#
Machine Learning Tools: PyTorch, TensorFlow, Keras, OpenCV, Numpy, Pandas, Sklearn, PyTorch Geometric
Web Development: HTML, CSS, JavaScript, Angular, Flask
Software & Tools: Jira, Confluence, BitBucket, Git, LaTeX
Embedded Systems: Keil μVision, TI Code Composer Studio, MSP430, CM3, FreeRTOS, Saleae Logic Analyser, VHDL

SELECTED PUBLICATIONS

1. "Learning and Maximizing Influence in Social Networks Under Capacity Constraints", at WSDM, 2023.
2. "STAGCN: Spatial-Temporal Attention Based Graph Convolutional Networks for COVID-19 Forecasting" at 2023 ICLR First Workshop on Machine Learning & Global Health. 🔗
3. "Interactive Fashion Content Generation Using LLMs and Latent Diffusion Models" at Third Ethical Considerations in Creative applications of Computer Vision workshop, CVPR 2023.
4. "Image Denoising Using Diffusion Models" at 8th IEEE Workshop on Computer Vision for Microscopy Image Analysis, CVPR 2023.
5. "Developing Methods for Identifying and Removing Copyrighted Content from Generative AI Models", accepted at 1st Workshop on Generative AI and Law at ICML 2023
6. "Synthetic Medical Image Generation Using Latent Diffusion Models and Large Language Models", accepted for poster presentation at the Medical Imaging with Deep Learning Conference (MIDL) 2023. 🔗

ACHIEVEMENTS, EXTRA-CURRICULARS AND RESPONSIBILITIES HELD

- Distinguished acceptance to **The Cornell, Maryland, Max Planck Pre-doctoral Research School** 🔗   *(2023)*
- Achieved an **All India Rank of 242** in JEE Advanced among 0.2 million candidates   *(2018)*
- Completed rigorous year-long training in **lawn tennis** under National Sports Organization, India.   *(2018)*
- Entrusted with the role of **Web Nominee** for the university dorm student council at IIT Bombay   *(2020)*