

## Education

- **University of Michigan**, Ann Arbor Aug. 2025 – May. 2027  
Master of Science in Computer Science and Engineering
- **SRM Institute of Science and Technology**, Chennai, Tamil Nadu Aug. 2021 – Aug. 2025  
Bachelor of Technology in Computer Science and Engineering  
**CGPA: 9.47/10, First Class with Distinction**

## Publications

- *Pagoda: Roofline Characterization of Energy and Time for DNN Inference and Training on Edge Accelerators*: Prashanthi S. K., Amartya Saikia, **Pranav Gupta**, Kunal Sahoo, Atharva Joshi, Yogesh Simmhan. Under review at IEEE TPDS.
- *Fulcrum: Power and Latency-aware Optimization of Concurrent DNN Training and Inference on Edge*: Prashanthi S. K., Saisamarth Taluri, **Pranav Gupta**, Amartya Saikia, Lakshya Karwa, Kedar Dhule, Yogesh Simmhan. Under review at ACM TECS.
- *VARs: Vision-based Assessment of Risk in Security Systems*: **Pranav Gupta**, Pratham Gohil, Sridhar S. Accepted at ICIoT 2025.
- *ViDAS - Vision-based Danger Assessment and Scoring*: **Pranav Gupta**, Advith Krishnan, Naman Nanda, Ananth Eswar, Deeksha Agarwal, Pratham Gohil, Pratyush Goel. ICVGIP 2024 ([link to paper](#))
- *ECHO - Environmental Sound Classification with Hierarchical Ontology-Guided Semi-Supervised Learning*: **Pranav Gupta**, Raunak Sharma, Rashmi Kumari, Sri Krishna Aditya, Shwetank Choudhary, Sumit Kumar, Kanchana M, R Thilagavathy. IEEE CONECCT 2024 ([link to paper](#))
- *ISAApp - Image Based Attendance Application*: Aritra Dutta, G Suseela, G, Niranjana, Pushpita Boral, **Pranav Gupta**, Subha Bal Pal. International Conference on Advances in Artificial Intelligence and Machine Learning in Big Data Processing, 2023 ([link to paper](#)).
- *Managing Congregations of People by Predicting Likelihood of a Person Being Infected by a Contagious Disease like the COVID Virus*: **Pranav Gupta**, Manish Gupta. IEEE Cloud Computing in Emerging Markets, 2020 - **Best Short Research Paper Award** ([link to paper](#)).

## Work Experience

- Research Intern, Stanford University, PI - Dr. Teddy Akiki** Jun. 2024 – Jun. 2025
- Developed transformer-based models (**Chronos**, **TimeLLM**) for time-series forecasting to uncover latent “language-like” patterns in fMRI brain activity.
  - Designed and trained a **VQ-VAE + GPT2/LLaMA2** pipeline to discretize continuous fMRI signals into latent tokens and predict future sequences.
  - Leveraged **GANs and Diffusion models** for masked timestep imputation and long-horizon prediction of neural time-series data.

- AI Intern, Kiwi** Apr. 2025 – May. 2025
- Created a **hierarchical multi-agent framework** using LangGraph for customer service to tackle query categories like Transactions, Rewards, Card applications, etc.
  - Framework included **7+ LLM agents** with **15+ tools** and Freshdesk and Mixpanel integrations delivering accurate results in < 1 min.

- Research Intern, Indian Institute of Science, PI - Dr. Yogesh Simmhan** Aug. 2024 – Feb. 2025
- Proposed and improved baseline neural networks through a **penalizable MAPE loss function** in optimizing concurrent training and inference on edge accelerators from MAPE scores of 10% to 2%.
  - Built a **novel Active Learning technique** that samples the best power modes on Jetson devices for DNN workloads with losses close to optimal (0%).

- Research Intern, Samsung R&D, PI - Mr. Shwetank Choudhary** Sept. 2023 – Jul. 2024
- **Lead** researcher in a semi-supervised learning project focusing on environmental sound classification.
  - Devised a **novel** two-phase pipeline that trains a CNN (ResNet50, EfficientNet) on the label ontology of classes as a **pretext** task.
  - Produced an accuracy **increase** of 1-8% compared to baseline models, achieving 97.5% **state-of-the-art** accuracy in the ESC-10 benchmark dataset.

### AI Intern, Upthrust

Jun. 2023 – Aug. 2023

- Integrated **PageSpeed API** and **Screaming Frog API** to produce and fix website issues with **Langchain** and **LLMs**.
- Linked the **Meta API** with **GPT** to create a chatbot providing **recommendations to optimize ads**.

### Data Science Intern, AarogyaAI

Jun. 2020 – Sept. 2021

- Developed a dashboard to display datasets and model results stored in AWS S3 bucket showcasing what drugs are resistant to the given variant of Tuberculosis bacteria.
- Automated results analysis and plotting of ML models in drug prediction.
- Automated and detected 100+ anomalies in data of tuberculosis mutations.

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## Positions of Responsibility

### Odyssey Lab

Jan. 2024 – Jan. 2025

- Started a lab to help students across the best universities in India to work on research.
- Built a network of mentors from IISc, IIIT-H, Amazon, IBM, and Samsung and created 3 teams to work on Multimodal and LLMs reasoning projects.
- Published a paper to ICVGIP 2024, India's top Computer vision Conference.

### Next Tech Lab

Nov. 2021 – May 2025

- Appointed as the Head AI Researcher and led 100+ undergraduates through mentorship, and research collaborations.