

Tejaswi V. Panchagnula

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EDUCATION

Master of Science in Electrical and Computer Engineering expected May 2027
Purdue University, West Lafayette, IN

Area of Study: Deep Learning, Computer Vision, Signal Processing

Bachelor of Technology in Electronics and Communication Engineering 2020-2024

Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram GPA: 8.71/10

SKILLS

Languages/Platforms: Python, C/C++, Matlab, SQL, Verilog

Frameworks: PyTorch, Scikit, NumPy, Pandas, Simulink, Keras, XGBoost, LightGBM, OpenCV, LangChain
React, Node.js, HTML/CSS, LLMs, agents, RAG, CNNs, Transformers, Gen AI.

WORK EXPERIENCE

Research Associate, Walmart Center for Tech Excellence, IIT Madras June 2024-July 2025

- Developed manufacturing data analytics tools for MSMEs introducing small scale enterprises to AI.
- Conducted training and checkpoint workshops at IIT Madras for 150+ attendees.

Research Intern, SENAI Lab, IIT Madras (Prof. Raghunathan Rengaswamy) January 2023 – July 2025

- Created one of the worlds largest human eye gaze datasets (4 mil datapoints) and showed Levy Walk statistics in human vision, proved humans follow optimum path while looking at images.
- Can be used in advertising and marketing for predicting where human look when seeing images.
- Developed and trained MobileNet v2 based U-Net CNN achieving high fidelity fixation heatmaps predictions. Advised by Prof. Raghunathan Rengaswamy, WSAI, IIT Madras. Both data and finding are being submitted for archival journal publication.

RESEARCH PROJECTS

Adaptive Cognitive Architecture for LLMs May 2025 – July 2025

- Engineered an adaptive LLM system with dynamic modular routing and self-reflective feedback dynamically reallocating computation to minimize surprise and sustain reasoning ability – enabling efficient, reasoning capable large language models that adapt to task complexity in real time.
- Benchmarked vs static models, with 10-15% FLOPs differences and 50-100ms overhead, while enabling scalable interpretability and optimization logging.

Algorithmic Trading System for ETFs

June 2025– July 2025

- Developed a LightGBM-based multi-ETF trading system with dynamic sizing, volatility filters, trailing stops, and trend-aware entries/exits.
- Achieved average CAGR 15.3%, Sharpe 0.87, Calmar 0.53 across SPY, QQQ and DIA, consistently outperforming buy and hold on a risk adjusted basis.

Image Entropy based Compression

Feb 2024 – May 2024

- Developed an entropy -based image compression pipeline using threshold masks and local disk entropy, achieving ~85% data reduction while retaining ~90% of high-information regions; simulated fixational Levy walk to generate 3D manifolds of salient feature prioritization

PUBLICATIONS

Tejaswi V. Panchagnula, "Foraging with the Eyes: Dynamics in Human Visual Gaze and Deep Predictive Modeling." (2025). (<https://arxiv.org/abs/2510.09299>)

LEADERSHIP AND CO-CURRICULAR ACTIVITIES

- Unanimously elected the General Affairs Secretary of the Student Affairs Council at IIITDM Kancheepuram, interfacing with the student community and the institute administration. Conducted student festivals with over 1500 attendees.
- Won back-to-back gold medals, playing for the institute basketball team at the Inter IIIT Sports meet, an inter collegiate league with over 25 teams.