TEJASWI V. PANCHAGNULA

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OBJECTIVE

PhD in Computer Engineering, Computer Vision, Deep Learning

EDUCATION

Master of Science, Electrical and Computer Engineering,
Purdue University, West Lafayette IN 2025

Bachelor of Technology, Electronics and Communication Engineering,
Indian Institute of Information Technology Design and Manufacturing, Kancheepuram 2024
CGPA - 8.71 (CGPA in core courses - 8.9)

Joint Entrance Examination - Main (JEE) 2020
Score - 98^{th} percentile

All Indian Senior Secondary School Examination (12^{th} Standard),
Chettinad Vidyashram, Chennai 600028 2020
Score - 96%

All Indian Secondary School Examination (10^{th} Standard),
Sri Sankara Senior Secondary School, Chennai 600020 2018
Score - 91%

WORK EXPERIENCE AND INTERNSHIPS

Research Associate Walmart Center for Technical Excellence, IIT Madras **June 2024-July 2025**
Research Intern SENAI Lab, IIT Madras (Prof. Raghunathan Rengaswamy) **May 2022-July 2025**

- Collected a dataset of 80 human subjects with their gaze trajectory over a dataset of 50 images.
- Analyzed human gaze data using Deep Learning and Statistical models to predict gaze trajectories to understand visual perception and cognition.
- Data and findings are being submitted for archival journal publication.

COURSES COMPLETED

IIT Madras Student Exchange Program (Selected based on academic performance)
EE6418 - Game Theory with Engineering Applications

NPTEL Courses
Deep Learning - Prof. Mitesh Khapra, IIT Madras
Computational Neuroscience - Prof. Sharba Bandyopadhyay, IIT Kharagpur

Relevant B.Tech. (ECE) courses
Problem Solving and Programming, Digital Circuits, Probability Theory, Digital Signal Processing, Pattern Recognition, Digital Image Processing, Analog IC Design, Biosignal Processing and Analysis, Biostatistics, Introduction to Data Science for Engineers, Systems Thinking for Design, Smart Product Design, Bio Inspired Design, Entrepreneurship and Management Functions

IIT Madras Online BS degree
Math, Statistics, Introduction to Python, Machine Learning Fundamentals, Tools in Data Science, Business Data Management

SKILLS

Technical Skills	Python, PyTorch, TensorFlow, Matlab, C/C++, MultiSim
Soft Skills	Instinctive leader, keen listener, creative mind, excellent communicator, team player
Co-Curricular Skills	Semi-Professional Musician, College Basketball Player and fitness geek

RESEARCH PROJECTS

Eyes forage for information like animals following Lèvy Walks Conducted large-scale human gaze tracking study (4M+ gaze points from 40 subjects) revealing Lévy walk dynamics in visual exploration; developed and trained a MobileNetV2-based U-Net CNN achieving high-fidelity fixation heatmap predictions, bridging statistical foraging models with deep learning for attention modeling. This project is under the guidance of Prof. Raghunathan Rengaswamy, IITM.

Jan 2023-July 2025

Adaptive AGI Cognitive Architecture Developed a novel cognitive architecture in PyTorch, featuring a dynamic routing controller that directs tasks to specialized modules (*e.g.*, Reasoning, Symbolic, Memory) based on input complexity and entropy. Implemented a surprise-driven reflective loop and a neurogenesis controller that dynamically expands the architecture to handle novel problems. **May 2025-July 2025**

Algorithmic Trading System Developed an automated, data-driven trading system for ETFs using Python and LightGBM, a gradient-boosting machine learning framework. Engineered a comprehensive set of technical indicators (SMA, RSI, MACD, Volatility) to predict price movements and implemented a dynamic backtesting engine with a trailing stop-loss, volatility filters, and adaptive position sizing. This resulted in a strategy outperforming a buy-and-hold benchmark on key metrics like Sharpe Ratio and CAGR.

June 2025-July 2025

Entropy based Redundancy filter Redundancy detection in images using entropy as a metric. Given an image, the algorithm will remove the redundant portions with only regions with high information content left. This can help in areas like video and image compression. **Feb 2024 - May 2024**

Design Project Building a EEG based stress level monitor using a Deep Learning Framework. This product idea and its proof of concept have been showcased at EHIPASSIKO, the industry open house at IIITDM, twice both in 2022 and 2023. **Jan 2021 - May 2023**

EXTRA-CURRICULAR ACTIVITIES

- I have been playing the Veena, an Indian classical music instrument for almost a decade. I have performed at many prestigious events both solo and in a group at the IIT Madras Music Club events and more. I learn from an All India Radio A-Grade artiste, Smt. Sujana Vadlamani
- Back to back gold medals in basketball in the Inter IIIT sports meets 2023 and 2024, with over 22 IIITs taking part.
- I have won many prizes in the events conducted by Quriosity, the quizzing club of IIITDM.

LEADERSHIP

- Elected unanimously as the General Affairs Secretary, by the student body of IIITDM Kancheepuram 2023-2024
- President of the Society for Promotion of Indian Classical Music Among Children and Youth, IIITDM Chapter and hosted world class artists and the founder of SPICMACAY Prof. Kiran Seth.
- Quality Management Lead for the technical festival of IIITDM, Vashisht 2023, where I lead a team of 20+ volunteers and ensured smooth conduct of the festival with a 45+ events over 3 days.
- Class representative for a class of 120 students over five consecutive semesters. Voiced the issues faced by the class to faculty and institute management.
- Coordinator for the Placement Cell, where I held events for the Institute Placement Cell, which included important topics such as communication, resume building etc.