MANOGHN KANDIRAJU

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EDUCATION

Northeastern University (Boston, MA, USA) – 3.70/4
Master of Science in Data Analytics and Engineering — Expected Dec 2025
Relevant coursework: Data Management, Foundations of Data Analytics, Data Mining, NLP, Neural Networks and Deep Learning

Vellore Institute of Technology (Chennai, TN, India)
Bachelor of Technology in Computer Science and Engineering — Jul 2019 - Aug 2023

SKILLS

Mathematical Modeling & Statistics: Probability Distributions, Hypothesis Testing, Classification, Regression, Time-Series
Machine Learning: PyTorch, Transformers, DNNs, LLMs, CNNs, LSTMs, Feature Engineering, Cross-Validation, Hyperparameter Tuning
Programming & Analysis: Python, NumPy, pandas, scikit-learn, OpenCV, SQL, Jupyter, Git
Finance-Relevant Tools & Thinking: Stochastic Simulation, Market Data Analysis, Signal Detection, Variance Estimation
Soft Skills: Independent Research, Fast Learning, Cross-functional Communication, Pattern Recognition, Debugging

WORK EXPERIENCE

Data Analyst
American Tech Vision Solutions | Houston, TX, USA — May 2024 – Nov 2024

- Built YOLO models using PyTorch for defect detection, simulating stochastic scenarios in production pipelines.
- Processed time-series sensor data and built anomaly detection models using statistical feature transformations.
- Improved detection accuracy by 20% and reduced operational uncertainty with predictive insights and Monte Carlo sampling.
- Delivered weekly reporting dashboards and communicated performance metrics to technical and non-technical stakeholders.

Full Stack Developer and Analyst Intern
Rite Software | Hyderabad, India — Jan 2023 – Jul 2023

- Automated HR performance dashboards using Python and SQL for probabilistic tracking of employee engagement metrics.
- Reduced latency by 40% in SQL pipelines using deterministic indexing and join optimization techniques.
- Designed dashboards for self-service analysis and performed variance checks for payroll forecasting models.
- Applied NLP and spaCy to extract structured entities from invoices for financial compliance review.

Software Developer Intern
Tecdatum | Hyderabad, India — May 2022 – Jul 2022

- Benchmarked five OCR models for license plate recognition and evaluated error distributions over large datasets.
- Preprocessed visual data using OpenCV; tested detection sensitivity across controlled lighting distributions.
- Boosted recognition rate by 20% by optimizing filters and selecting max-confidence bounding boxes heuristically.
- Generated Excel-based statistical reports with box plots and trend curves for system performance evaluation.

PROJECTS

SynthAI: Educational Content Synthesizer (Generative AI Multi-Modal Project) — Jun 2025 – Aug 2025

- Designed and deployed SynthAI, an automated system generating lessons, images, quizzes, and audio on educational topics.
- Curated and validated dataset using Llama3.1 across Science, Math, CS, and Humanities; which was used to fine-tune TinyLlama with LoRA achieving 95% lesson coherence.
- Built multi-modal pipeline integrating Stable Diffusion for contextual visuals, RAG-powered quiz generation, and gTTS narration for accessibility.
- Delivered Streamlit app, enabling topic-to-study guide synthesis; reduced manual content creation time by 80%.

Automated Research Paper Critique (NLP Model Fine-tuning Project) — Feb 2025 – Apr 2025

- Developed a system for automated scholarly content analysis using transformer-based models
- Created a specialized training dataset of 500+ research paper critiques from arXiv papers using Llama-3-8B to generate high-quality evaluation examples
- Fine-tuned Mistral-7B-Instruct-v0.1 on this critique dataset using Low-Rank Adaptation (LoRA) techniques with 4-bit

quantization, reducing GPU memory requirements by 60%

- Successfully delivered a fine-tuned model capable of identifying 8 distinct critique types in academic writing with 78% precision, demonstrating effective knowledge transfer from larger to smaller models

Medbud: A Mental Health Assistant (Capstone Project) Jan 2023 – Aug 2023

- Built CNN-LSTM emotion model to forecast psychological states from real-time user text and image sequences.
- Trained on 20,000 Reddit posts and 2,000 FER images; modeled emotional transitions using temporal weights.
- Delivered journaling assistant with live feedback and trend-based emotion volatility summaries per user.
- Achieved 25% higher model consistency and detected early mood transitions for 15+ pilot users.