DEEPAK SAI PENDYALA

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Education

North Carolina State University, Raleigh, NC — Aug 2024 – December 2025
MS in Computer Science
Coursework**:** Efficient Deep Learning, IoT: Analytics, Automated Learning and Data Analysis, Software Engineering.

Amrita School of Engineering, Coimbatore, Tamil Nadu, India — Aug 2020 – May 2024
Bachelor of Technology in Electrical and Computer Engineering
Coursework**:** Machine Learning, AI, NLP, Applied Analytics, Soft Computing, Digital Image Processing.

Skills

Languages: Python, C, C++, MATLAB, Assembly, Embedded C
Machine Learning Tools: TensorFlow, PyTorch, HuggingFace, Langchain, AWS Bedrock, RAG, Fine-tuning LLMs
MLOps & Data Engineering: Docker, Kubernetes, AWS MLops, Apache Kafka, Hadoop, PySpark, Tableau, PowerBI, Git CI/CD
Cloud: AWS (Sagemaker, Eventbridge, Lambda, S3, Step Functions, DeepRacer); GCP (Vertex AI, API's)
Databases and Operating Systems: MySQL, InfluxDB, DynamoDB, Oracle
Certifications: Intel Edge AI Certification, AWS Machine Learning Foundations, Google IT Support Specialization

Experience

Research Assistant, North Carolina State University, Raleigh, North Carolina — September 2024 – Present

- Developing real-time monitoring and analysis tools for additive manufacturing in a government-funded **DARPA** research project, leveraging **advanced ML** to link microstructural data with mechanical performance for **defense applications**.
- Built ML-integrated software systems for **high-precision manufacturing**, cutting inference runtime by 4.3x (13 min to <3 min per prediction) and enhanced system accuracy and processing time by 70%.

Applied Scientist Intern, Amazon, Delhi, India — July 2023 – December 2023

- Developed and deployed **machine learning solutions** to automate processes in Tax, Finance, and Technology (**FinTech**) sectors using AWS Sagemaker and MLOps, reducing manual review time by 60**%**.
- Designed **end-to-end ML applications**, including model retraining based on feedback mechanisms and delivered a 90**%** reduction in human effort by automating all aspects of the system.
- Utilized Natural Language Processing (NLP), **Large Language Models** (LLMs), Transformers, and various **AWS tools** (Sagemaker, S3, Eventbridge, Step Functions, Lambda) to enhance model efficiency and scalability by 80**%**.

Founder & Lead, Intel IoT Club, Coimbatore, India — December 2021 – December 2023

- Founded and led the Intel IoT Club as an **Intel IoT Student Ambassador**, expanding it into a nationwide tech community with 2000+ students. Recognized **twice** by Intel for outstanding performance and impact.
- Organized and led 10+ **IoT and Edge AI** hackathons, **training** students on Intel Software Development Tools, sensor integrations, and real-time AI applications. Mentored students in developing AIoT solutions, benefiting **rural** communities.
- Selected as a Top 10 Deeplearning.AI Ambassador (2022) globally, featured in official blogs and social media for driving **AI education** and bridging **industry expertise** with academia.

Projects

Detecting and Mitigating Bias in Fraud Detection Models [link]: Developed a hybrid model to balance **fairness** and **accuracy**. Leveraged **bias mitigation** techniques during pre-processing, in-processing, and post-processing stages to ensure equitable outcomes. Evaluated models with fairness metrics like Demographic Parity Difference and Equalized Odds Difference, achieving equitable and high-performing outcomes.

Predictive Model-Based Power Price Tagging [link]: Developed an auction mechanism using **Genetic algorithms** and **Deep learning** to optimize power generation resource allocation and predict Market Clearing Prices (MCP). Conducted high-accuracy power prediction and Economic Load Dispatch (ELD) optimization using regressive data from the Indian Energy Exchange (IEX). Evaluated model performance for **LSTM** models, providing actionable insights for power price tagging and bidding strategies.

Recommender systems in Online Reviews of Airlines [link]: Conducted hierarchical topic modeling to analyze customer satisfaction drivers in airline reviews, leveraging **Latent Dirichlet Allocation** (LDA) and **sentiment analysis**. Processed a large dataset of reviews, implementing data cleaning and preprocessing techniques. Identified key satisfaction drivers and evaluated sentiments associated with each, providing actionable insights for service enhancement and airline customer concerns.

Extracurriculars

One of Top 0.1% selected for Amazon ML Summer School — July 2022

GenAI Tech Speaker at AWS Student Community Day — January 2024

Guinness World Record Participant- AI for India — April 2021