

Sai Rohith Tanuku

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EDUCATION

University of Pittsburgh

Pittsburgh, PA

MS in Computer and Information Sciences

GPA: 3.95

Coursework: Algorithms, Machine Learning, Neural Networks, Cloud Computing, Data Analytics, SDLC Aug. 2023 – Apr. 2025

Manipal Institute of Technology

Manipal, India

BS in Computer Science & Communication Engineering, Minor: Big Data

Aug. 2019 – May 2023

Coursework: Database, Operating Systems, Big Data, Computer Network, Data Mining, Web & App Dev

EXPERIENCE

Master of Data Science Course Facilitator and TA

Jun. 2024 – Present

University of Pittsburgh

Pittsburgh, PA

- Redesigned Python-based test cases for Coursera's autograder, automating assignment evaluation and reducing the grading workload for teaching assistants by 30%, which allowed faster student feedback., TA for 140+ students through office hours, assignment feedback, and one-on-one guidance to improve learning outcomes.

Software Engineer Intern

Jan. 2023 – May 2023

EAIESB

Hyderabad, India

- Engineered a high-performance data processing platform using FastAPI, enabling real-time ingestion of 10GB+ datasets, automating preprocessing, and cutting processing time by 40%.
- Designed a fault-tolerant error-handling framework with APEX in the backend to handle the input data streams and route it to Salesforce custom Flows, optimized ETL data pipelines, cutting debugging time by 50%, ensuring seamless storage, conversion, and accessibility for 100K+ API requests per day.

Artificial Intelligence Research Intern

Jun. 2022 – Aug. 2022

Larsen & Toubro

Chennai, India

- Trained and fine-tuned YOLO-based computer vision models for pedestrian detection, improving model accuracy by 10% through techniques such as data augmentation, hyperparameter tuning, and performance evaluation using precision-recall metrics.
- Applied deep learning and GIS tools to analyze satellite imagery, achieving 85% accuracy in object detection tasks and reducing manual processing time by 25% by automating data preprocessing and model inference pipelines.
- Collaborated on a LiDAR-based remote sensing project, processing 3D point cloud data to enable real-time visualization and analysis, resulting in 15% faster data interpretation for environmental monitoring applications.

PROJECTS

Fine-Tuning LLaMA and DeepSeek for SQL Generation | PyTorch, LLM, SQL, LLM Fine-Tuning, NLP

- Fine-tuned LLaMA and DeepSeek models for SQL query generation, while improving SQL query correctness by **30%** over baseline models; created scalable fine-tuning workflows supporting domain-specific SQL dialects, enabling efficient training and deployment.

MyTorch | Python, NumPy, Scikit-Learn, MLPs, CNNs, GRUs, LSTMs

- Developed a custom deep learning library (MyTorch) from scratch as part of a machine learning course under Prof. Bhiksha Raj, implementing MLPs, CNNs, GRUs, and LSTMs.
- Optimized neural networks using backpropagation, activation functions, regularization, and loss functions, achieving 80% validation accuracy with TensorFlow and Keras for sentiment analysis.

Blockchain-Based Data Integrity System | Python, Ethereum Blockchain, Merkle Trees, MapReduce

- Built a high-performance distributed data integrity system using Ethereum Blockchain, Cassandra, and Merkle Trees. It ensures 97% tamper-proof data integrity while optimizing large-scale data verification with 30% faster query response times using MapReduce. Deployed with Docker for seamless scalability and resilient processing across cloud-based VMs.

TECHNICAL SKILLS

Languages: Python, Java, C/C++, SQL, TypeScript, JavaScript, HTML/CSS, R, Shell Scripting

Frameworks & Libraries: PyTorch, TensorFlow, Scikit-Learn, OpenCV, XGBoost, FastAPI, Node.js, Express.js, React.js

Cloud, Big Data & Databases: AWS, Docker, CI/CD Pipelines, PostgreSQL, MongoDB, Spark, Hadoop, ETL Pipelines

Optimization & System Design: Linear & Nonlinear Optimization, Convex Optimization, Distributed Computing, Operating Systems, Load Balancing, Multi-threading, Caching