Violina Doley

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EDUCATION

National Institute of Technology Karnataka, Surathkal Dec 2021 - Apr 2025
B.Tech in Computer Science and Engineering
(with Focus Area in Artificial Intelligence and Machine Learning)

TECHNICAL SKILLS

Languages	Python, C++, SQL
Frameworks/ Libraries	Tensorflow, PyTorch, Keras, Scikit-learn, Flask
Tools and Technologies	Pandas, NumPy, AWS, VertexAI, Google AI Studio, Git, PostMan

WORK EXPERIENCE

Siemens - AI Research Intern Jan 2025 - Mar 2025

- Developing a framework leveraging **graph neural networks** for **adaptive mesh simulations**, enabling efficient and accurate simulations of complex physical systems. Enhancing simulation accuracy and scalability across domains such as **fluid dynamics** and **structural mechanics**, aiming for significant speedups in complex physical system modeling.

SuperKalam (YC W23) - AI Research Intern Aug 2024 - Sep 2024

- Worked on **LLM finetuning** with a focus on **parameter optimization** and **RLHF** for UPSC-specific improvements, and developed **Advanced Prompt Engineering** for evaluating answers across 10+ competitive subjects (e.g., UPSC), creating **LLM-as-a-Judge** templates for automated grading.

IBM India - Data and AI Intern May 2024 - Jul 2024

- Designed a **RAG** chatbot for sales professionals using **Langchain** and **OpenAI API** to streamline order booking, product recommendations, and sales pitch generation. Integrated **PDF** and **SQL** for real-time customer-specific insights, including order history and promotional offers, with seamless interaction via **WhatsApp** for an intuitive experience.

RESEARCH EXPERIENCE

Indian Institute of Technology, Hyderabad Dec 2023 - Feb 2024
Machine Learning Research Internship

- Implemented **VirConv-L** and **VirConv-T** models on the **KITTI** dataset, replicating and extending the architecture with **Squeeze-and-Excitation (S&E)** and **Pointwise Spatial Attention** blocks, achieving a **2%** improvement in **3D Average Precision (AP)** for VirConv-L on validation data, enhancing **autonomous driving** model performance.

Indian Institute of Technology, Guwahati Nov 2023 - Jan 2024
Winter Research Internship

- Implemented **deep transfer learning** on diverse omics datasets to reduce performance gaps among ethnic groups, advancing bias reduction in healthcare AI. Enhanced the framework using **domain adaptation** methodologies, achieving significant improvements for disadvantaged groups, validated by statistical analyses and synthetic data experiments.

PROJECTS

The Great Bangalore Hackathon 2025(NextJs, ReactJs, MapBox, Gemini, SarvamAI) Mar 2025

- Developed a novel solution to improve driver-customer matching to reduce cancellation, along with dynamic-pricing system.
- Deployed a **masked autoencoder** model to predict customer requests and proactively guide the drivers to hotspots using an interactive map. An added AI-guidance with language translation facilties was provided for better UX.
- **Top 27 teams** out of 150 semifinalists, which were chosen out of almost 4800 plus applicants Pan-India.

SimPSOEnsemble Model for Enhanced Stock Prediction Sep 2024 - Oct 2024

- Theorized and implemented a novel pipeline utilizing hybrid **Simulated Annealing** and **Particle Swarm Optimization** algorithms to obtain optimal hyperparameter configurations for the **LSTM ensemble model**. Achieved state-of-the-art (SOTA) metric values; results compiled and submitted to the **IEEE SSCI 2025** in Trondheim, Norway.
- **Technologies used:** Python, TensorFlow

PUBLICATION

14th ICCCNT IEEE Conference, Indian Institute of Technology Delhi Nov 2023
Improving Dynamic TDMA for Wireless Sensor Networks

- Enhanced the **Dynamic TDMA** framework for **Wireless Sensor Networks**, building on the work of **C. Benrebbouh** and **L. Louail**. Achieved $\approx$ **1%** lower energy consumption, improved **energy efficiency**, and increased **throughput** by incorporating advanced **node tracking** and flexible **slot allocation**.