LIKHIL BABU PALLATI

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EDUCATION

University of Waterloo, *Masters in Electrical & Computer Eng (ECE), Specialized in AI & ML* **Sep 2022 - Apr 2024**
Graduate Teaching Assistant for Computer Networks, Computer Hardware 3.96 / 4.0
Jawaharlal Nehru Technological University Hyderabad, *Bachelors in ECE* **Jun 2017 - Jul 2021**
Top 1% of the ECE department 8.01 / 10

EXPERIENCE

Machine Learning Research Associate **Nov 2024 - Present**
Toronto Metropolitan University (TMU), Toronto, Ontario, Canada.
- Developed a novel selective fine-tuning framework leveraging teacher-student Knowledge Distillation to optimize smaller language models, reducing computational costs and maintenance requirements while maintaining high performance across diverse tasks.

Applied Machine Learning Researcher **Jan 2024 - Dec 2024**
Leitch MultiCom Research Lab — University of Waterloo, Waterloo, Ontario, Canada.
- Designed and developed novel Machine Learning framework that enhances fairness among samples during Deep Neural Network training. Strategically programmed & deployed algorithm to run on parallel CUDA GPU's to handle computational intensity.
- Customized PyTorch built-in modules for designing & implementing novel training algorithm.
- The classification accuracy of the model outperforms the conventional training method by almost 1% and converges faster on ImageNet Data with over 1 Million samples.

AI for Networking Graduate Researcher **May 2023 - Dec 2023**
Broadband Communications Research Lab — University of Waterloo, Waterloo, Ontario, Canada.
- Developed novel Digital-Twin based Data Relevance framework to addressed the resource consumption and performance trade off issue, during massive distributed neural network training.
- The framework optimally select a subset of massive network of models to participate in training at each epoch resulting in faster convergence of the training, more immune to non independent & identically distributed data, and less resource consumption.

Systems Engineer **Dec 2021 - Aug 2022**
Infosys Limited, Hyderabad, Telangana, India.
- Worked on resolving all critical bugs, and regularly maintained the Australian government Aged-Care Website that allow uninterrupted services to the elderly people in Australia.
- Built an internal organisations Audit Management system as a part of Back-end team using the PEGA environment. This enabled us faster integration of additional custom features resulting in less development time boosting operational efficiency.

Data Science & Networking Intern **Apr 2021 - Jun 2021**
Defence Research & Development Organization, Hyderabad, Telangana, India.
- Designed a Data-driven MIMO Network system that tune signal strength & various other parameters for efficient signal transmission. Implemented Machine Learning algorithm to perform such intelligent runtime decisions based on the fading channel parameters.
- MATLAB simulation of this data-driven model performs better in terms of Signal to Noise ratio & Bit Error Rate.

Data Engineering Intern **Jun 2019 - Nov 2019**
Defence Research & Development Organization, Hyderabad, Telangana, India.
- Engineered data acquisition systems to gather raw sensor data from real-world missiles ensuring accuracy and completeness.
- Developed robust data processing pipelines to clean, preprocess, and analyze collected data, maintaining data quality and integrity.
- Performed Deep Neural Network training on collected data over 30K samples, extracting valuable insights such as deterioration data samples to asses missile stability and various parameters to optimize the its performance.

SKILLS

Programming Skills	Python, C/C++, Java, SQL, MATLAB programming.
Data Science Skills	Machine Learning, PyTorch, TensorFlow(Keras), Scikit-learn, NumPy, Pandas, OpenCV, Fine-tuning.
Developer Skills	Data Structures and Algorithms, OOPs, Git, PEGA, Linux, Jupyter.
Data Skills	Data Modelling, Data Collection, Data Engineering, Data Cleaning, Data Analytics.
Soft Skills	Critical Thinking, Proactiveness, Communication, Team Coordination, Leadership.
Certifications	Pega Certified System Architect.

PROJECTS

Model Driven Weight Initialization in Deep Neural Networks (DNN). Implemented and designed a novel DNN framework to enhance the initialization of a model's weights by leveraging pretrained weights from a teacher model within the same model family. As a result, we observed improved convergence and classification accuracy by approximately 1% on CIFAR100 data (50k Samples).