Krishna Kireeti Kuppa

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Experience

AI Intern **May 2025 - August 2025**

Asta Health Tech *Hyderabad, India*

- Developed YOLOv12 Seg and RT-DETR architectures and carried out several experiments to analyze performance on multi-task computer vision objective.
- Optimized model performance through multiple experimentation, achieving real-time end to end inference with mAP scores of 95% for segmentation and 85% for object detection, benchmarking across ONNX and OpenVINO deployment formats.
- Built a microservices-based inference pipeline with distributed model and API servers, using FastAPI, RabbitMQ and Celery for asynchronous message processing, parallel model execution, and PostgreSQL/S3 integration for data storage.

Projects

Federated Learning Algorithm Implementation | *Python, Pytorch, Numpy* **Jan 2025 - April 2025**

- Implemented and benchmarked multiple federated learning algorithms (FedAVG, FedSVRG, CooP) across IID and non-IID data distributions, analyzing convergence properties.
- Tested all three algorithms for MNIST dataset (baseline) and Cancer detection dataset in both IID and Non IID scenarios.
- Conducted several experiments comparing different algorithms performance on datasets, achieving 98% accuracy for MNIST dataset by FedAVG in IID environment and 90%+ in non-IID environment.

Graph Attention Network for Image Classification | *Python, Pytorch, PyG* **May 2024 - July 2024**

- Developed Graph Attention Network (GAT) architecture for image classification using superpixel-based graph representation, achieving 95%+ validation accuracy through systematic experimentation.
- Performed extensive scaling experiments across model complexities (28K to 160K parameters), demonstrating clear scaling laws with accuracy improvements from 60% $\rightarrow$ 72% $\rightarrow$ 84% $\rightarrow$ 90%+ as model capacity increased.
- Performed hyperparameter optimization including learning rate scheduling, batch size tuning, and regularization strategies, achieving 90%+ accuracy within 22 epochs using 160K parameter model.

Image Colorization using Pix2Pix GAN | *Python, Tensorflow, Numpy, OpenCV* **Oct 2023 - Nov 2023**

- Implemented Pix2Pix GAN architecture, involving a UNet-based generator (54.4M parameters) and PatchGAN discriminator (2.77M parameters), to perform image colorization from grayscale inputs of resolution 256x256.
- Modified and preprocessed a diverse dataset for training, ensuring better learning and realistic colorization of grayscale images.
- Used the tensorflow checkpoints to log training steps and generate images periodically to better monitor the model's performance through the training.

Education

National Institute of Technology Andhra Pradesh **Expected Graduation - 2026**

Bachelor of Technology in Computer Science *GPA: 9.29/10*

Relevant Coursework

- Data Structures
- Design and Analysis of Algorithms
- Natural Language Processing
- Computer Networks
- Applied Machine Learning
- Computer Vision
- Operating Systems
- Probability and Statistics
- Artificial Intelligence

Skills

Programming Languages: Python, Java, C, SQL

Frameworks & Libraries: PyTorch, TensorFlow, Keras, HuggingFace, Scikit-learn, ONNX, boto3, psycopg2, Weights and Biases

Technologies & Tools: Deep Learning, Computer Vision, Neural Networks, API Development, Git, Linux, Docker, Redis, RabbitMQ, Bash, Jupyter Notebook

Languages: English, Hindi, Telugu

Additional Experience

Research Assistant | *National Institute of Technology Andhra Pradesh*

Working under professor supervision on active research projects in federated learning and AI applications

IEEE Xtreme 18.0 Participant | *University Team*

Participated in IEEE's premier global programming competition representing college team

Technical Presenter | *Southern Railways Hospital, Chennai*

Delivered presentation on AI applications for medical monitoring systems to healthcare professionals