Nitin Reddy Yarava

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LinkedIn, Github

Skills

- **Programming Languages**: Python, C++, SQL
- **Programming Frameworks**: PyTorch, OpenCV, Huggingface, Pandas, NumPy, Matplotlib, NetworkX
- **Technologies**: Deep Learning, Computer Vision, Graph Neural Networks, Git, AWS, Linux
- **Languages**: English (Native), Telugu (Native), Kannada (Full Proficiency), Hindi (Conversational)

Experience

- **Classroom Maintenance Aide** — Tempe, AZ
  Student Worker — *Oct 2023 – Present*
  - **Scheduling Program**: Developed and implemented a program to streamline classroom inspections by aligning them with classroom schedules, improving efficiency and minimizing disruptions.
  - **Classroom Maintenance and Collaboration**: Conducted inspections to ensure cleanliness and safety, reported maintenance needs, and prepared classrooms while collaborating with staff to enhance efficiency.
- **Arizona State University** — Tempe, AZ
  Student Researcher – Deep Learning for Chest X-rays — *Jan 2024 – Dec 2024*
  - **Literature Review**: Read 20+ Deep Learning in Medical Imaging papers.
  - **Modelling**: Reimplemented the ARK paper to **reuse expert annotations** from various datasets, **reproducing state-of-the-art results** on CheXpert dataset (220K+ images). Utilized models like Faster R-CNN and U-Net++ on large medical datasets for **classification, localization, and segmentation** tasks. Conducted training on A100 GPUs, leveraging shell scripting for efficient workflows.
- **Arizona State University** — Tempe, AZ
  Student Researcher – Detection of small instances from Aerial Images — *Jan 2024 – May 2024*
  - **Model Development**: Developed a novel CBAM-YOLOv7 and recreated SE-YOLO *(from paper)* models for wildlife detection in aerial images, achieving a **higher mAP of 0.976** vs. 0.972 on the WAID dataset.
  - **Experimentation and Evaluation**: Studied small target detection, evaluated configurations, compared performances, and highlighted challenges in replicating architectures.

Projects

- **Tackling Traveling Salesman Problem using Graph Neural Networks**: Developed a hybrid model combining Graph Transformers and Residual Gated GCNs to optimize node and edge embeddings for TSP, achieving competitive performance by minimizing the optimality gap and producing accurate prediction heatmaps of the optimal path.
- **Reimplementation of GPT-2 (124M)**: Reproduced the GPT-2 language model from scratch, implementing key components such as the transformer architecture, positional encodings, and attention mechanisms, successfully training it to generate coherent text outputs.
- **Implementation of GANs**: Reimplemented state-of-the-art GAN models including Pix2Pix, CycleGAN, ProGAN, and ESRGAN from scratch, and achieved results comparable to the original papers.
- **Link Prediction in Drug-Drug Interaction Networks using GNNs**: Implemented GraphSAGE for predicting drug-drug interactions on the OGBL-DDI dataset, achieving 92% accuracy and Hits@20 of 0.39 by integrating a Neural Link Predictor. Enhanced node embeddings with graph statistics (PageRank, Clustering Coefficient, Betweenness Centrality) and utilized skip-connections, post-processing layers, significantly improving baseline accuracy.

Education

- **Arizona State University** — Tempe, AZ
  MSc Computer Science; GPA: 3.59 — *Aug 2023 – May 2025*
  - **Relevant Courses**: Statistical Machine Learning, Image Analytics and BioInformatics, ML for Remote Sensing
- **G.I.T.A.M University** — Bengaluru, India
  B.Tech Computer Science; 8.8/10.0 — *Jul 2019 – May 2023*