Nitin Reddy Yarava

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TECHNICAL SKILLS

Programming Languages: Python, C/C++, Java, SQL
Frameworks & Tools: PyTorch, OpenCV, Pandas, NumPy, Matplotlib, NetworkX, Shell Scripting, React, FastAPI, Docker
Areas & Technologies: Deep Learning, Computer Vision, Graph Neural Networks, BioInformatics, Git, Linux
Cloud & DevOps: Azure, AWS, CI/CD, Infrastructure-as-Code, Agile Software Development

EXPERIENCE

Classroom Operations & Data Analyst, *Arizona State University* **10/2024 - Present**

- Automated classroom inspections with a YOLOv7 model, cutting inspection time by 20% and reducing disruptions.
- Ensured classroom cleanliness, safety, and readiness while collaborating with staff to improve efficiency.

ML Researcher, *Arizona State University* **01/2024 - 12/2024**

- Researched 20+ deep learning papers on bioinformatics, focusing on classification, segmentation, and foundational models, and explored architectures like Faster R-CNN, U-Net++, and Vision Transformers.
- Reproduced SOTA models, and results for lung disease classification on datasets with 220K+ chest X-ray images.

Microsoft Intern, *AICTE & Microsoft - Future Ready Talent* **03/2021 - 09/2022**

- Devised and deployed cloud-based solutions using Microsoft Azure, leveraging 5+ Azure services (VMs, AI, App Services, Functions, Storage).
- Gained hands-on experience in Azure AI, Data Science, and Security, completing 100+ hours of training and building 2 real-world projects on Azure.

PROJECTS

GPT-2 Implementation from Scratch

- Built GPT-2 (124M) model from scratch using PyTorch, implementing self-attention and multi-head attention mechanisms, training on **10B+ tokens**.
- Optimized tokenization, loss functions, and hyperparameters achieving a **HellaSwag accuracy of 29.9**, surpassing the original GPT-2's 29.4.

Wildlife Detection from Aerial Imagery

- Constructed a **novel CBAM-YOLOv7** model and replicated SE-YOLO from the original paper, achieving a **higher mAP of 0.976 vs. 0.972** on the WAID dataset for aerial wildlife classification and localization.
- Conducted extensive experiments on **small target detection**, evaluated model configurations, and analyzed performance challenges in replicating architectures.

Reimplementation of GANs and Diffusion Models

- Implemented **Pix2Pix, CycleGAN, ProGAN, SRGAN, and ESRGAN** from scratch, achieving **results comparable to original** papers.
- Implemented **Denoising Diffusion Probabilistic Models (DDPMs)**, understanding training stability challenges, noise scheduling, and sampling efficiency in **generative modeling**.

EDUCATION

Arizona State University **Tempe, AZ**
Master's of Science, Computer Science | GPA: 3.59 **May 2025**
Coursework: Biomedical Image Analytics, Artificial Intelligence, Statistical Machine Learning

G.I.T.A.M. University **Bengaluru, India**
Bachelor's of Technology, Computer Science and Engineering | GPA: 8.8/10 **May 2023**

LEADERSHIP & INVOLVEMENT

- Awarded 1st place in Line-Following-Bot, Ideation competition for excellence, and innovation.
- Coding Club - Tutored 100+ students in Python, and DSA, conducted workshops, and organized coding competitions to foster learning and engagement at GITAM University