Ved Thorat

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Skills

Programming Languages: Python, Java, JavaScript, C, C++
Version Control: Git, GitHub
Machine Learning Frameworks: PyTorch, Jax, Tensorflow, Huggingface Transformers, Langchain
Web Development: Flask, FastAPI, Django, RESTful API design
CUDA: Implemented parallel computing and hardware acceleration using **CUDA** in Numba and C++

Experience

Freelancer November 2024-Present

- Developed a Retrieval-Augmented Generation (RAG) chatbot using OpenAI's API, reducing student query resolution time by **60%.**
- Optimized **meta-llama/Llama-3.2-3B** via **QLoRA** fine-tuning on a domain-specific dataset, reducing resource usage by **50%** while improving model performance. The training ran comfortably on a single 16 gb GPU.
- Enhanced AI model performance using parallel computing and GPU acceleration, reducing inference latency by **40%**

Machine learning Intern at Herbs Magic October 2024-December 2024

- Worked with a team to engineer a Generative Adversarial Network (GAN) for high-quality image synthesis, optimizing model architecture for enhanced performance.
- Contributed to an image sharpening model using frequency domain filtering techniques, improving peak signal-to-noise ratio (PSNR) by **15%** and structural similarity index (SSIM) by **8%** on images.
- Reduced latency of models by about **30%**

AI - ML coordinator for coding club August 2023– Present

- Orchestrated multiple hands-on workshops and training sessions on machine learning fundamentals, covering regression, gradient descent, transformers helping 50+ students
- Designed and deployed an NLP and Machine Learning-based subjective answer evaluation system for a college website, enabling automated scoring (0-100) based on answer similarity for mock examinations and personalized question paper generation. Optimized the model to reduce latency by **20%**.

Projects

- Disease Detection using AI
  - Constructed a Disease Detection Model for a hackathon . Finished in the **top 15** among 500 students. Could detect Skin cancer, Tuberculosis and Pneumonia from x-ray images with a **85+ % accuracy**.
  - Built a scalable Flask-based API for multi-disease detection with optimized performance via multi-threading, caching, and secure user authentication.

- MarsSimNav:Terrain Aware Path Planning
  - Developed a DeepLabV3+ segmentation model using NASA's AI4Mars dataset to classify Martian terrain (soil,sand, bedrock, rocks) with 95% validation accuracy
  - Engineered an A* path planner to compute optimal navigation routes using dynamic terrain cost mapping

Publication

- Evaluating the Efficiency of Edge Detection Algorithms for Object Classification in CNN's IEEE ICDICI 2024

Education

College – B Tech in Computer Science at Vishwakarma Institute of Technology 2023-2027
Jee Score - 96.5% MHT-CET - score 99% NTSE AIR <2000

Certification

Fundamentals of Deep Learning Nvidia
Fundamentals of Accelerated Computing with CUDA Python Nvidia