Aditya Kushal

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Summary

Developed deep learning and computer vision models, focusing on model compression and domain-specific AI applications such as chatbots and object detection. Skilled in designing scalable AI/ML solutions and optimizing model performance for real-world deployment

Education

RV University – CGPA: 9.57/10 Bengaluru, KA
B.Tech in Computer Science, Minor in FinTech *Nov. 2022 – Jun. 2026*

Experience

Deep Learning Intern Sep. 2023 – May 2025
VectraTech Global *Bengaluru, KA*

- Designed deep learning models for breast cancer detection using annotated mammography datasets
- Implemented **BIRADS classification** (VGG16) and **Breast Cancer Object Detection** (YOLOv7)
- Trained **Breast Density Estimation** model on VGG16, reaching **99.76% accuracy** on the InBreast dataset
- Generated robust training/testing samples with **Augmentor** for data augmentation, improving generalization

Artificial Intelligence Intern Aug. 2023 – May 2024
Shaale *Bengaluru, KA*

- Built a **domain-specific chatbot** integrating **OpenAI API** with company knowledge base, improving response accuracy
- Enhanced retrieval relevance with **Cohere Reranker API**, boosting response quality for domain-specific queries
- Integrated **Tavily Web Search API** to provide real-time external knowledge, extending chatbot capabilities

Projects

Deep Model Compression | *PyTorch, NumPy, Torchpruning* Jun. 2025

- Applied **structured pruning** to CNNs (LeNet-5, VGG-16, ResNet-50, DenseNet-121) on MNIST and CIFAR-10
- Reduced parameters by up to **99.6%** and FLOPs by **98.5%** with only **0.8–5% accuracy drop**
- Achieved **14.5× model size reduction** (LeNet-5), enabling edge deployment

Obstacle Avoidance System for Visually Impaired | *YOLOv8-nano, PyTorch* May 2024

- Trained a **YOLOv8-nano detector** for potholes, poles, vehicles, and roadside stalls
- Added **auditory feedback** to guide visually impaired users during navigation

PDFBot Llama | *Python, LLaMA, OpenAI, Gradio* Sep. 2024

- Developed a system to **chat with PDFs**, supporting **local Ollama inference** and **OpenAI API** queries
- Built three versions: Jupyter (OpenAI), Jupyter (Ollama), and **Gradio web interface**
- Handled large PDFs (up to 200 pages) with **≈90% answer accuracy** and **≈28 sec average response time**; *slower due to local hardware constraints*, performing well on factual questions

Technical Skills

Languages: Python, C, SQL
Deep Learning: PyTorch, TensorFlow, YOLOv7/YOLOv8, Model Pruning/Compression, Transfer Learning
Machine Learning: Scikit-learn, Pandas, NumPy
APIs/Tools: OpenAI API, Cohere API, Tavily API, Git, Conda/Pip

Achievements

- Awarded merit-based scholarship for ranking in **top 5%** of B.Tech cohort
- Led the winning team in **Tarkash'25 Data Analytics** hackathon, focusing on **data cleaning, visualization (Tableau), and presenting actionable insights** to the jury