

## Summary

With a strong foundation in mathematics and over five years of programming experience, I am a dedicated and driven graduate student specializing in Artificial Intelligence and Machine Learning. My academic background includes a Bachelor's degree in Mathematics, providing a solid basis for my advanced studies and research. I have over two years of hands-on experience in machine learning, focusing on language modeling and the theoretical foundations of generative AI. I am eager to leverage my skills and knowledge as a research scientist, contributing to cutting-edge advancements in AI technology.

## Education

### Delhi University

Bachelor's Degree in Mathematics  
with a minor in Computer Science  
2019 – 2022

### Christ University

Master's Degree in Artificial Intelligence  
and Machine Learning  
2023 – 2025

## Skills

- Deep Learning Algorithms
- Image Recognition
- Natural Language Processing
- Cloud Computing (AWS, Vertex AI)
- Python, Julia, MATLAB, R Programming
- Computational Mathematics
- Probability and Statistics
- Problem-Solving
- Critical Thinking

## Certifications

- Natural Language Processing Specialization (DeepLearning.AI)
- Tensorflow Developer Certificate (Google)
- TensorFlow: Advanced Techniques Specialization (DeepLearning.AI)

## Professional Experience

### LLM Engineer

Christ University Digital Innovation Center 2024 – Present

- **Technology Stack** - Python, PyTorch, HuggingFace, AWS EC2
- Created an LLM-driven chatbot for the ERP system of the University.
- Finetuned multiple pre-trained LLMs after performing quantization using LoRA.
- Worked on function-calling capabilities of LLMs and fine-tuned an LLM for API call generation.

## Projects

### Visual Question Answering in the field of Radiology

**Technology Stack** - Python, PyTorch, HuggingFace, Transformers, OpenCV

- Developed a Vision Question Answering (VQA) system leveraging the Swin Transformer architecture to process and interpret visual inputs.
- Integrated advanced deep learning techniques including image augmentation and custom decoder modules for enhanced performance in visual question answering tasks.
- Achieved significant improvements in VQA accuracy by fine-tuning the Swin Transformer model, showcasing the potential of transformer-based architectures in multimodal AI tasks.

### Brain Tumor Detection

**Technology Stack** - Python, PyTorch, TensorFlow, Keras, OpenCV, Streamlit

- Developed a brain tumor detection model utilizing MRI images and transfer learning techniques to achieve high accuracy in tumor classification.
- Implemented data preprocessing and augmentation strategies to enhance the robustness and generalization of the model.
- Achieved an accuracy of over 96.41% with the Xception network and over 99% accuracy using ViT.