RISHIK GUPTA

College Station, TX

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Education

Texas A&M University	**August 2024 - May 2026**
Masters of Computer Science, GPA: 4.0/4.0	*College Station, TX*
Maharaja Surajmal Institute of Technology	**September 2020 - July 2024**
Bachelor of Technology in Computer Science and Engineering, GPA: 9.26/10	*Delhi, India*
Indian Institute of Technology Madras	**September 2021 - December 2023**
Diploma in Data Science, GPA: 8.95/10	*Remote*

Skills

Programming Skills: Python, C++, C, Kotlin, Java, SQL, NoSQL(MongoDB), HTML, and CSS.
Technical Skills: Data Cleaning & Analysis, ML/AI, Deep Learning, NLP, Computer Vision, and REST API development.
Other Skills: Pandas, Numpy, Matplotlib, Scikit-Learn, Git, Docker, Postman, Mathematics, Statistics, Pytorch, and FastAPI.

Professional Experience

Defence Research and Development Organization — **July 2023 - August 2023**
Machine Learning Intern — *Delhi, India*
- Implemented three state-of-the-art and one custom machine learning model using **Python, PyTorch, and pandas**, achieving over **90% accuracy** in classifying network traffic into 12 distinct classes.
- Collaborated with a team of top scientists to optimize and fine-tune models, leading to a **12%** increase in accuracy and an **8%** reduction in training time.
- Created a custom dataset with over **50,000** entries using **Wireshark** and performed packet identification and classification on this dataset to test the real-world outcome of custom model.

AI Shala Technologies — **April 2023 - June 2023**
Machine Learning Intern — *Delhi, India*
- Developed a **novel** natural language processing (NLP) model for classifying human and AI-generated text. Utilized Python and libraries such as **NLTK, spaCy, PyTorch, and BERT,** achieving an accuracy of over **95%** on the Hugging Face HC3 dataset.
- Collaborated closely with two professors and a team of 4 researchers, integrating advanced NLP techniques for sentiment and perplexity analysis, and text classification.
- Authored a comprehensive research paper detailing the innovative model and its applications. Compiled a robust training dataset containing **20,000** entries which added variation to the existing dataset, resulting in a 5% increase in the model's performance.

Growna EdTech — **February 2022 - May 2022**
Software Development Intern — *Remote*
- Engineered a native Android application from scratch using **Java and Kotlin** which contributed to a **50% increase in user engagement** and played a crucial role in securing a major client, boosting company revenue by 60%.
- Integrated RestAPI for seamless backend communication, leveraging **Postman** for API testing and **AdobeXD** for UI/UX prototype design, ensuring a robust and scalable application infrastructure.
- Monitored and optimized application performance post-launch to maintain high user satisfaction and engagement.

Projects

Custom GPT Model | *Python, PyTorch, NLP* — **December 2024**
- Developed a custom implementation of **decoder-based generative transformer** using Pytorch, trained on a dataset of over **1 million characters** to achieve efficient and coherent text generation.
- Implemented the **Byte Pair Encoding (BPE)** algorithm for tokenizer optimization, increasing performance on diverse datasets.
- Created a flexible framework supporting custom dataset training and fine-tuning, with tunable hyperparameters for scalable text generation.

Smart Attendance Tracker using Facial Recognition | *Python, Pytorch, Computer Vision, Docker* — **September 2023**
- Developed an application to track student attendance using facial recognition, improving efficiency of attendance management.
- Implemented **YOLOv8** for accurate face detection and integrated **FaceNet** with Spotify ANNOY for reliable face recognition, achieving over 95% accuracy.
- Generated a custom-designed dataset of over **10,000** facial images augmented using **albumentations** library and designed an API using **FastAPI** and deployed using **Docker**, enhancing model performance and streamlining application deployment.

Publications

Pronunciation Scoring With Goodness of Pronunciation and Dynamic Time Warping — **January 2023**
Kavita Sheoran, Arpit Bajgoti, **Rishik Gupta**, Nishtha Jatana, Geetika Dhand, Charu Gupta, Pankaj Dadheech, Umar Yahya, Nagender Aneja
IEEE Access 11 (2023) pp. 15485–15495. 2023

SwinAnomaly: Real-Time Video Anomaly Detection Using Swin Transformer and SORT — **October 2023**
Arpit Bajgoti, **Rishik Gupta**, Prasanalakshmi Balaji, Rinky Dwivedi, Meena Siwach, Deepak Gupta
IEEE Access 11 (2023) pp. 111093-111105. 2023