

Aeyan Ashraf

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EDUCATION

University of Massachusetts Amherst | Master of Science in Computer Science | GPA: 3.9/4.0 Sep 2023 - May 2025

Aligarh Muslim University | Bachelor of Technology (B.Tech.) in Computer Engineering Aug 2019 - May 2023

SKILLS

Programming Languages: Python, Java, SQL (MySQL), Bash, C++

Machine Learning: PyTorch, TensorFlow, Keras, Scikit-learn, TensorFlow Extended (TFX), MLflow, Hugging Face

Cloud: Docker, Kubernetes, Airflow, GitHub Actions, GCP

Technologies: Git, Firebase, Flutter, Linux, Latex, Large Language Models, Google Cloud Platform.

WORK EXPERIENCE

Goldman Sachs

Jan 2025 - Jun 2025

Machine Learning Researcher

Amherst, MA

- Developed a scalable **RAG** pipeline for SEC 10-K filings using Python, LangChain, and **GPT OSS 120B**, automating data ingestion, chunking, and multi-hop QA generation across enterprise-scale corpora.
- Engineered end-to-end ML pipeline for factoid extraction and answer grounding; implemented iterative LLM-based refinement achieving **94% precision in automatic evaluations**.
- Designed and deployed quality control workflows using **LLM-as-a-judge** scoring for fairness, reasoning traceability, and numeric fidelity across **1,000+ QA samples**.
- Benchmarked AI systems using **precision, recall, nDCG, BLEU, and ROUGE-L** to validate retrieval/generation robustness in high-stakes document QA systems.
- Work Submitted in EMNLP 2025.**

Binghamton University (SUNY)

Jan 2023 - May 2023

Cybersecurity Research Intern – Adversarial ML under Dr. Adnan Rakin

Binghamton, NY

- Extensively reviewed literature focusing on diverse backdoor attack methodologies targeting deep learning algorithms.
- Successfully executed trojan attacks with an 89% success rate**, underscoring the significance of safeguarding deep learning algorithms in Unsupervised Domain Adaptation showcasing the need for heightened security measures.

University of Maryland

May 2022 - Jul. 2022

Computer Vision Research Intern – Medical AI under Dr. Nayeem Teli

College Park, MD

- Designed and optimized CNN model (TeliNet 2.0) for large-scale radiology image analysis (140 GB); **improved diagnostic accuracy by 10% over baseline** European Conference on Computer Vision (ECCV) model.
- Reduced memory footprint by 30% using block pruning and quantization**, demonstrating strong model optimization for production-constrained environments.

Publications:

- A Vision Transformer-Based Approach to Bearing Fault Classification via Vibration Signals. [\[14th APSIPA ASC\]](#)
- Zea Mays Leaf Disease Classification using Swin-Transformer. [\[SIGMAA 2023\]](#)
- FINHOP: Benchmarking Retrieval-Augmented Generation for Multi-Hop Questions on Long Financial Documents [\[Under Review at EMNLP 2025\]](#)

PROJECTS

PerfectPitch | [Demo](#) | [Github](#) | Next.js, Tailwind CSS, Firebase, Gemini.ai, LLM, Assembly.ai

- Built an LLM-integrated mock interview and resume feedback platform, **using real-time voice-to-text (Assembly.ai) and Gemini-generated coaching**.
- Implemented NLP pipelines for ATS optimization, achieving measurable improvement in job match scores and interview preparedness.

What Makes Amherst Look Like Amherst? | [GitHub](#) | Python, TensorFlow, pandas, NumPy, CNN, Google Colab

- Curated and balanced a 60K+ frame cityscape dataset** for geographic image classification using stratified sampling and augmentation techniques.
- Trained interpretable CNNs (ResNet50, VGG16) with **93% test accuracy**; applied Grad-CAM visualizations and confusion matrix for insight extraction.

SSORT: Semantic Segmentation for Off-Road Traversability | [GitHub](#) | (Python, HuggingFace, PyTorch, Flask)

- Enhanced semantic segmentation for off-road terrain by integrating SegFormer, **improving IOU and pixel accuracy by 10% over traditional models**.
- Deployed scalable inference API with Flask, validating model performance via robust benchmarking (F1 Score, Pixel Accuracy) on geospatial datasets.

Awards & Certification

Hackathons (Rank): Hack413 (1st), HackUMass XI (1st)

Awarded Sir Syed Mentoring and Assistance Fellowship (SSMAF) recognizing academic excellence and research potential