MEERA HUSSAIN MORRIMEKALA

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EDUCATION

State University of New York at Buffalo Aug 2024 – Dec 2025
Master of Science in Computer Science (AI/ML Track) | GPA: 3.67/4.0

EXPERIENCE

Data Analyst Intern – Skill Scrolls Dec 2022 – Jul 2023

- Designed and implemented end-to-end ETL pipelines for insurance claims and warranty datasets from multiple sources using SQL and Power Query, **improving data consistency** and **reducing data quality issues** by ~**25%**.
- Performed large-scale data cleaning, transformation, and validation, enabling reliable analysis across ~**100K+ records**.
- Developed **interactive Power BI dashboards** to visualize KPIs including claim trends, warranty failure rates, and regional performance, supporting data-driven decisions for cross-functional stakeholders.
- Automated dashboard refresh and standardized reporting workflows, **reducing manual reporting** effort by ~**30%** and **accelerating insight delivery.**

Summer Intern – VNR VJIET Mar 2022 – Aug 2022

- Developed a CNN-based plant disease detection system using TensorFlow/Keras on **15,000+ labeled leaf images** across **8 disease categories.**
- Designed data preprocessing pipeline handling varied lighting conditions, rotations, and image quality variations to improve model robustness.
- Implemented data augmentation techniques improving classification accuracy by 15%.
- Integrated trained model with ThingSpeak IoT API for real-time automated disease alerts via SMS/email to farmers.

PROJECTS

Evidence-Based Research Paper Question Answering System (RAG)

- Designed and built a production-style Retrieval-Augmented Generation (RAG) system to support reliable question answering over research documents.
- Implemented document chunking, embedding generation, and similarity-based retrieval; evaluated performance using **relevance, faithfulness, and citation accuracy.**
- Exposed inference through REST APIs using FastAPI with request validation, logging, and error handling.
- Focused on debugging, performance tuning, and safe failure behavior when evidence was insufficient.

Sketch-to-Photo Face Translation using Pix2Pix GAN

- Executed conditional GAN for paired image-to-image translation on CUHK face sketch dataset with **200+ samples**; designed custom data augmentation pipeline to **mitigate overfitting**.
- Evaluated BCE vs LSGAN loss functions, achieving a 15% reduction in checkerboard artifacts and **SSIM 0.73, PSNR 22 dB**, outperforming baseline U-Net by **18%.**
- Packaged a Flask inference service using Docker, ensuring consistent deployment.

Multimodal Cardiovascular Risk Prediction from ECG Signals

- Converted PTB-XL ECG signals (**21,000+ patients**) into spectrograms and fine-tuned Vision Transformer (ViT-B/16) for patient-level embeddings.
- Designed a **multimodal fusion architecture** that combined ViT embeddings with clinical features through MLP using class-weighted loss; performed ablation studies that demonstrated an **improvement of 8%** with feature fusion.
- Achieved **86.7% accuracy** on held-out test set; integrated SHAP explainability and **analyzed failure cases** across noisy segments and distribution shifts.

TECHNICAL SKILLS

Programming: Python , SQL, HTML, CSS, Javascript
Data Science: Data mining, exploratory data analysis, predictive analytics, KPI development, data quality validation
Machine Learning: Predictive modeling, regression, feature engineering, model evaluation and validation, overfitting control
Backend & APIs: FastAPI, Flask, REST API development
Data Engineering: ETL pipelines, data preparation, LLM APIs
Databases & Platforms: PostgreSQL, MySQL, Docker
Visualization: Matplotlib, seaborn, MATLAB, Power BI

CERTIFICATIONS & ACHIEVEMENTS

- Machine Learning Specialization – Stanford & DeepLearning.AI , 2023
- **First Place** – CONVERGENCE 2K22 Software Project Hackathon