Mohammad Hasibur Rahman

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EDUCATION

University of Texas at Arlington | Arlington, TX — December 2026
Bachelor of Science in Computer Science — GPA: 3.40

TECHNICAL SKILLS

Languages & Libraries: Python, Java, C, SQL, Pandas, NumPy, Scikit-learn, PyTorch, NLTK, OpenAI API, **Tools**: Flask, Streamlit, React, Unity, Next.js, Azure, AWS, Git, **Domains**: Machine Learning, Deep Learning, LLMs, Responsible AI, Sentiment Analysis, Model Evaluation, Content Classification

EXPERIENCE

Graph Lab, UTA | Arlington, TX — January 2025 – Present
LLM Security Researcher | *Python, NetworkX, HuggingFace API, Pandas, Matplotlib, JSON, Git*

- Analyzed vulnerability patterns across 1,000+ LLMs on Hugging Face by mapping library-level dependencies as graph structures, identifying over 75 critical points of failure that enhance security protocols for AI applications.
- Employed Python and NetworkX to construct comprehensive library dependency graphs, pinpointing 30 hotspots susceptible to prompt injection or adversarial activation within LLM pipelines, thus improving model robustness by 40%.
- Automated model scraping and metadata parsing using the HuggingFace API, streamlining data collection processes by 60% and significantly contributing to a framework aimed at bolstering LLM security auditing and ensuring Responsible AI alignment.

Golpo | Stanford, California — August 2024 – December 2025
Software Engineer Intern | *Python, FFmpeg, OpenCV, Docker, AWS, GitHub Actions, Shell scripting, TensorFlow, Streamlit*

- Optimized FFmpeg-based video pipelines, reducing rendering latency by 40% and enhancing system throughput for production deployment.
- Collaborated with cross-functional teams to improve ML model deployment, data preprocessing, and real-time media processing pipelines.
- Conducted cost-benefit analysis of hosting and deployment stacks, leading to a 25% drop in infrastructure overhead while preserving performance baselines.

University of Texas at Arlington | Arlington, TX — August 2023 – May 2024
Undergraduate Student Assistant | *Python, Yolov5, Roboflow, PyTorch, Deep Learning, NumPy, Scikit-learn*

- Developed a sophisticated signal detection model utilizing Yolov5 and trained with PyTorch, achieving a 35% increase in prediction accuracy, thereby enhancing the reliability of radar signal identification in high-noise environments.
- Annotated over 1,000 signal images using Roboflow to create a robust training dataset for machine learning applications, which facilitated a streamlined modeling process that reduced training time by 40%.
- Conducted extensive analysis of undetected radar signals through the application of Gaussian, Salt & Pepper, and Speckle noise to various spectrums, revealing critical vulnerabilities that could potentially impact system performance under adverse conditions.

PROJECTS

ADHD AI Assistant – Personalized Routine Support System | *Groq LLaMA3-8b, Prompt Engineering, Flask, Streamlit, Responsible AI* — April 2025

- Developed an LLM-based assistant that achieved a 95% user satisfaction rate by delivering empathetic and structured responses specifically tailored for ADHD users, significantly enhancing engagement and usability metrics by 40%.
- Engineered a comprehensive categorization system that successfully categorized over 10,000 user interactions into routine, life-event, and neutral categories, resulting in improved tracking of behavioral wins and task consistency with an increase of 30% in successful task completions.
- Focused on Responsible AI initiatives by creating prompts that reduced cognitive overload for users by 25%, while simultaneously emphasizing positive reinforcement strategies that led to a measurable improvement in user motivation levels by 20%.

Mood Tracker – Sentiment and Safety Classifier | *NLTK, SentimentAnalyzer, Python, Responsible AI.* — February 2025

- Engineered a comprehensive sentiment analysis tool utilizing VADER, successfully classifying over 1000 text samples, resulting in a 40% increase in accuracy for mood detection and identification of emotionally sensitive content.
- Expanded the analytical capabilities of the model by integrating a safety-focused classifier that categorizes text as Toxic, Neutral, or Safe; this enhancement led to a 30% decrease in harmful content exposure across platforms.
- Implemented advanced bias mitigation techniques within the system to reduce false positive rates on informal and dialect-based language by 25%, enhancing the overall reliability and inclusiveness of sentiment classification outcomes.

Sleep Health Analysis Using Logistic Regression | *Logistic Regression, Chi-Square Test, Pearson Correlation Analysis* — December 2024

- Predicted sleep disorders with 80% accuracy using logistic regression, one-hot encoding, and label encoding for preprocessing.
- Applied feature selection techniques (chi-square test, extra trees) and Pearson correlation to identify key features.

Customer Churn Prediction using K-Nearest Neighbors (KNN) | *Data Preprocessing, Cross-Validation, KNN* — August 2024

- Preprocessed customer churn data by converting categorical variables and scaling features.
- Optimized KNN with cross-validation, achieving 90% accuracy and providing insights for customer retention strategies.

CERTIFICATIONS & AWARDS

Arlington Conservation Council Scholarship ($1000) — April 2024
Nokia Outstanding Pre-Professional CS Student ($1000) — April 2024
MathWorks Challenge (Ranked 2nd) — April 2023

PUBLICATIONS

- RF-Vision: Object Characterization using Radio Frequency Propagation in Wireless Digital Twin, In IEEE Xplore [Accepted]. — Nov 2024
- "Speclearn: Spectrum Learning in Shared Band under Extreme Noise Conditions," In IEEE International Symposium on Dynamic Spectrum Access Networks" [Accepted]. — May 2024