Aaryaa Moharir

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EDUCATION

University of Texas at Dallas, Richardson, TX *May 2026*
Bachelor of Computer Science *GPA: 4.0/4.0*
Coursework: Computer Science 2, Database Systems, Adv. Algorithms, Data Structures and Algorithms

EXPIERENCE

University of Texas at Dallas, Richardson, TX
Undergraduate Researcher in Jee Lab August 2024 – Present

- Part of a lab that focuses on malicious activity detection by analyzing the files, Ip events, and processes started throughout a network and finding the attack pathway by using various strategies. Worked on 6 variations of a strategy that prioritized processes using C# and am currently working on establishing a database with event counts using MongoDB, SQL, and C#

Undergraduate Researcher February 2023 – Present

- Researched and implemented hallucination detection mechanisms in Large Language Models, including RunREF, RunCove, and Sac3, to evaluate performance and compare their effectiveness.

Cyber Security Research and Education Institute Intern June 2022 – August 2022

- Acquired knowledge in diverse access control systems, the impact of quant on cybersecurity, Big Data security, and Cloud-based security during an intensive learning experience guided by Dr. Thuraisingham.
- Collaborated with three peers to design and develop a Java program simulating a college applications process, incorporating a role-based access control system and GUI.

Itech Excel
Intern June 2024 – August 2024

- Developed an AI-based tool to detect vulnerabilities in System Verilog code using natural language processing (NLP) techniques, specifically leveraging the BERT model.
- Compiled a comprehensive list of hardware vulnerabilities using databases like Common Weakness Enumeration (CWE) and generated synthetic System Verilog code samples to replicate real-world scenarios using AI tools such as ChatGPT and Claude.
- Preprocessed data using the CodeBERT tokenizer, transforming System Verilog samples into a format suitable for input into the BERT model, and labeled samples to indicate the presence or absence of vulnerabilities.
- Fine-tuned a pre-trained BERT model for vulnerability detection by experimenting with learning rates, batch sizes, and activation functions (gelu, ReLU, and leaky ReLU) to optimize performance.

PROJECTS

Coordination App for Wellness Center for Older Adults August 2024 - Present

- Developed a full-stack coordination application for a wellness center, designed to streamline service scheduling and communication for older adults.
- Built the frontend using React, Tailwind CSS, and JavaScript, enhancing user experience with an intuitive interface tailored for accessibility.
- Designed and implemented Docker containers to streamline deployment, ensuring consistency and scalability across development environments.

Detect and Defend December 2023 – May 2024

- Led and mentored a team of five in developing a Python-based machine learning model to attack Federated Learning systems by reconstructing original training datasets through gradient reversal.
- Utilized the LeNet-5 architecture and multiple datasets, including MNIST, to train and evaluate a General Regression Neural Network (GRNN) model.

Ransomware Attack Simulation August 2021- May 2022

Leveraged Metasploit, a widely used penetration testing tool, for generating a reverse shell to access the victim device on a virtual machine

- Built and deployed a Python-based keylogger that bypassed the Windows firewall, an HTML-created phishing website with source code emulation, and ransomware programmed using Java to effectively crash the victim's computer.

CERTIFICATES

- Earned the "Java", "Cybersecurity", and "Network Security" IT Specialist certifications from Certiport.
- Earned the Google Cybersecurity Certificate and pursuing the Google UX Design Certificate.
- GIAC Foundational Cybersecurity Technologies (GFACT) Certified