

# Md Tahsin Mostafiz

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## Summary

- Hands-on experience with hardware security projects, specifically SEM-based anomaly detection and Trojan/defect inspection workflows.
- Proficient in applying LLMs for analysis and code review; seeking software intern roles in security-focused product development.

## Technical Skills

- **Programming & Software:** Python, C++, Git
- **ML/CV:** PyTorch, DDP workflow, TensorFlow, OpenCV, Scikit-Learn
- **LLMs:** RAG, Quantization, prompt engineering, GraphRAG
- **Hardware Security & Assurance:** Trojan detection, SEM-based inspection, VLSI & verification basics
- **Reliability, Interpretability & Visualization:** SHAP, Captum, Streamlit, Gradio

## Highlighted Experience

### Dept. of Computer Science and Engineering, University of Texas at Arlington

Graduate Teaching Assistant and PhD Student

Arlington, TX

Jan 2025 – Present

- Prepared concise instructional materials and assignments for an advanced computer vision course.
- Researching video frame interpolation using *RGB* and event-based camera data.

### Department of Electrical and Computer Engineering, University of Florida

Graduate Research Assistant, Florida Institute for Cybersecurity (FICS)

Gainesville, FL

Jan 2021 – May 2023

- Developed a Python-based computer vision toolkit for SEM imagery to flag potential hardware Trojan/defect anomalies in IC layouts.
- Integrated Grad-CAM and saliency-based explanations to help security engineers quickly inspect suspicious regions and make assurance decisions.
- Co-authored the EVHA work (ACM JETC), combining hardware security domain knowledge with ML-based inspection and explainability.

### Department of Biomedical Engineering, University of Florida

OPS Researcher, Intelligent Health Systems (i-Heal) Lab

Gainesville, FL

2022 – 2023

- Built ICU acuity assessment features from multimodal data (vitals, text, video).
- Used LLMs and interpretability tools (*SHAP*, *Captum*) to analyze clinical text and explain model outputs in a safety-critical ICU setting.

### AI Samurai Japan Limited

Machine Learning Engineer

Dhaka, Bangladesh

Dec 2019 – Dec 2020

- Built anomaly-detection models and transformer-based NLP pipelines for sentiment analysis and product defect analysis in production.

### Semion Limited

Machine Learning Researcher

Dhaka, Bangladesh

Mar 2017 – May 2019

- Developed CNN-based image analysis models for clinical applications.

## Relevant Projects

- **EVHA (Hardware Assurance, SEM Vision):** explainable computer vision pipeline for anomaly detection in IC SEM inspection (ACM JETC).
- **ICU Acuity Assessment:** multimodal (vitals, text, video) risk scoring with explainable ML and LLM-based clinical text analysis in a safety-critical setting.
- **SemRad Tooling:** Python-based inference and CAM-style visualization tool (ResNet101) to assist clinicians in reviewing chest X-ray abnormalities.
- **Dashcam Object Detection:** Semi-supervised electric-pole detection using Faster R-CNN (ResNet50) and YOLOv4, with an Android/Flutter frontend.
- **NLP/LLM-related Work:** Transformer-based Sentiment Analysis Models, Alexa “Symptom Checker” and Android app (semDDX) for guided differential diagnosis.
- **Competitions:** APTOS 2019 Blindness Detection (Silver), SIIM-ISIC Melanoma Classification (Bronze).

## Education

### University of Texas at Arlington

PhD Student in Computer Science (Computer Vision & AI)

Arlington, TX

Jan 2025 – Present

### University of Florida

M.S. Electrical & Computer Engineering (Hardware Security & AI)

Gainesville, FL

Spring 2024