MD SHAH IMRAN SHOVON

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● Graduate Research Assitant, University of Florida ● shah-imran.github.io ● Gainesville, Florida

EDUCATION

Ph.D. in Electrical & Computer Engineering (Ongoing) January 2025 – Present

University of Florida, Gainesville, Florida **CGPA:** 4.00/4.00 (9 credits)

B.Sc. in Electrical & Electronic Engineering July 2020

Shahjalal University of Science and Technology, Sylhet, Bangladesh

CAREER OBJECTIVE

Develop multimodal AI such as computer vision, LLMs, and VLMs to optimize physical inspection of semiconductor devices, support failure analysis, and strengthen hardware assurance. Translate these models into robust, high-throughput inspection workflows and tools used across industry and research.

PROFESSIONAL EXPERIENCE

SCAN Lab, ECE, University of Florida, GNV, FL, USA Jan 2025 – Present

Graduate Research Assistant

- Built a pinhole based pipeline for counterfeit IC detection, from dataset curation to model training and evaluation.
- Co-developed WaveFormer model for 3D medical image segmentation and ran large-scale DDP training on multi-GPU clusters.
- Trained on X-ray laminography/tomography acquisition and reconstruction (SIGRAY APEX Hybrid), then applied workflows in practice.
- Contributed to datasets and models development, including prompt/label schemas, preprocessing.

HowardMiller, Zeeland, USA Oct 2021 – Dec 2024

Full Stack Developer (Remote)

- AI strategy development with Deep Learning for optimizing budget distribution in PPC campaigns (Tensorflow, Keras, Pandas, Scikit-Learn).
- Design and Develop new features, optimize the old ones, and integrate third-party API solutions(Flask, Django, Celery, Redis, Postgres, Linux, Gunicorn, Apache, AWS, Reactjs, API).

Gmonster.co, Balatonalmádi, Hungary Sep 2018 – Oct 2021

Project Lead (Remote)

- Responsible for overseeing the whole development pipeline.
- Designed and Developed the whole product (Mass Email Marketing App) from scratch and the subscription system(Python, PyQt5, Database, Flask, Javascript, Linux Server).

EnableGeek, Dhaka, Bangladesh Jun 2022 – Dec 2024

Founder

- Responsible for designing and overseeing the whole operation pipeline.
- Managing the Content Development team and the Tech team.

PUBLICATION

Accepted

- Al, Zaman, M., Jawad, A., Santamaria-Pang, A., Lee, H. H., Tarapov, I., See, K., **Imran, M. S.**, Roy, A., Fallah, Y. P., Asadizanjani, N., & Forghani, R. (2025). **WaveFormer: A 3D Transformer with Wavelet-Driven Feature Representation for Efficient Medical Image Segmentation.** ArXiv.org. https://arxiv.org/abs/2503.23764 (MICCAI 2025)

- **A Novel Framework for Identifying Counterfeit ICs via Pinhole Evaluation**. **Md Shah Imran Shovon**, Shajib Ghosh, Patrick J. Craig, Chien-Chia Huang, Chih-Yun Pai, Navid Asadizanjani. (RAPID 2025).
- **Deep Learning-Driven X-ray Analysis for High-Throughput Manufacturing**. Patrick J. Craig, Antika Roy, Shajib Ghosh, **Md Shah Imran Shovon**, Nitin Varshney, Navid Asadizanjani. (RAPID 2025).
- **Shah, M.** (2024). **Evaluating YOLO Object Detection Models Under Adverse Lighting Conditions.** Bulletin of the American Physical Society; American Physical Society. https://meetings.aps.org/Meeting/MAR24/Session/NN00.63
- **Shah, M.** (2024). **Evaluating and Enhancing Image Caption Generation: A Comparative Study of LSTM and GRU Models with Object and Feature Recognition Strategies.** Bulletin of the American Physical Society; American Physical Society. https://meetings.aps.org/Meeting/MAR24/Session/FF00.50

In Review

- **PINCLASS: Pinhole-Centric Counterfeit Classification of IC Packages**. **Md Shah Imran Shovon**, Chih-Yun Pai, Shajib Ghosh, Chien-Chia Huang, Patrick J. Craig, Navid Asadizanjani. (PAINE 2025).

PROJECTS HIGHLIGHTS

Physical Inspection of Electronics: Counterfeit Detection | Research Project   2025 – Present
- Designed a pinhole-image acquisition and preprocessing pipeline for IC packages, and automated defect ROI extraction.
- Trained and evaluated CNN/transformer classifiers to distinguish authentic vs. counterfeit parts, achieving good precision/recall on an in-house dataset.
- Built a multimodal optical-image dataset and VLM training setup to extend classification and explanation beyond pure vision models.

LLaMA Fine-Tuning with LoRA & QLoRA | Research Project   2025 – Present
- Contributed to building a physical-inspection dataset (collection, labeling standards, QC pipeline).
- Set up reproducible training environments with Pipenv and Pyenv on the lab server
- Assisted in distributed training with torchrun and Refactoring & optimizing the codebase (modularization, speedups, clearer configs).
- Added pytest coverage and performed code reviews to enforce style and reliability.

Machine Learning | Artificial Intelligence | Computer Vision Projects   2017 – Present
- Analyzing the Consequences of High-Intensity Light Yolov5 and Strategies for Defending Against Adversarial Attacks (Yolo, Python) GitHub
- Custom Object Detection and Tracking using Darknet (Darknet-yolo, Python) GitHub, Youtube
- Dataset Creation for Training Custom Yolo Model (Yolo, Linux Shell Scripting) Drive
- Auto Vehicle Entry Management for Apartment (OCR, Darknet-yolo, Python) GitHub
- Live Speed Detection of Vehicle (Darknet-yolo, Python) GitHub, Youtube
- Classification of Tweets from Twitter (Python, NLTK, Scikit-learn)

Academic Projects   2014 – 2020
Collaborated as a "Research Assistant" on three Official Projects supported by the UGC (University Grants Commission), leading the last two initiatives as Team Leader.
- Developing An Autonomous Underwater Vehicle & Navigation System (Arduino, Microcontroller)
- Automatic Attendance Taking with RFID (Python, Socket Programming, SQL)
- Developing An UGV and a Human Assistant (Python, Raspberry Pi, Socket Programming, Image Processing, Lidar)

Robotics & Electronics Projects   2014 – 2020
- Line Follower Robot with Automatic Collision Avoidance System
- Maze & Grid Solver Robot
- Remote Controlled Vehicle
- Auto Balancing Bot (Control System Project)
- DX Ball Game With Dot Matrix Display and Arduino (Microprocessor Project)

- Egg Incubator

Software Projects   2017 – Present
- Tradeshow Lead Scanning Website
- Personal Trainer Website - Video
- Lead Mining Website
- Smart Class Updates
- **Scraping Application:** Craiglist Scraper, Linkedin Scraper
- **Automation Bot:** Mass Email Marketing App(MVC), Auto SMS Sending Bot, Copy Assister App
- **Desktop Application:** Pi Camera Booth Controller with Python, Workout Generator for GYM - Video

RESEARCH CONTRIBUTIONS

Tech Licenses | Datasets   2025 – Present
- DeepICLogo v2 Dataset: IC Optical Image Dataset for Logo Recognition (Ongoing)

PROPOSAL/GRANT WRITING

- Assisted in preparing the **NSF MRI** grant proposal "**Generative Multimodal Intelligence for Diverse Scanning to Minimize Expert Oversight (GIDE)**"

REVIEWER ACTIVITY

- Reviewed **3** journal manuscripts for **IEEE (T-IFS, TCAD)** and **Elsevier's Microelectronics Reliability**, covering hardware assurance, X-ray/PCB inspection, and deep learning.

TECHNICAL SKILLS

Programming Languages: Python, Java, C++, C, Matlab, Processing, Arduino, JavaScript, Flutter, Dart, Assembly Language (8086)
Libraries: Scikit-learn, TensorFlow, Keras, PyTorch, YOLO, NumPy, SciPy, Pandas, Selenium, Requests, Beautifulsoup4, Scrapy, Matplotlib, Seaborn, Bokeh, Selenium, Requests, Beautifulsoup4, Scrapy, Django, Flask, React
Databases: SQL, Firebase, MongoDB, Pickle
Environments: Anaconda Environment, Jupyter Notebook, Pipenv

TRAINING & EXTRA CURRICULAR ACTIVITIES

- Participated in 12 national Robotics competitions and been in Leader positions for most of them. Most of the competition was on Line Follower Robot, Maze and Grid Solver, Robo fights, etc. Also, I attended some Electronics Project fairs as well.

- Became 1st runner-up of Robomania, Esonance at IUT in 2015. It was a combination of Line following, Obstacle Avoidance, and a Remote Controlled Bot with hands to carry objects to designated places on challenging terrain.

- Top Up IT training on Java conducted by Ernst & Young LLP, India under the LICT project, and the program is certified by George Washington University, USA.

- Completed AWS Cloud Practitioner training course in 2020. Topics consisted of Analytics, Compute and Serverless, Containers, Database, Network and Content Delivery, Storage and Management, Monitoring, and Governance.

- Experience in teaching Maths, Physics, and Chemistry to high school students.

- Organizing member at EEE Fest-2018. Organized robotics competition policy and challenges.

REFERENCES

- **Name:** Dr. Navid Asadi
- **Position:** Associate Professor
- **Department:** Dept. of ECE
- **Institution:** University of Florida, GNV, FL
- **Email:** nasadi@ece.ufl.edu