

MD Tahsin Mostafiz

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Education

HERBERT WERTHEIM COLLEGE OF ENGINEERING, ECE Department, UNIVERSITY OF FLORIDA

Gainesville, Florida

MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING

Graduated : Spring, 2024

- Major: Signal and Systems CGPA: **3.77/4.0**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)

Dhaka, Bangladesh

BACHELOR OF SCIENCE IN ELECTRICAL AND ELECTRONIC ENGINEERING

Graduated : February, 2017

- Major: Power System Minor: Electronics CGPA: **3.23/4.0**

Work Experience

Dept. Of BME, University of Florida

Gainesville, FL

OPS STUDENT

February, 2024 -

- Acuity Assessment for patients in ICU using wearable sensors.
- Mobility Assessment for early predictive analysis of patients' acuity in ICU using wearable sensors.

Dept. Of ECE, University of Florida

Gainesville, FL

OPS STUDENT

May, 2023 - January, 2024

- Head and Neck Cancer staging via lymph node segmentation using Convolutional Neural Network (CNN) and volumetric CT images.
- Head and Neck Squamous Cell Carcinoma (HNSCC) type detection from Dual Energy CT Radiomic features.

AI Samurai Japan Limited

Dhaka, Bangladesh

MACHINE LEARNING ENGINEER

Dec 2019- Dec 2020

- Semi-supervised anomaly detection task with metric learning loss.
- Android application development for object detection task.
- Natural language processing (NLP) based sentiment analysis task using transformer language models.

mHealth Laboratory, BME Department, BUET

Dhaka, Bangladesh

RESEARCH ASSISTANT

October 2019- December
2019

- Worked on disease classification and abnormality localization in X-ray and CT images.

Semion Limited

Dhaka, Bangladesh

MACHINE LEARNING RESEARCHER

March 2017- May 2019

- Developed deep learning (DL) based models for disease classification from chest X-ray images.
- Developed Amazon echo skills and android app for differential disease analysis.

Skills

Programming Languages

C, C++, MATLAB, JAVA, Python

Libraries & Frameworks

OpenCV, BeautifulSoup, Pandas, Numpy, ROS

Machine Learning Frameworks

Scikit-Learn, Tensorflow, Keras, PyTorch, Pytorch-Lightning, Fast.ai

Integrated Development Environment

PyCharm, Android Studio, IntelliJ IDEA, Visual Studio, Arduino

Hardware Description Languages

VHDL

Hardware Design Tool

ModelSim, Vivado

Hardware

Arduino, Raspberry Pi, AVR Microcontrollers

Highlighted Publications

- “The Potential of Wearable Sensors for Assessing Patient Acuity in Intensive Care Unit (ICU)” Jessica Sena, **Tahsin Mostafiz**, Jiaqing Zhang, Andrea Davidson, Sabyasachi Bandyopadhyay, Ren Yuanfang, Tezcan Ozrazgat-Baslanti, Benjamin Shickel, Tyler Loftus, William Robson Schwartz, Azra Bihorac, Parisa Rashidi, preprint [!\[\]\(467d80e979964f7f8c752fb22248b5b7_img.jpg\)](#)
- “Automated Segmentation of Lymph Nodes on Neck CT Scans Using Deep Learning” Md Mahfuz Al Hasan, Saba Ghazimoghadam, Padcha Tunlayadechanont, **Tahsin Mostafiz**, Manas Gupta, Antika Roy, Keith Peters, Bruno Hochegger, Anthony Mancuso, Navid Asadizanjani, Reza Forghani, Accepted at *Journal of Digital Imaging*
- “EVHA: Explainable Vision System for Hardware Testing and Assurance - An Overview” MD Mahfuz Al Hasan, **Tahsin Mostafiz**, Thomas An Le, Jake Julia, Nidish Vashistha, Shayan Teheri, and Navid Asadizanjani, Accepted at ACM JETC
- “A Web-based Assistive Tool for Emergency Physicians in Diagnosing Intracranial Hemorrhage Subtypes from 2D Brain CT Images” **Tahsin Mostafiz**, Rifat Jahan Azad, Nawsabah Noor, Shajib Ghosh, Haris Sair, Paul Nagy, Taufiq Hasan, Society for Imaging Informatics in Medicine (SIIM) 2020 Annual Meeting, June 2020, Austin, Texas, USA (abstract) [!\[\]\(b71552d33dbf62adf5e5199a70ee02bf_img.jpg\)](#)
- “Pathology Extraction from Chest X-Ray Radiological Reports: A Performance Comparison” **Tahsin Mostafiz**, Dr. Khalid Ashraf [!\[\]\(03134b765d1473836ff001925b1b0550_img.jpg\)](#)

Professional Projects & Experiences

ALGORITHM

- Development of a semi-supervised object detection pipeline for electric pole detection from car dashboard camera images using *Fast-RCNN* with *Resnet50* backbone and *YoloV4*.
- Co-development of a semi-supervised CNN model for abnormality detection in dairy product images.
- Backend deep learning algorithm development of **RadAssist** [!\[\]\(cf5be311f7b2821912d8009884508fa2_img.jpg\)](#), a web application for the detection and localization of *Intracranial Hemorrhage* from brain CT images.

TOOL

- Co-development of a flutter based android app for electric pole detection from images captured using car dashboard cameras.
- Co-development of **SemRad**, an inference tool and a class activation mapping (CAM) Tool Using *ResNet101* for Detection and Localization of Abnormalities in Chest X-ray Images for this software.
- **semDDX**, an Android app was designed to help the users navigate the vast landscape of differential diagnoses (DD) and help medical students to learn DD easily.
- **Differential Diagnoses**, an Amazon Alexa skill was designed to help the users find all differential diagnoses for a symptom.
- **Symptom Checker** an Amazon Alexa skill was designed to help the users detect disease from symptoms.

DEEP LEARNING COMPETITIONS

- Silver Medal in **APTOS 2019 Blindness Detection** [!\[\]\(97faa0168e491544be255cfcab218e9b_img.jpg\)](#)
- Bronze Medal in **SIIM-ISIC Melanoma Classification** [!\[\]\(b2166b76608b8499cffc130bf1b1fe60_img.jpg\)](#)

STUDENT SUPERVISING

- Mentored an undergraduate student in his thesis work titled “*COVID Infection Analysis via Lung Lobe Segmentation using Deep Learning*”.
- Supervised two high-school students to get them familiar with research work in hardware security and machine learning under the *Student Science Training Program (SSTP)*.