DM

Duong (Eric) Mai

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RESEARCH INTERESTS

Out-of-Distribution Learning, Medical Image Analysis, Representation Learning, Healthcare, Computer Vision

EDUCATION

University of South Florida (USF), Tampa, FL — Expected: May 2026
B.S. in Computer Science, Minor in Mathematics — Cumulative GPA: 3.92/4.00
Selected Coursework: Deep Learning (Graduate), Intro to AI

RESEARCH EXPERIENCE

Multimodal Assessment of Neonatal Pain Using Computer Vision 2025 - Present
Research Experience for Undergraduate (REU)

- To develop a robust and comprehensive automatic system that generates a standardized pain assessment for neonate pain comparable to those obtained by conventional nurse-derived pain scores
- To migrate data preprocessing tasks to high-performance machine
- **Advisor:** Prof. Yu Sun (USF) [Webpage], Jacquenline Hausmann, Anthony McCofie

Invariant Risk Minimization (IRM) Framework Evaluation 2024
Research Assistant [Poster]

- Designed and ran tests for Invariant Risk Minimization (IRMv1) against Out-of-Distribution colored MNIST dataset
- Performed meta-analysis of experiment results with original paper and follow-up studies
- **Advisor:** Prof. Lawrence Hall (USF) [Webpage]

Surface Tension Prediction with Over-Complete Autoencoder 2024
Research Assistant

- Developed a pipeline using both an overcomplete autoencoder and a neural network to predict surface tension for copolymer compatibilizers and improved generalization on unseen datasets through adaptive training
- **Advisor:** Prof. Lawrence Hall (USF) [Webpage]

Moffitt AI Interface for Cancer Research (MAI-CARE) 2023 — Present
Student Trainee

- Implemented a UI/UX testing pipeline for a Django-based API aimed to train, evaluate, and customize models on medical imaging datasets
- Mined 5000+ de-identified Hepatocellular Carinoma (HCC) patient scans and radiology reports with PowerShare, GEPACSUV, and Conquest
- **Advisors:** Naveena Gorre, Ruwani Fernando and Prof. Issam El Naqa (Moffitt Cancer Center) [Webpage]

PROJECT

Less Confusion in Diffusion 2025
Contributor at BrainHack Vanderbilt 2025 [Code]

- Fine-tuned Microsoft's BiomedCLIP model on curated diffusion image slices, developing a Vision-Language Model-based tool to identify common issues in Diffusion-Weighted Images and recommend solutions
- **Main Contribution:** Designed a JSON-based dataloading pipeline in PyTorch to streamline dataset preparation and integration for model training

Interactive Interface for Glioma Segmentation 2025
Independent Project [Code]

- Developed an interactive MRI segmentation interface compatible with the Vanderbilt Decathlon dataset (BraTS 2018), allowing users to segment any slice of their input MRI sequence
- Trained an encoder-decoded-based CNN with autoencoder regularization in PyTorch and managed artifacts on W&B, delivering a robust end-to-end solution for brain tumor segmentation

Custom Hand Gesture Recognition Based Flappy Bird 2024
Independent Project

- Trained a Neural Network on MediaPipe hand landmarks for hand gesture recognition to build a keyboard-free gameplay

CONFERENCE POSTER

Can Invariant Risk Minimization (IRMv1) overcome shortcut learning? 2025
Duong Mai, Lawrence Hall
Florida Undergraduate Research Conference (FURC) 2025 [Poster]

TEACHING EXPERIENCE

Teaching Assistant — CDA3201 Computer Logic and Design (USF) 2024 — Present
Tutor — Programming/ Calculus/ Statistics Tutoring Help at Academic Success Center (USF) 2024 — Present

AWARDS

3rd place, Emory Health AI Bias Datathon 2024 summer

- Implemented a Breast Cancer Risk Prediction model using EMory BrEast Imaging Dataset (EMBED)

College of Engineering Dean's List 2022 — Present
USF Green and Gold Scholarship 2022 — 2026
Undergraduate Engineer's Scholarship Fund 2023 — 2024
Harry and Dorothy Kupferer Scholarship 2024 — 2025

PROGRAMMING SKILLS

Languages: Python, C/C++, LaTex
Technologies: Numpy, Pandas, Scikit-Learn, PyTorch, MONAI, Tensorflow, Matplotlib, OpenCV, Django, Selenium, PyTest

SERVICE

Social Media Manager 2024 — Present
IEEE-CS Student Branch Chapter at USF [LinkedIn]

- Led marketing for TechX Florida, the first student-run TechX mini-conference in the USA and Canada, attracting 150+ participants and driving engagement for the ongoing Tech Horizons Summit across multiple social media platforms.