Thomas Twomey

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EDUCATION

University of Michigan   Ann Arbor, MI
Computer Science and Engineering, PhD program   *Aug. 2023 – Current*
Advisor: George Tzimpragos

Virginia Tech   Blacksburg, VA
College of Engineering, Bachelor of Science in Computer Science   *Aug. 2017 – Dec. 2020*
College of Science, Bachelor of Arts in Economics
Graduated Summa Cum Laude, Cumulative GPA: 3.95/4.00

RESEARCH ARTIFACTS

On the Characterization of the Performance-Productivity Gap for FPGA
IEEE International High-Performance Extreme Computing (HPEC) Conference, September 2022

Deep Learning Architectures for FSCV, a Comparison
Preprint, https://arxiv.org/abs/2212.01960

RESEARCH EXPERIENCE

Scientific Programmer / Data Analyst   June 2021 – May 2023
Montague Lab : Fralin Biomedical Research Institute at Virginia Tech Carillon   *Roanoke, VA*
- Developed, tested, and deployed machine learning models for prediction of in-vivo neurotransmitter concentrations
- Implemented and maintained automated in-vitro and in-vivo data processing pipelines for prediction, visualization, and validation purposes
- Developed software techniques to identify, quantify and suppress electrical noise from low amplitude voltammetry recordings
- Designed automated/robotic in-vitro data collection apparatus to increase data collection throughput by an order of magnitude and to increase quality of the data

Undergraduate Research Assistant   Feb. 2020 – Dec. 2020
SyNeRGy Lab : Virginia Tech Department of Computer Science   *Blacksburg, VA*
- Developed High Level Synthesis and Register Transfer Language implementations of computing kernels (Sobel Filter, K-means clustering, FFT) for quantification of performance / productivity trade-off

Volunteer Research Assistant   Aug. 2020 – Dec. 2020
Dr. Yang Yi's Lab, Virginia Tech Department of Electrical and Computer Engineering   *Blacksburg, VA*
- Assisted with investigation of Spiking Neural Networks (SNN) for FPGA
- Performed cursory literature survey of existing SNN architectures and hardware implementations
- Conducted limited simulation of SNN models with PyTorch based library

Volunteer Research Assistant   Feb. 2019 – May 2019
Virginia Tech Department of Economics   *Blacksburg, VA*
- Assisted with behavioral economics risk perception experiment
- Developed oTree(Django derivative) based web app for a behavioral economics experiment

TEACHING EXPERIENCE

Undergraduate Teaching Assistant   Jan. 2019 – May 2019
Virginia Tech Department of Computer Science   *Blacksburg, VA*
- Guided ∼ 100 students on projects related to Linux Environments, C programming, and x86 Assembly
- Provided extensive help debugging student code and promoted simple debugging techniques