Robert Canady

3101 West End Ave., Apt. 115
Nashville, TN 37203
T (740) 794-1488
robert.e.canady@vanderbilt.edu - robcanady@gmail.com
https://github.com/canadyre

Summary

Passionate scientist, teacher, and engineer with 6+ years of research and teaching experience that would like to use expertise in ML, adversarial ML, and deploying AI/ML at the Edge to tackle some of the world's most challenging problems. Strives to make novel and impactful contributions in this area that could positively impact many people. Very receptive to feedback, new information, different views, or even change in direction for projects.

Skills

Programming:	Python, Numpy, Pandas, Pytorch, OpenCV, C
Edge Computing:	Jetson Devices, Raspberry Pi, ZMQ
Operating Systems:	Linux (Ubuntu 18.04+, 20.04+), Windows 10
Other Computer Skills:	Docker, HPC, Google Docs, MS Docs

Experience

Robust and Secure Machine Learning Intern | ATR Center – Dayton, OH

Summer 2020, Summer 2021, AY 2021-2022, Summer 2022, Fall 2022

- Worked with mentors, other interns, and leaders of the AFRL where I gained experience with HPC, Singularity, PyTorch, Tensorflow through the development of adversarially robust computer vision machine learning models as well as the presentation of research findings.

Graduate Research Assistant | Vanderbilt University – Nashville, TN

August 2018 – May 2020, August 2020 – January 2022, January 2024 - Present

- Benchmarked distributed communication technologies such as OPCUA and DDS by building a raspberry pi cluster as a testbed for experimentation.
- Utilized the DDDAS paradigm for research around the performance monitoring of cloud and edge computing resources.
- Explored uses of edge-based machine learning for neighborhood safety by surveying the Nashville community, training models on relevant datasets, and setting up an experimental testbed for evaluating the use of machine learning on a live video stream.

Graduate Teaching Assistant | Vanderbilt University – Nashville, TN

August 2017 – May 2018, January 2021 – May 2021, August 2022 - December 2023

- Assisted the professors of Electromagnetics and Microelectronics by holding office hours, review sessions, teaching classes and grading homework/exams.
- Led multiple labs for Digital Logic and Digital Systems where I helped students gain a practical understanding of the class material through programming an FPGA board.

Network Security Intern | Holzer Health System – Gallipolis, OH

May 2018 – August 2018

- Gained understanding of the network security of a multi-campus hospital system through the detection of unknown networked devices, re-imaging of desktops, attending conferences, acquiring familiarity with network security tools.

Select Publications

R. Canady, X. Zhou, Y. Barve, D. Balasubramanian, and A. Gokhale, "Adversarially Robust Edge-Based Object Detection for Assuredly Autonomous Systems," in *2022 IEEE International Conference on Assured Autonomy*, March 22-24, 2022.

R. Canady, X. Zhou, Y. Barve, D. Balasubramanian and A. Gokhale, "Applying DDDAS Principles for Realizing Optimized and Robust Deep Learning Models at the Edge," in *2022 InfoSymbiotics/Dynamic Data Driven Application Systems (DDDAS2022) Conference*, 2022.

Education

Doctor of Philosophy in Electrical Engineering
Master of Science in Electrical Engineering

Vanderbilt University – Nashville, TN

MS: August 2017 - May 2023; **PhD:** August 2017-August 2024

Studies focused on the intersection of Edge Computing and Adversarial Machine Learning

Bachelor of Arts in Mathematics and Physics

Transylvania University – Lexington, KY

August 2013 – May 2017

Member of the Golf team - 2017 HCAC MVP

Hobbies & Interests

In my spare time I enjoy cooking, darts, tennis, golf, skiing, and watching films, particularly horror. I also enjoy fermentation of vegetables and drinks. I am very passionate about food, equality, and the environment, so I regularly volunteer at a local non-profit farm to kitchen organization that is diverting food waste into nutritious meals for the food insecure. I did this by helping to prepare meals for a small industrial kitchen as well as helping out at a community/production garden where some of the produce was donated back to the kitchen.