Jordan A. Madden

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Education

Binghamton University - MSc. Electrical and Computer Engineering, 2022-Present (GPA. 3.92/4.0)

- **Relevant Courses:** Machine Learning, Neural Network and Deep Learning, Digital Signal Processing 1, Digital Audio Signal Processing, Mathematical Methods for EE, Reinforcement Learning, Fundamentals of Steganography

University of the West Indies, Mona - BSc. Electronics Engineering, 2018-2021 (GPA. 3.98/4.3)

- **Leadership & Awards:** IEEE Vice President, Engineering Honours Society

Relevant Experience

Graduate Teaching Assistant – Binghamton University, August 2022 - Present

- Facilitate and oversee two laboratory sessions for undergraduate Electronics 1 and Electrical Circuits, engaging with a total of over 90 students.
- Evaluate the students' lab reports and examination materials and provide feedback to enhance their understanding of course material.

Wireless Network Engineer - Huawei, July 2021 - July 2022

- Spearheaded the upgrade, optimisation, and deployment of 200 microwave links and played a significant role in the 4G and 3G network densification of 150 cell sites in Jamaica.
- Conducted comprehensive post-upgrade monitoring and maintenance for the transmission and RAN network to guarantee optimal performance.
- Create web interfaces with Flask backends to streamline the network analysis process and automatically extract network parameters.

Undergraduate Teaching Assistant – UWI Mona, September 2020 – May 2021

- Acted as a teaching assistant for "Programming for Engineers I" (Introduction to Programming) and "Programming for Engineers II" (Object Oriented Programming), teaching students in both C and Java programming languages respectively.
- Facilitated tutorial sessions with over 20 undergraduate students, supporting the lecturer in providing additional guidance and support.
- Created and evaluated assignments for classes of over 20 students

Engineering Intern - Faculty of Engineering, UWI Mona, June 2020 - August 2020

- Collaborated on the development of an IoT-based temperature monitoring system that utilised non-contact technology.
- Implemented the system using C++, allowing for autonomous temperature recording and alarm activation.
- Created a web interface using Flask and MongoDB, providing users with access to view recorded temperatures and their corresponding locations.
- Conducted breadboard testing and prototyped the system on a PCB.

Research

Student Researcher - LiLab, Binghamton University , Ongoing

- Analysing the robustness of deep neural networks against adversarial attacks, specifically focussing on Apple's NeuralHash model,
- Employing targeted and untargeted blackbox attacks to evaluate the performance of the neural network model.
- Working under the supervision of Professor Xiaohua Li

AI Navigation System for the Visually Impaired – Undergraduate Research Project (Github)

- Designed and implemented an assistive technology device using technologies such as machine learning and computer vision to enhance the mobility of blind and visually impaired individuals. This was done using Tensorflow and OpenCV, running on a raspberry pi.
- Leveraged advanced object detection and depth estimation algorithms to precisely locate the user within their environment
- Developed a prediction algorithm that suggests a path for the user based on their real-time position, allowing for increased independence and freedom of movement.
- Built the necessary circuitry to provide intuitive haptic feedback to guide the user.

Projects

Weapon Detection with Neural Networks (Website – Google Colab)

- Collected data and developed a pipeline that fed data to the deep learning model for both training and validation.
- Trained a neural network with Tensorflow to detect firearms in images and video, with the goal of deployment in CCTV systems.
- Achieved second place in the JA CodeFest AI Hackathon, demonstrating your competitiveness and technical skills in the field of artificial intelligence and computer vision.

IoT Enabled Patient Monitoring System (Github)

- Designed and developed a physician monitoring and management web page using HTML, CSS, and JavaScript.
- Created a backend using Flask and MongoDB to store and access patient data.
- Built an embedded device that measures a person's temperature and physical orientation, using C/C++. The device transmitted this data to the backend and the information was displayed on the frontend web page.

Technical Skills

Programming Languages: Python, C/C++, MATLAB, Java, JavaScript, HTML5, CSS/Bootstrap

Technologies and Frameworks: Arduino, Flask, OpenCV(Python), Tensorflow, Keras, PyTorch, Linux, Git, Raspberry Pi, MongoDB, PostgreSQL, Atmel AVR, AutoCAD