Michael C. Anoruo

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EDUCATION

University of Maryland, Baltimore County (UMBC)   Baltimore, MD
B.S., Computer Science (AI/ML track); *GPA: 3.93/4.0*   December 2023

Relevant Coursework: Calculus I-II, Data Structures, Linear Algebra, Operating Systems, Machine Learning, Intro to AI, Algorithm Design & Analysis, Software Engineering I, Computer Vision (*Graduate Level*), Data Science *(Graduate Level)*, Natural Language Processing *(Graduate Level)*

HONORS / AWARDS

Summa Cum Laude   Winter 2023
Google CS Research Mentorship Program Scholar   Spring 2022
MIT Quantitative Methods Workshop   Winter 2022
NIDA EDUCATE Scholar   Fall 2021
Meyerhoff Scholar   Fall 2020
National Football Foundation Scholar Athlete   Spring 2020

SKILLS

*Programming Languages***:** Python, C++, Lua, JavaScript, C, C#, R
Machine Learning Libraries: PyTorch, OpenAI Gym, TensorFlow, Hugging Face
Systems: macOS, Linux, Windows, High-performance Computing Clusters (SLURM), Robot Operating System (ROS)
Interpersonal Skills: Leadership, Communication, Highly Motivated, Teamwork, Problem Solving

RELEVANT EXPERIENCES

UMBC (*DPrime.ai Lab*): *Data Scientist Intern*   Baltimore, MD
- Assisted in developing machine learning algorithms to analyze eye-tracking data   12/2022 – Present
  and identify patterns linked to cognitive events.
- Developed software for real-time visualization of data collected from various biometric sensors.

Acquired Skills: TensorFlow, Computer Networking, Database Management, HPC, Data Analysis and Visualization

Apple Inc. (*Apple Service Engineering*): *Data Engineer Intern*   Seattle, WA
- Developed code that worked with large volumes of video content, utilizing   5/2023 – 8/2023
  computer vision and machine learning techniques to automate video analysis processes.
- Created various analysis tools that helped data engineers optimize their viewership reporting algorithms.

Acquired Skills: Video Processing, Multithreading & Parallel Processing, Feature Matching, and Image Classification

MIT (*Space Enabled Media Lab*): *Zero Robotics Research Intern*   Cambridge, MA
- Optimized PID controller parameters for the MIT Astrobee robot simulator.   6/2022 – 8/2022
- Developed Python scripts to automate data collection and analysis for the Zero Robotics project.
- Worked in small team of 6, alongside NASA astronauts, to host the Zero Robotics 2022 technical competition.

Acquired Skills: Controls Engineering, Data Automation, Simulation Test and Calibration

UPENN (*Scalable Autonomous Robots Lab*): *Robotics Research Intern*   Philadelphia, PA
- Created a PCB with KiCad to translate RS232 to USB for data transmission.   6/2021 – 8/2021
- Developed simulation framework in Python to simulate Autonomous Surface Vehicles (ASV) experiments.
- Designed waypoint algorithm to generate strategic path for lab's ASV to survey Schuylkill River.

Acquired Skills: Robotics Development Framework, Electronic Design Automation, and Simulation Analysis and Design

UMBC (*Ebiquity Lab*): *Cybersecurity Research Intern*   Baltimore, MD
- Designed reinforcement learning algorithm to find vulnerabilities in malware   9/2020 – 5/2022
  classifiers by modifying malicious files to avoid detection.
- Annotated cybersecurity related texts to train machine learning algorithm to detect and classify such phrases.
- Designed algorithm to identify vulnerabilities given a particular operating system.

Acquired Skills: Reinforcement learning, Natural Language Processing, Virtual Machines, and Computer Security

CONFERENCES / PRESENTATIONS

Apple Service Engineering Intern Spotlight	Summer 2023
MSRP Summer Research Symposium	Summer 2022
NSA On-Ramp Mission Research Symposium	Spring 2022
Undergraduate Research and Creative Achievement Day (URCAD)	Spring 2022
University of Pennsylvania SUNFEST Symposium	Summer 2021
Future Business Leaders of America State Conference (Coding & Programming)	Spring 2020

PUBLICATIONS

Piplai, A., **Anoruo, M**., Fasaye, K., Joshi, A., Finin, T., & Ridley, A. (2022, December). Knowledge guided two-player reinforcement learning for cyber attacks and defenses. In *2022 21st IEEE International Conference on Machine Learning and Applications (ICMLA)* (pp. 1342-1349). IEEE.

ACADEMIC PROJECTS

Song Genre Prediction 9/2023 – 12/2023
- Curated custom dataset to include song lyrics and genre using Spotify and Genuis Lyric API.
- Preprocessed lyrics removing common characteristic words to prevent bias in model when making predictions.
- Developed Recurrent Neural Network model in PyTorch to predict song genre based on lyrics of the song.

Acquired Skills: Recurrent Neural Networks, Dataset Curation, GloVe Word Embeddings, Music Based APIs

Interactive 3D Scene Reconstruction 9/2023 – 12/2023
- Adapted PyTorch's ResNet and MiDaS pretrained model to detect objects and their 3D position from a 2D image.
- Developed robust web scrapping algorithm to query and download open-sourced 3D models from SketchFab
- Utilized Panda3D engine to reconstruct 2D picture into 3D low fidelity simulation environment.

Acquired Skills: 3D Pose Estimation, PyTorch pretrained models, Object Detection, Panda3D Virtual Simulations

PERSONAL PROJECTS

Gesture Recognizing Drone 12/2023 – Present
- Currently developing machine learning model to recognize hand gestures signaling to land, takeoff, or follow a specific person.
- Developing Quadcopter drone to move around autonomously using a camera.

Anticipated Skills: On-Device Machine Learning, Arduino Programming, Object Tracking and Detection

Roblox Game Development 9/2021 – Present
- Created different analytical tools to track asset engagement and popularity.
- Served as the lead developer for fast past action game accumulating close to 1 million players.
- Developed several dynamic and interactive Graphical User Interfaces for various games.

Acquired Skills: Databases, GUI design, 3D Modeling & Animation, Physics Engine, Object Oriented Programming

LEADERSHIP / EXTRACURRICULAR

Meyerhoff Peer Advisor	Fall 2022 – Present
Church Youth Leader	Fall 2021 – Present
National Society of Black Engineers (**Executive Board**)	Fall 2021 – Present
Creative Coders (**Site Lead**)	Spring 2023
Church Media Department	Summer 2018 – Spring 2023
System Administration and Software Development Club	Fall 2020 – Spring 2023
Institute of Electrical and Electronics Engineers	Fall 2020 – Spring 2023
NSBE Junior MESSA Competition Coach	Fall 2021 – Spring 2022
Cyber Dawgs	Fall 2020 – Spring 2022
Pathfinders Club Counselor	Summer 2019 – Spring 2022
Arbutus Achievers Tutoring Program	Fall 2020 – Spring 2021