NATHAN SAMSON

+14435796803 | nsamson4@umbc.edu | Baltimore, MD, USA | linkedin.com/in/nathan-samson-bostesa

EDUCATION

University of Maryland - Baltimore County   **August 2023 - May 2027**
Bachelor's, Computer Science   *GPA: 3.5*

PROFESSIONAL EXPERIENCE

University of Maryland - Baltimore County   **Baltimore, MD, USA**
Undergrad researcher   *September 2023 - Present*
- Designed a Smart Campus application that informs students about real time count at fast food locations on campus by utilizing Lidar sensors with an algorithm to find the people counts and utilizing a algorithm to eventually predict people counts based on past data
- Enabled user engagement by creating a front-end interface that allows students to monitor real-time occupancy of fast food locations and eventually potential future time occupancy (Has not been made public will have to get approval from UMBC)
- Streamlined real-time data communication by integrating MQTT and utilized RESTful APIs to facilitate communication between the TSDBMS and the application layer.
- Designed and managed RDBMS and TSDBMS databases
- Boosted server processing capabilities for real-time data from IoT sensors through integration of edge computing and cloud computing
- Currently working on a research paper with my professor and a PHD student

OmniSyncAI   **Remote**
Full stack Software Engineer intern   *May 2024 - July 2024*
- Designed and developed a user-friendly account setup process for a customer relationship management (CRM) platform using Node.js, React, and PostgreSQL, facilitating seamless onboarding by allowing businesses to invite team members and utilize AI recommendations

PROJECTS & OUTSIDE EXPERIENCE

Advanced Connect4 AI with Reinforcement Learning
- I developed an AI for playing Connect4 using advanced reinforcement learning techniques, including Distributional Dueling Networks, Noisy Nets, and Prioritized Experience Replay, all with PyTorch
- Integrated into a custom game environment and connected to a real-time interface via a Flask API
- Implemented opponent modeling to enhance adaptability, significantly improving performance against various strategies and players.

Generative AI for Artistic Collaboration
- Constructed an AI application that unites historical and contemporary art, fostering new artistic expressions by utilizing machine learning techniques to blend classical European portraits from the Metropolitan Museum of Art Collection with modern digital art.
- In this project i utilize techniques such as Generative Adversarial Networks (GANs), style transfer, and reinforcement learning to integrate the different artistic styles
- The application is built with Python, utilizing PyTorch for model development and Discord APIs for interaction.

YouTube Comments Extraction and Sentiment Analysis Project
- I created a Python-based project leveraging the YouTube Data API to gather video comments for sentiment analysis
- Utilized advanced NLP techniques and machine learning models with TensorFlow and scikit-learn, enhanced by prompt engineering with the LLaMA Index
- Provided content creators with insights into viewer reactions through an intuitively designed interface, aiding in strategic optimization of digital content

SKILLS

Skills: Data Science, Flask, HTML/CSS, Java, REST APIs, Tensorflow, Python, MATLAB, OpenCV, Data Analysis, SQL, Algorithms, AI, Machine learning, IoT, Data management, Prompt-engineering, Natural Language Processing (NLP), C/C++, JavaScript, Edge Computing, Linux, MQTT