

NATHAN SAMSON

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

EDUCATION

University of Maryland - Baltimore County

Bachelor's, Computer Science

August 2023 - May 2027

GPA: 3.5

PROFESSIONAL EXPERIENCE

University of Maryland - Baltimore County

Undergrad researcher

Baltimore, MD, USA

September 2023 - Present

- Engineered a Smart Campus application using Lidar sensors and ML algorithms to predict and view current occupancy at campus food locations, improving student dining experiences.
- Created an intuitive UI for Smart Campus app, enabling students to efficiently monitor and predict food location occupancy in real-time.
- Optimized real-time data communication by integrating MQTT and RESTful APIs, reducing latency and improving system responsiveness.
- Architected and managed RDBMS and TSDBMS databases to efficiently store and process real-time data from lidar sensors, supporting 100 queries per second.
- Enhanced server processing by 25% using edge and cloud computing, enabling real-time analysis of data from IoT sensors.
- Collaborating with professor and PhD student on research paper exploring IoT, being a main contributor.

OmniSyncAI

Full stack Software Engineer intern

Remote

May 2024 - July 2024

- Engineered user-friendly CRM account setup using Node.js, React, and PostgreSQL, reducing onboarding time and increasing team invitations through AI-powered recommendations

PROJECTS & OUTSIDE EXPERIENCE

Advanced Connect4 AI with Reinforcement Learning

- Developed Connect4 AI using advanced reinforcement learning techniques (Distributional Dueling Networks, Noisy Nets, Prioritized Experience Replay) with PyTorch, achieving 90% win rate against human players
- Integrated AI into custom game environment and implemented real-time interface using Flask API, enabling seamless human-AI gameplay with low latency
- Implemented opponent modeling using Monte Carlo Tree Search (MCTS) with Bayesian Updates, enhancing AI adaptability and improving the win rate against diverse strategies by 20%.

Real-Time Predictive Analytics Engine for Financial Markets

- Engineered a high-frequency, real-time market prediction engine using Apache Kafka, PYTORCH, and NVIDIA GPUs with CUDA for acceleration, integrating stock prices, trading volumes, and sentiment analysis from news and social media sources.
- Developed hybrid model combining LSTM for time series forecasting and BERT for sentiment analysis, achieving 85% prediction accuracy and improving trading decision confidence by 25%
- Designed scalable system architecture capable of processing 100,000 data points per second and handling up to 500 concurrent users, ensuring real-time performance in high-demand financial markets

Generative AI for Artistic Collaboration

- Developed AI application using GANs and style transfer to blend classical European portraits with modern digital art, generating up to 15,000 unique artworks
- Implemented custom GANs, style transfer algorithms, and reinforcement learning techniques to seamlessly integrate diverse artistic styles, achieving 85% style coherence score
- Engineered Python-based application using PyTorch for model development and Discord APIs, facilitating artistic collaboration for users and generating up to 1,000 artworks daily

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