Teddy Oweh

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Education

Morgan State University, Baltimore Maryland **Jan 2024 – May 2025**

Computer Science & Mathematics, Con. - Artificial Intelligence & Deep Learning - Undergraduate

Tarleton State University (Texas A&M System), Stephenville Texas **Jan 2022 – Dec 2023**

Computer Science & Mathematics - Artificial Intelligence & Data Science - Undergraduate *CGPA: 4.0*

Awards: Presidentials Scholar Award, 3x Dean's list

Work & Research Experience

Apple Inc. **May 2023 – Sept 2023**

AI/ML Engineering Intern - Python, C++, PyTorch, Pandas, Sklearn, ReactJS, Flask, Kubernetes, SQL *Cupertino, California*

- Built high performance machine learning computing Python-C hybrid system (MCQI), integrating VAE Neural network models, auto-regressive models and parallelization for Apple Home Devices crash and proximity, ranking & predictions, achieving a prediction accuracy of 95%
- Leveraged Gaussian Mixture Models to identify 10 key metrics with high failure correlation from a dataset of 3,000+ metrics (iPhone, Apple TV, etc). Employed Markov Chain Monte Carlo simulations with dynamic parameter adaptation to optimize Metrics system stability, ensuring robust performance across diverse system conditions. Improving system stability on new builds by up to 80%.
- Refined iPhone (Apple Home) metrics (SiriRequestCount, CoreHomekitCloudRequests) in Legacy Objective-C code within the iOS operating system, reducing system latency and achieving a 35% cut in caching downtime and wrote SQL metric analy
- Finalized and Developed an API MicroService, ML Data Pipeline and web status monitoring dashboard, Containerized in Kubernetes, Optimized MCQI data storage with PostgreSQL for a 95% query performance boost. Shipped to Apple Home Engineers.

Herds. **May 2023 – Present**

Cofounder & CTO - React Native, ReactJS, NodeJS, Python, Pytorch, AWS, JAVA, Docker, Socket.io *Stephenville, Texas*

- Developed mobile app for college greek life & organizations with MongoDB, NodeJS, deployed on AWS EC2/Docker; solely managed full-stack ML systems; Currently on AppStore
- Built a Python MicroService including sentiment analysis AI models, neural search systems and Latent Dirichlet Allocation & TF-IDF algorithms for topic modeling. Implemented party/bar population with DBSCAN algorithm.

Tarleton State University. **Sept 2023 – Present**

Undergraduate Researcher - Cuda C, Python, YOLOv4, Pytorch, Pandas, & OpenCV *Stephenville, Texas*

* Developed an ML algorithm for license plate segmentation, for vehicle tracking and real-time speed estimation through homographic transformations
* Outperformed traditional methods like Haarcascades and Sobel operators, achieving a superior Jaccard Index (IoU) score for enhanced bounding box prediction accuracy
* Implemented advanced techniques, including non-maximum suppression, edge detection, RNN-based vehicle tracking, and transfer learning with YOLOv4, GANs, and LSTM neural net architecture for precise license plate detection

NASA - National Aeronautics and Space Administration **Aug 2022 – May 2023**

Research Payload Engineer - Python, bmp388, IMU, C++, ReactJS *Huntsville, Alabama (Hybrid)*

* Engineered a MCU Payload System for a sub-scale rocket, incorporating real-time flight analytics and monitoring system components operational states, successfully operating at est 6000fts.
* Implemented signal demodulation within a customized UDP server architecture, and built a Web Application (WEBUI) for seamless data transmission & Visualization. Built complex image processing operations executed by a rocket in response to telecommand control signals from the SDR receiver.

NAVSEA - Naval Sea Systems Command **July 2022 – Mar 2023**

Research AI/ML Systems Engineer - Python, Pytorch, Java *King George, Virginia*

* Led the development of an AI/ML algorithm that uses Markov Chains, Naïve Bayesian and greedy search for automated scheduling, strategic weapon pairings, and predictive models systems in weapons systems coordination.

TIAER - Texas Institute for Applied Environmental Science **Jan 2023 – May 2023**

Computational Modelling Student Researcher - ASM, C++, Ruby on Rails, AWS - Project Page *Stephenville, Texas*

* Developed an x86 compiler system in C++ using flex and yacc, for lexical analysis and parsing to convert VB.net statistical models (QUAL-TX, QUAL2E, QUAL2K) into Unix-compatible C++ for AWS cloud computing.

* Merged the C++ models seamlessly into the Ruby on Rails Client app, yielding a notable 60% drop in API response time, due to streamlined computation processes.

Tarleton State - Machine Intelligence Security and Research Lab (MISR) **Feb 2022 – May 2023**

Lead Student Researcher - Python *Stephenville, Texas*

* Developed Mini Batch Spectral Decomposition machine learning algorithms for efficient Multicollinearity handling in auto-regressive models. Whilst integrating data segmentation + distributed processing algorithm.
* Achieved faster training time, less redundant training set features, and higher accuracy est. 15% than KNFE and COMB algorithms.

Tarleton State - Mathematics Department **May 2022 – August 2022**

Student Researcher - Python, SciPy, Matplotlib, NetworkX, Pandas, SymPy *Stephenville, Texas*

* Applied stochastic processes and differential equations to develop disease propagation models, augmenting disease control insights through dynamic systems and algorithmic simulations.

Technical Skills

Languages: Python, C++, C, Ruby, Java,Typescript
Frameworks& Tools: Pytorch, Tensorflow, Sklearn, Pandas, Tableau, Docker, Kubernetes, Caffe, Coreflow, GIT, Linux/Unix, AWS EC2/S3, Object-Oriented Design, Deep Learning, NLP
Frontend: Swift, ReactJs, Angular, React Native, Flutter,TailwindCSS
Backend & Database :Nodejs, NestJS, Spring Boot, Flask, FastAPI, MongoDB, SQL, Postgres,

Projects - *Github*

I am a open-source developer with an extensive portfolio showcased on my GitHub profile. Including 20+ web, mobile applications, backend & API scaled & deployed systems, 9+ published Python libraries, and various projects spanning database, AI, systems, and networking field.

QuantX - C++, Quantitative Analysis, Market Strategies

· Developed C++ module wrapping Yahoo Finance api and implementing real-time stock data collection, market analysis, AI-driven position sizing, dynamic hedging strategies, monte carlo simulations, and slippage modeling for risk reduction and strategy enhancement.

WHOTAI | C, Python, Multithreading

· Developed an auto regressive model for the Naija Whot card game (similar to UNO), incorporating parallelization for training corpus generation and a distributed system game simulation with the Model. The model integrates a Random Forest algorithm developed from scratch with corpus vector embeddings.

Scene Query - ReactJS, Python, CLIP, YOLO, C++,

· Developed a Web application AI software utilizing CLIP, YOLO and CIFAR100 for real-time video semantic analysis, capable of extracting and categorizing specific frames associated with desired prompts, with distributed and parallelized c++ algorithms wrapped into a python REST API.

Cogix - ElectronJS, React, Java Spring Boot, MongoDB, C++

· Created an ElectronJS desktop app and Python command line tool for remote control of camera, screen, audio, and file system. Integrated a Java Spring Boot middleware for data aggregation, utilizing a custom C++ JSON database and Elliptic Curve Cryptography for secure data transmission, enhanced with Python ctypes for speed.

AI Dorm Security - Raspberry Pi, Redis, Python, ReactJS, Flask

· Built a dorm facial recognition system using a trained CNN model on a Raspberry Pi with Flir Lepton thermal imager. Utilized GPIO motors for door unlocking, implemented peer-to-peer socket communication, and relayed data to a central local server with a Python REST API. Integrated real-time logs with a React Web app and used a Redis Data Store.

Project Euler - C++

· Used dynamic programming, graph theory, linear algebra, probability theory, combinatorics, calculus, etc to solve 50+ computational mathematics problems with highest difficulty problems having under 5000 accepted solution

Teddy Oweh - ReactJS, React Native, NodeJS, MongoDB, Redux, AWS, Pytorch, Pandas

· Built a mobile app and REST API for viewing website traffic analytics, content updates (on about, projects and research page), and ml data pipeline, combining GRU-based sequential pattern capture, CNN-based spatial attention and GMM clustering for site views, MongoDB for data management, and RMSprop optimization with 95%+ model accuracy.