

TAJUAR BHUIYAN

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🇺🇸 US Citizen

Education

University of Michigan, School of Engineering

Sep. 2020 - June 2024

Bachelor of Science in Computer Engineering, with a focus on Software. (GPA 3.68)

Ann Arbor, MI

Experience

Viasat Inc.

Carlsbad, California

Software Engineering Intern

May 2023 - August 2023

- Engineered an adaptable detection model through the application of K-Means Clustering and Isolation Forest algorithms, resulting in a 52% reduction in anomalous client behaviors and bolstering system resilience by decreasing downtime.
- Led the configuration of the anomaly detection system via an API using Postgres for data storage. This system identified 76% more irregular behaviors than previous solutions, delivering insights into usage patterns and system vulnerabilities.
- Crafted a feedback system that enabled clients to validate or negate flagged anomalous behaviors, resulting in a 30% improvement in model accuracy and providing a tailored experience for each unique client.

Carrier Global

Indianapolis, Indiana

Software Engineering Intern

May 2022 - August 2022

- Optimized and extended an existing AWS infrastructure for Ecobee's data protection and security by re-configuring AWS and Lambda functions, resulting in a 25% improvement in data processing and a 40% reduction in operational costs.
- Devised CI/CD pipeline using Jenkins, Python 3.7, and Shells scripts to automate routine unit testing for Carrier's 2023 Smart Thermostat by 43%, replacing the Carrier Comfort Network(CCN).
- Collaborated with hardware teams to integrate FPGA modules with custom PCBs across 12 projects, ensuring seamless system operation and reducing system integration time by 25%.

RippleMatch

Manhattan, NY

Leadership Development Intern

January 2022 - May 2022

- Implemented growth strategies aimed at expanding the user-base by 136% and boosting brand awareness within the campus community through social media, presentations, and networking with peers and faculty members.

Shopno Inc.

Bronx, NY

Software Engineer Intern

May 2021 - August 2022

- Authored over 2,500 lines of structured Python code, achieving a 37% reduction in transaction processing time.
- Partnered with a team of 5 engineers, assigning specific tasks, to develop software that automatically extracted financial data of goods from wholesalers API.

Personal Projects

Lazy Tune | Python 3.11, C/C++, RTOS, DSP, PJRC, Tinker

December 2023

- Implemented real-time autotune and vocoder algorithms using spherical harmonic analysis, phase vocoder, and digital filter design techniques on the Teensy 4.1 microcontroller with PJRC libraries. Developed a GUI on a Raspberry Pi with Tinker library to control the audio effects and communicate with the Teensy 4.1 via serial connection. Achieved high-performance and low-latency audio processing with a delay of less than 11ns.

Genre Guru | PyTorch, NumPy, matplotlib, Librosa

November 2023

- Constructed and refined CNN-based models for song genre classification, achieving 78% accuracy across 10 genres. Optimization was attained through experimentation with audio data representations like Mel-Spectrograms and MFCCs. Performance was enhanced by applying training methodologies like cross-validation and metric-based dynamic training.

MiniTwit | Python, HTML, CSS, Shell, AWS

July 2023

- Created MiniTwit, a Flask-based platform, showcasing full-stack development. Integrated AWS VPC for enhanced security, providing isolated computing resources, encrypted data storage, and secure user data handling.

Chess Engine | Python3, Stockfish, TensorFlow

April 2022

- Engineered an efficient chess-game engine using techniques like mega-max, alpha-pruning, and Monte Carlo Tree Search for optimal move selection. Leveraged Stockfish for high Elo-ranking AI moves to continuously refine algorithms.

Skills

- Languages:** C++(up to C++17), C, Python, Rust, Go, Verilog, ARM, Java, Matlab
- Technology:** Linux, Git, Vim, Jira, Docker, Jenkins, AWS, Grafana, Kibana, PostgreSQL
- Libraries and Tools:** Pytorch, Scikit-learn, Pandas, Numpy, CMake, OpenCV, NLTK, Apache Spark, YAML, NGINX
- Organizations:** BSA, LSA, ASA, Michigan Hackers, MRover, Badminton, Volleyball, Archery