Tajuar Bhuiyan

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Education

University of Michigan, School of Engineering	**Sep. 2020 - June 2024**
Bachelor of Science in Computer Engineering, with a focus in Software. (GPA 3.68)	*Ann Arbor, MI*

Coursework: Algorithms and Data Structures, Computer Organization, Foundations of Computer Science, Software Engineering, Linear Algebra, Multi-variable Calculus, Computer Vision, Logic Design, Embedded Systems

Professional 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

MiniTwit	*Python, HTML, CSS, Shell, AWS*	**July 2023**

- Architected and developed MiniTwit, an advanced Flask-based web platform, highlighting adeptness in full-stack development and reinforcing understanding of industry-leading web frameworks.
- Integrated AWS Virtual Private Cloud (VPC) to enhance the application's security, ensuring isolated computing resources, encrypted data storage, and secure user data handling.

Spatial Audio Reconstruction	*Python3, DSP, Matlab*	**September 2022**

- Leveraged principles of DSP algorithms and experimentation to create spatial/binaural sound reproduction using spherical harmonic analysis, interaural time/level difference, and digital filter design. Additionally, empirically modeled the impulse response of a room to predict sound direction.

Chess Engine	*Python3, Stockfish, TensorFlow*	**April 2022**

- Engineered an efficient chess-game engine using advanced techniques such as mega-max, alpha-pruning, and Monte Carlo Tree Search to evaluate and select optimal moves for any given chess position, enhancing gameplay experience.
- Leveraged Stockfish to generate high Elo-ranking AI moves, providing robust benchmarks to refine and improve personal algorithms continuously.

Skills

Languages: C++(up to C++17), C, Python, SQL, Verilog, ARM, Java, Matlab

Technology: Linux, Git, Vim, Jira, Docker, Jenkins, AWS, Grafana, Kibana, PostgresSQL

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