Sakib Hassan

347-975-1684 | sakibhas@buffalo.edu | LinkedIn | GitHub | E-Portfolio

Education

University at Buffalo Buffalo, NY

Bachelor of Science in Computer Science, and Bachelor of Arts in Mathematics, GPA: 3.6 *Jan. 2022 – Dec. 2025*

Experience

Undergraduate Research Assistant Jan. 2023 – May 2023

University at Buffalo *Buffalo, NY*

- Developed a React and Web Socket-based STREAM app for real-time 3D visualization of sensor data, with dynamic user interaction capabilities.
- Implemented secure user authentication using Amazon Cognito, enhancing both application security and data protection.
- Designed a DynamoDB data storage solution with Python scripts for efficient data transformation and epoch-based querying.
- Constructed a high-performance WebSocket server in Python on EC2 to enable seamless IoT device and interface communication.

Projects

Financial Game | *HTML, CSS, C#, Unity, Itch.io* Nov. 2022

- Demonstrated exceptional innovation in financial literacy enhancement by winning the UB Hacking Best Freshman Hack Award.
- Created an engaging educational game that garnered the M&T Tech Award for its effectiveness in improving financial understanding and well-being.
- Employed HTML and CSS for sophisticated website design and construction, and expertly utilized Unity Game Engine and itch.io for developing and integrating an educational game platform.

Semantic Search Chatbot | *Streamlit, Python* Sep. 2023

- Developed an AI-driven text analysis tool that exhibits the capability to proficiently handle both PDF and textual data formats by integrating Langchain and applying OpenAI's embeddings and LLM APIs.
- Empowered users with the ability to pose targeted inquiries pertaining to the content for data extraction and in-depth analysis.
- Optimized database performance using SQL techniques, resulting in faster query times and improved system reliability.

Conway's Game of Life | *C* Feb. 2023

- Engineered a C-based simulation of Conway's Game of Life, complete with cell evolution logic and a graphical interface for generation tracking.
- Refined the simulation to efficiently handle expansive grids and extensive generation sequences, showcasing advanced algorithmic solutions.
- Strengthened expertise in complex system management and problem-solving through meticulous performance optimization and debugging.

Machine Learning Clustering and Dimensionality Reduction | *Python* May. 2024

- Implemented K-Means with an inertia score of 95.55 and visualized optimal clusters using inertia and silhouette plots.
- Applied PCA to reduce data from 13 to 2 dimensions, enhancing model interpretability while retaining significant variance in the data.
- Integrated and evaluated a custom Naive Bayes classifier with an accuracy of 80.56 %, demonstrating efficient handling of classification tasks with real-world datasets.
- Utilized advanced data visualization techniques to effectively communicate insights.

Technical Skills

Languages: Java, Python, C/C++, Scala, JavaScript, HTML/CSS, Assembly, SQL
Frameworks: React, Node.js, Flask, JUnit, WordPress, Material-UI, FastAPI, Postgres, MongoDB, PyTorch, CUDA, TensorFlow
Developer Tools: Git, GitHub, Unity, Jupyter Notebook, Unix, Visual Studio, PyCharm, IntelliJ, Emacs, Xpra
Libraries: pandas, NumPy, Matplotlib, Plotly, Bottle, AJAX