Musab Fiqi

.NET Developer

614-495-6996 | fiqi.2@buckeyemail.osu.edu | linkedin.com/in/musab-fiqi/ | Portfolio: mfiqi.github.io

EDUCATION

Master's of Science in Computer Science & Engineering — Columbus, OH
The Ohio State University — *Aug. 2023 – Dec. 2024*

Bachelor's of Science in Computer Science & Engineering — Columbus, OH
The Ohio State University — *Jan. 2020 – May 2023*

Associate's of Science — Columbus, OH
Columbus State Community College — *Jan. 2018 – Dec. 2019*

PERSONAL PROJECTS

TLOZ 1986 - Game Development | *C#, MonoGame, .NET Core* — Sep. 2024 – Dec. 2024
- Recreated the first dungeon from The Legend of Zelda (1986) using MonoGame, incorporating gameplay mechanics and design patterns like singleton, factory, decorator, etc.
- Resolved a performance bottleneck in collision detection using Visual Studio's performance profiler, alleviating the CPU bottleneck by partitioning the game space into four equal sections and checking for collision only amongst objects within each section.

NeonSense - Game Development | *C#, Unity, .NET Core, MSTest* — March. 2024 – Apr. 2024
- Developed a cyberpunk-themed FPS game in Unity. Implemented gameplay mechanics such as combat/environmental interactions and player gunplay.
- Imeplemented dynamic enemy AI with intelligent aiming and shooting mechanics, enabling varied combat encounters based on player distance and unique flanking movement patterns.

Virtual Store Database | *SQL, Database Design, Data Modeling, Query Optimization* — Aug. 2021 – Dec. 2021
- Developed and optimized advanced SQL queries to drive e-commerce operations, including complex joins for cross-referencing customer purchase history with sellers, their respective stores, and the items they sell, and subqueries to segment users.
- Advanced queries include providing a list of buyers who've spent more than the average buyer, providing a list of buyers who purchased anything listed from the most profitable seller, providing sales statistics for each store, etc.

EXPERIENCE

Research Programmer — Jan. 2024 – Dec. 2024
Department of Computer Science OSU | TypeScript, WebGPU, WGSL, HTML — *Columbus, OH*
- Leveraging **TypeScript**, I architected a **WebGPU**-powered front-end application to showcase complex data visualizations, including direct volume rendering and ray tracing of tetrahedral meshes.
- Using the **WebGPU Shading Language** (WGSL), I implemented a sequential mesh traversal algorithm that accumulates color and alpha values to accurately visualize complex, unstructured data.
- Achieved visualization of turbulent airflow around a golf ball.
- Identified performance limitations due to CPU-intensive pre-processing steps; future work will focus on utilizing **WebGPU compute shaders** to offload these steps and enable real-time rendering of larger, more complex datasets.

Software Engineer Intern — May. 2023 – Aug. 2023
FABE Engineering | Pytorch, Keras, OpenCV — *Columbus, OH*
- Trained a CNN model using **Pytorch** for weed detection using Jetson Nano devices integrated with drones.
- Sped up our data preprocessing pipeline using **Python's multiprocessing** module to handle large-scale video frame extraction, processing 12TB of data thereby improving model accuracy.
- Applied noise reduction to the processed data, which increased the CNN model's accuracy 7% (from 89% to 96%).

Assistant Research Programmer — May. 2022 – July. 2022
National Science Foundation | Javascript, HTML — *Columbus, OH*
- Developed **JavaScript**-based dynamic study behaviors within the Lioness Labs tool, collaborating with a team to meet research objectives for an NSF-funded study.
- Improved software usability and functionality based on real-time feedback from research teams.

TECHNICAL SKILLS

Languages: **C#**, **Python**, C++, **Java**, **SQL**, **JavaScript**, x86 Assembly, **TypeScript**, Scheme
Frameworks: **React**, **.NET Framework**, **Azure DevOps**, Model-View-Controller, MSTest, MonoGame, Makefile
Developer Tools: **Visual Studio**, **Unity**, Visual Studio Code, **Git**, SVN, Linux, Bash, Agile/Scrum
Machine Learning & Data: Convolutional Neural Networks (CNNs), **TensorFlow**, **Pytorch**, **Scikit-learn**