Musab Fiqi

Fullstack Developer
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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*

Experience

IT Manager — Aug. 2024 – Present
Rahmah Childhood Center — *Columbus, OH*

- Spearheaded the development and maintenance of the center's primary website, ensuring a user-friendly and informative online presence.
- Engineered and implemented a robust technical infrastructure, including computer systems, network architecture, printers, and essential technology accessories, optimizing operational efficiency.
- Designed and deployed classroom technology setups tailored to individual teacher needs, fostering an engaging and technologically enriched learning environment.

Research Programmer — Jan. 2024 – Dec. 2024
Department of Computer Science & Engineering at OSU — *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.

Associate Software Developer — May. 2023 – Aug. 2023
Department of Food, Agricultural, Biological and Environmental Engineering at Ohio State — *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 **Pythons multiprocessing** module to handle large-scale video frame extraction, processing 12TB of data thereby improving model accuracy.
- Ran noise reduction over the processed which helped increase the accuracy of the CNN model by 7% (from 89% to 96%).

Assistant Research Programmer — May. 2022 – July. 2022
National Science Foundation — *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**, Model-View-Controller, JUnit, 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**

Key Projects

Spotify Playlist Generator | *Python, ElasticSearch, React* — Jan. 2023 – April. 2023

- Built a personalized playlist recommendation system, using **Elasticsearch** and **React** for user interaction and algorithmic audio feature analysis.
- Implemented our **custom music recommendation algorithm** which considers various audio features such as danceability, energy, tempo, etc. for music recommendations.

Soccer Ball Object Tracking | *Python, OpenCV* — April 2023

- Used **mean-shift object tracking** for real-time tracking of soccer balls, implementing computer vision techniques to identify player actions.