Jaiaid Mobin

Graduate Research Assistant
Rochester, NY, USA
+15859106251 | jm5071@rit.edu | https://github.com/Jaiaid | https://scholar.google.com/citations?user=ifmzYdsAAAAJ |
https://www.linkedin.com/in/jaiaid-m-9913ba135

Summary

I am looking for an internship opportunity in Summer, 2024. I am interested in getting opportunities to get more hands-on experience on how the industry manages HPC, and cloud environments. My research focus is GPU workload optimization and disaggregated datacenter.

Education

Rochester Institute of Technology — *Rochester, NY, USA*
Ph.D. in Computer Science — *August, 2022 - Present*
- **Research Topic** — *High performance computing, distributed computing*

Bangladesh University of Engineering and Technology — *Dhaka, Bangladesh*
M.Sc. in Computer Science — *August, 2022*
- **Thesis Title** — *Transit Network Design For Evacuation Modeling Using Heuristic and Multi-Objective Optimization Based Approaches*

Bangladesh University of Engineering and Technology — *Dhaka, Bangladesh*
B.Sc. in Computer Science — *September, 2017*

Experience

BJIT Ltd - Offshore Software Development Company — *House-7, Road-2/C, Block-J, Baridhara, Dhaka*
Senior Software Engineer — *November 2020 - April 2022*
- Representative of small (<5 member) team to client
- Collaborate with software architect to come up with system design

BJIT Ltd - Offshore Software Development Company — *House-7, Road-2/C, Block-J, Baridhara, Dhaka*
Software Engineer — *July 2018 - October 2020*
- Reviewed client expectations and project parameters and suggested software packages that met requirements.

Professional Project Experience

Device Interfacing Software Improvement

- Contributed to build and solve issues in building a codebase in **MSVC2019** which is earlier built using **MSVC2012** and clear documentation was not available
- Fixed bug in **C#** codebase and implemented a small feature

Virtual Background Feature Implement

- Used google **mediapipe sdk** to implement library to remove background, add background, blur background (provided as a static library for Windows)
- Library is developed using **C++ (MSVC2017)** for 64bit platform, library using **mediapipe SDK** is partially built using **Bazel** build system.
- Resolved some build issues to build **mediapipe** code using **MSVC2017** (github provided version with the necessary feature can be built only by MSVC2019)

Directshow Source Filter Development

- Repurposed code from existing MIT licensed project to create a source filter
- Analyzed requirement of our project and capabilities of directshow source filter to report what is feasible and accordingly influenced application architecture
- Implemented simple IPC mechanism to facilitate communication between COM component and application
- Worked on application backend to interface with custom source filter using **C++ (MSVC++14)** and **C#(.NET 4.7)**

Device Control Based on Computer Vision

- Developed Windows application using **C++/CLR** and VS2015
- Developed simple custom solutions based on computer vision algorithms using **OpenCV** API to do particular object presence detection for application use case scenario and showed their effectiveness using client provided dataset
- Implemented object detection system in **C++** using **OpenVINO** sdk for **Windows10** based application
- Implemented relay control over tcp in **C++** using windows networking library and knowledge from the relay documentation

Smartphone User Detection

- Collected Data and trained machine learning model inspired from a given paper in **Python3.6** using **numpy, scikit-learn** package
- Implemented simple communication over http protocol locally to connect front end code and backend ml inference using **flask, json** packege

Content Based http/https Traffic Filtering

- Implemented local cache in **C++** using **sqlite** library in **Windows** client PC**(Windows10)**) application
- User can selectively filter categories of content
- Written simple **javascript** for browser based control panel of client PC application

Used Tools

Languages	Python3, C++, C, Bash, C#, SQL, x86 Assembly(fasm), Java
Machine Learning/Vision Development Tools	OpenCV, Scikit-learn, Keras, PyTorch
DBMS	MySQL, SQLite, PostgreSQL
Build system	Make, CMake, Bazel
Cloud Environment	GCP
Hypervisor system	VirtualBox, Linux KVM
Container management system	Docker
Mobile Platform SDK	Android (https://play.google.com/store/apps/developer?id=BitpatternWeaver)
H/W Development Platform	Arduino, Raspberry PI
WebFrameworks	Laravel, Codeogniter

Recent Publications

COLTI: Towards Concurrent and Co-located DNN Training and Inference

ACM International Symposium on High-Performance Parallel and Distributed Computing (HPDC)

Poster — *2023*

- `https://www.hpdc.org/2023/program/accepted/`

Towards Data Gravity and Compliance Aware Distributed Deep Learning on Hybrid Clouds

Workshop on Data Fabric for Hybrid Clouds

Workshop Article — *2022*

- `https://hipc.org/wdfhc/`

Efficient association mapping from k-mers—an application in finding sex-specific sequences

Plos One

Journal Article — *2021*

- `https://doi.org/10.1371/journal.pone.0245058`

Achievements

ACM HPDC'23 Best Poster Award — *June, 2023*

- `https://twitter.com/ACM_HPDC/status/1671990446174642177/photo/1`

Part of BrickHack 9 Best Health Hack Winner Team *February, 2023*

- RIT's premiere collegiate hackathon

ITEE Certification *March, 2018*

- ITEE Level 2, FE Exam
- Organized by IPA, Japan