

Jaiaid Mobin

GRADUATE TEACHING ASSISTANT

Rochester, NY, USA

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Summary

I am a 2nd year Ph.D. student. My research focus is GPU workload optimization and disaggregated data centers. I am seeking an internship opportunity in Summer, 2024 (May 27, 2024 to August 16, 2024). I am interested in getting opportunities to get more hands-on experience on how the industry manages HPC, and cloud environments.

Education

Rochester Institute of Technology

PH.D. IN COMPUTER SCIENCE

- **Research Topic** — High performance computing, distributed computing

Rochester, NY, USA

August, 2022 - Present

Bangladesh University of Engineering and Technology

M.SC. IN COMPUTER SCIENCE

- **Thesis Title** — Transit Network Design For Evacuation Modeling Using Heuristic and Multi-Objective Optimization Based Approaches

Dhaka, Bangladesh

August, 2022

Bangladesh University of Engineering and Technology

B.SC. IN COMPUTER SCIENCE

Dhaka, Bangladesh

September, 2017

Experience

Rochester Institute of Technology

GRADUATE TEACHING ASSISTANT

- Answering Student's queries about homework in office hours or in Discord

Rochester, NY, USA

August 2023 - December 2023

Rochester Institute of Technology

GRADUATE RESEARCH ASSISTANT

- Investigate Research Problem
- Study and present research paper

Rochester, NY, USA

August 2023 - May 2023

BJIT Ltd - Offshore Software Development Company

SOFTWARE ENGINEER

- Reviewed client expectations and project parameters and suggested software packages that met requirements.

House-7, Road-2/C, Block-J,
Baridhara, Dhaka

July 2018 - October 2020

BJIT Ltd - Offshore Software Development Company

SOFTWARE ENGINEER

- Reviewed client expectations and project parameters and suggested software packages that met requirements.

House-7, Road-2/C, Block-J,
Baridhara, Dhaka

July 2018 - October 2020

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** package

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, Java, SQL, C#, x86 Assembly(fasm) |
| 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 Deployment | Docker |
| Cluster Management Toolkit | | xCAT |
| | Mobile Platform SDK | Android (https://play.google.com/store/apps/details?id=com.bitweaver.morsetorch) |
| | Network Tool | Wireshark (monitoring), Packettracer (simulation), Postman (API testing) |
| | WebFrameworks | Laravel, Codeigniter |
| | H/W Development Platform | Arduino, Raspberry PI |

Recent Publications

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

POSTER (BEST POSTER AWARD)

- <https://www.hpdc.org/2023/program/accepted/>

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

2023

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

WORKSHOP ARTICLE

- <https://hipc.org/wdfhc/>

*Workshop on Data Fabric for Hybrid
Clouds*

2022

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

JOURNAL ARTICLE

Plos One

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