

Jaiaid Mobin

GRADUATE RESEARCH ASSISTANT

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Summary

I am looking for Summer, 2023 (availability from 05/16/2023 to 08/18/2023) internship. I am interested in getting opportunities where I can get more hands on experience on distributed systems and Linux environment.

I am a first year student at Rochester Institute of Technology (RIT) in Computing and Information Science Ph.D. program, started on August, 2022. Currently, I am working as a graduate research assistant in High Performance Distributed Systems Laboratory (HPDSL). I am working under supervision of Dr. M. Mustafa Rafique. My research interest is distributed computing and high performance computing.

Education

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, GPA: 3.57/4.0

September, 2017

Selected Publications

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

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

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

- <https://doi.org/10.1371/journal.pone.0245058>

A heuristic aided Stochastic Beam Search algorithm for solving the transit network design problem

- <https://doi.org/10.1016/j.swevo.2019.02.007>

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

BJIT Ltd - Offshore Software Development Company

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

Baridhara, Dhaka

SOFTWARE ENGINEER

July 2018 - October 2020

- Trained newly recruit Engineers on Machine Learning
- 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 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 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, C#, SQL, x86 Assembly(fasm), Java
Hypervisor system	VirtualBox, Linux KVM
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
H/W Development Platform	Arduino, Raspberry PI
WebFrameworks	Laravel, Codeigniter

Achievements

PART OF BRICKHACK 9 BEST HEALTH HACK WINNER TEAM

February, 2023

- RIT's premiere collegiate hackathon

ITPEC AMBASSADOR

February, 2019

- From IPA, Japan

BANGLADESH JAPAN ENGINEERS TRAINING PROGRAM

June, 2018

- A training program for ICT engineers funded by JICA

ITEE CERTIFICATION

March, 2018

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