

Jaiaid Mobin

GRADUATE RESEARCH ASSISTANT

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✉ https://scholar.google.com/citations?user=ifmzYdsAAAAJ

Research Interest

ML in HPC, Data Management in Cluster, GPU Computing

Education

Rochester Institute of Technology

PH.D. IN COMPUTER SCIENCE

Rochester, NY, USA

August, 2022 - Present

- **Research Topic** — *Data Management for DDL, GPU Computing, Workload Distribution in ML Surrogate System*

Bangladesh University of Engineering and Technology

M.S.C. IN COMPUTER SCIENCE

Dhaka, Bangladesh

August, 2022

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

Bangladesh University of Engineering and Technology

B.S.C. IN COMPUTER SCIENCE

Dhaka, Bangladesh

September, 2017

Selected Publications (First Author/Collaborations)

1. Ali Khalid, **Jaiaid Mobin**, Sumanth Rao Appala, Avinash Maurya, Stephany Berrio Perez, M. Mustafa Rafique, and Fawad Ahmad. "Been There, Scanned That: Nostalgia-driven LiDAR Compression for Self-Driving Cars", ACM/IEEE SenSys 2026.
2. Li, Yuze, Shunyu Yao, **Jaiaid Mobin**, Tianyu Zhan, M. Mustafa Rafique, Dimitrios Nikolopoulos, Kirshanthan Sundararajah, and Ali R. Butt. "Memory Tiering in Python Virtual Machine." In Proceedings of the 17th ACM SIGPLAN International Workshop on Virtual Machines and Intermediate Languages, pp. 33-44. 2025.
3. Li, Yuze, Shunyu Yao, **Jaiaid Mobin**, M. Mustafa Rafique, Dimitrios Nikolopoulos, Kirshanthan Sundararajah, Huaicheng Li, and Ali R. Butt. "Towards Efficient Python Interpreter for Tiered Memory Systems." In Poster and Work-in-Progress in Proceedings of the 21st USENIX Conference on File and Storage Technologies (FAST). USENIX, 2024
4. **Mobin, Jaiaid**, Avinash Maurya, and M. Mustafa Rafique. "COLTI: Towards Concurrent and Co-located DNN Training and Inference." In Proceedings of the 32nd International Symposium on High-Performance Parallel and Distributed Computing, pp. 309-310. 2023.
5. Maurya, Avinash, **Jaiaid Mobin**, and M. Mustafa Rafique. "Towards Data Gravity and Compliance Aware Distributed Deep Learning on Hybrid Clouds." In 2022 IEEE 29th International Conference on High Performance Computing, Data and Analytics Workshop (HiPCW), pp. 53-58. IEEE, 2022.
6. Maurya, Avinash, **Jaiaid Mobin**, and M. Mustafa Rafique. "Towards data gravity and compliance aware distributed deep learning on hybrid clouds." In 2022 IEEE 29th International Conference on High Performance Computing, Data and Analytics Workshop (HiPCW), pp. 53-58. IEEE, 2022.

Ongoing Research Works

1. **Minimizing Slowdown for Sequential Offloading in Neural Network Inference:** In this project, we investigate minimizing slowdown for neural network execution in a sequentially offloaded manner while also achieving significant memory savings.
2. **Performance Model Based Work Distribution to ML Surrogate in Ptychographic Restoration:** Here we are investigating idea of shared context to improve throughput in continual learning scenarios.
3. **Access Distributed and Deduplicated In-Memory Cache Locally for Distributed Deep Learning Workloads:** In this project, we are investigating an idea to reuse same sized caches across all participating trainers in distributed deep learning

Professional Experience

Rochester Institute of Technology

GRADUATE RESEARCH ASSISTANT

Rochester, NY, USA

January 2024 - Current

- Investigate Research Problem
- Study and review research paper

Rochester Institute of Technology

GRADUATE TEACHING ASSISTANT

Rochester, NY, USA

August 2023 - December 2023

- Solving students' queries about homework during office hours or in Discord

Rochester Institute of Technology

GRADUATE RESEARCH ASSISTANT

Rochester, NY, USA

August 2022 - May 2023

- Investigate Research Problem
- Study and review research paper

BJIT Ltd - Offshore Software Development Company

SOFTWARE ENGINEER

Baridhara, Dhaka

July 2018 - April 2022

- Provide initial system design based on client requirements as a representative of a small team
- Reviewed client expectations and project parameters and suggested software packages that met requirements.

Skill Set

Programming Languages: C++, Python3, C, Bash, x86 Assembly; **GPU Runtime:** CUDA; **ML, CV SDK/Framework:** OpenCV, Scikit-learn, Keras, PyTorch, Hugging Face; **Build system:** Make, CMake, Bazel; **Environment Deployment Tool:** Virtualenv, VirtualBox, Docker; **DBMS:** MySQL, SQLite, PostgreSQL; **H/W Development Platform:** Arduino, Raspberry Pi

Achievements and Activities

ALCF INTRO TO AI-DRIVEN SCIENCE ON SUPERCOMPUTERS DIGITAL BADGE

December, 2024

- Workshop on AI in ALCF

REVIEW WORK

October, 2023 - Present

- Conference paper review, CCGRID'24
- Artifact review, ICPE'24, EuroSys'25, EuroSys'26

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