

ABDULLAH AL RAQIBUL ISLAM

aislam6@uncc.edu ◊ biqar.github.io

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RESEARCH INTEREST

My research centers around the design of data storage applications and systems, leveraging the unique characteristics of underlying storage technologies. My Ph.D. research is focused on building a high-performance dynamic graph processing system to support trillion-edge scale graphs in heterogeneous memory/storage architecture. To this end, my research focuses on the following three key aspects:

- Developing data structures to support graph insertions and queries in dynamic graphs efficiently.
- Exploiting emerging storage technologies (e.g., Persistent Memory) to store large-scale graphs in a single machine.
- Making intelligent data placement in the heterogeneous memory hierarchy.

EDUCATION

PhD in Computer Science, University of North Carolina at Charlotte Expected 2024
BSc in Computer Science & Engineering, University of Dhaka, Bangladesh 2009-2012

EMPLOYMENT HISTORY

Research Assistant 2019-Present
Data Intelligence Research (DIR) Lab (Mentor: Prof. Dong Dai)
University of North Carolina at Charlotte

Graduate Student Assistant Summer 2023
Lawrence Berkeley National Laboratory (LBNL) (Mentor: Aydin Buluç, Helen Xu)

Mentee - CS Research Mentorship Program (CSRMP) Fall 2022
Google Research (Mentor: Marisa Ferrara Boston)

Computing Graduate Student Intern Summer 2022
Lawrence Livermore National Laboratory (LLNL) (Mentor: Roger Pearce, Keita Iwabuchi)

Software Engineering

- Principal Software Engineer, TigerIT Bangladesh Ltd. 2019-2019
- Software Engineer, TigerIT Bangladesh Ltd. 2014-2019
- Junior Software Engineer, Therap (BD) Ltd. 2013-2014

Adjunct Faculty

- Adjunct Faculty, Independent University, Bangladesh 2015-2016
- Programming Session Instructor, BRAC University, Bangladesh 2014-2015
- Programming Session Instructor, University of Liberal Arts Bangladesh 2013-2015

PUBLICATIONS

1. **AAR Islam**, D Dai. “*DGAP: Efficient Dynamic Graph Analysis on Persistent Memory.*” SC’23.
2. S Kamat, **AAR Islam**, M Zheng, D Dai. “*FaultyRank: A Graph-based Parallel File System Checker.*” IPDPS’23.
3. K Youssef, **AAR Islam**, K Iwabuchi, W Feng, R Pearce. “*Optimizing Performance and Storage of Memory-Mapped Persistent Data Structures.*” HPEC’22. [Outstanding Student Paper Award]
4. **AAR Islam**, C York, D Dai. “*A Performance Study of Optane Persistent Memory: From Storage Data Structures’ Perspective.*” CCF THPC, Springer, Volume 4, 2022.
5. **AAR Islam**, D Dai, D Cheng. “*VCSR: Mutable CSR Graph Format Using Vertex-Centric Packed Memory Array.*” CCGrid’22.
6. **AAR Islam**, D Dai, A Narayanan, C York. “*A Performance Study of Optane Persistent Memory: From Indexing Data Structures’ Perspective.*” MSST’20.

7. **AAR Islam**, D Dai. “*Understand the overheads of storage data structures on persistent memory.*” (brief announcement) [PPoPP’20](#).

HONORS AND AWARDS

- UNC Charlotte Graduate School Merit Scholarship for Conference Expenses to attend in IPDPS 2023
- [SciAuth Student Fellowship](#), Fall 2022
- [Outstanding Student Paper Award](#), 27th Annual IEEE High Performance Extreme Computing (HPEC), 2022

SERVICE & OUTREACH

- **Mentor:** Undergraduate Research Initiative (URI), UNC Charlotte, Spring’23
- **Artifact Evaluation Committee:** SOSP’23, OSDI’23, ATC’23, EuroSys’23, OSDI’22, ATC’22.
- **External/Sub Reviewer:** ICPP’23, IPDPS’23, ICPP’22, BigData’22, IPDPS’22, CCGrid’22, ISPA’21, IPDPS’20, ICPP’20.
- **Student Volunteer:** SC’23, ISSRE’22, SC’21.

COMPETITIVE PROGRAMMING & PROBLEM SOLVING (SELECTED)

- **Contest Participation**
 - Lucid Programming Competition, 2021. Individual participation (Place: 5th in [UNC Chapel Hill Leaderboard](#))
 - ACM ICPC Regionals, 2011 (Asia, Dhaka Site). Team participation (Team: DU Army Ants Reloaded), Place: 9th
 - BUET Inter University Programming Contest, 2011. Team: DU Flies On The Wall, Place: 9th
- **Problem Setter & Judge**
 - [SUB Inter University Programming Contest, 2017](#), State University of Bangladesh
 - [Cybernavts’16 National Programming Contest, 2016](#), North South University
 - [Bangladesh Informatics Olympiad, 2016](#), National Round
 - IUT 6th-9th ICT Fest Programming Contest, 2014-2017, Islamic University of Technology