AHMEDUR RAHMAN SHOVON

Address: Chicago, IL
Email: shovon.sylhet@gmail.com
Mobile: +1 (659) 910-8092
Website: arshovon.com
LinkedIn: arshovon
StackOverflow: arshovon

Education

Ph.D. Student (3rd year) **2023-cont.**
Department of Computer Science, University of Illinois Chicago Chicago, IL
Advisor: Dr. Sidharth Kumar

Ph.D. Student - Blazer Graduate Research Fellow **2021-2023**
Department of Computer Science, University of Alabama at Birmingham AL
Advisor: Dr. Sidharth Kumar
GPA: 4.00

Master of Science in Information Technology **2016-2017**
Institute of Information Technology, Jahangirnagar University Dhaka, Bangladesh
Advisor: Dr. Md Whaiduzzaman
GPA: 3.67
Thesis: An Optimized RESTful E-Governance Application Framework for People Identity Verification in Cloud

Bachelor of Science in Information Technology **2012-2016**
Institute of Information Technology, Jahangirnagar University Dhaka, Bangladesh
Advisor: Dr. Risala Tasin Khan
GPA: 3.73
Project: EasyC: A platform for learning C programming

Research Interest

High Performance Computing
Data Analytics
Cloud Computing

Experience

Graduate Research Assistant **08/2023 - cont.**
Department of Computer Science, University of Illinois Chicago Chicago, IL
High-performance Automated Reasoning and Programming Lab (HARP)

- Developing GPU applications focusing on high-performance relational algebra primitives.
- Extending the topological data analysis pipeline to apply persistent homology on temporal brain networks.
- Evaluating different parallel programming models to solve iterative high-performance relational algebra tasks.

Graduate Student Intern (WJ Cody Associate) **05/2023 - 08/2023**
Argonne National Lab Lemont, IL
Mathematics and Computer Science Division

- Extended Rosetta-Bench, a benchmark suite and framework for heterogeneous computing focusing on the performance benchmarks of parallel programming models.
- Collaborated with Argonne scientists to gain insights into runtime systems, compilers, and other aspects of computational science.
- Worked in a research environment that includes access to one of DOE's leadership-class computers and the Argonne Leadership Computing Facility.

Graduate Research Assistant (Blazer Fellow) **08/2021 - 08/2023**
University of Alabama at Birmingham Birmingham, AL
High-performance Automated Reasoning and Programming Lab (HARP)
- Demonstrated the feasibility of a high-performance relational algebra backend for a subset of Datalog applications leveraging GPU parallelism [W1, C5].
- Developed a visualization tool to create Kaplan Meier survival probability graph for cancer data analysis [J2].
- Designed a topological data analysis pipeline to apply persistent homology on brain networks resting state fMRI data [J3].

Assistant Programmer **06/2019 - 08/2021**
ICT Division, Government of Bangladesh Dhaka, Bangladesh
Department of Information & Communication Technology
- Designed and implemented e-File application ranking platform.
- Contributed to the development of e-Governance and e-Services solutions.
- Actively served to achieve Smart Cities and Communities to attain Sustainable Development Goals (SDG).

Software Engineer **12/2017 - 06/2019**
Cefalo Bangladesh Ltd. Dhaka, Bangladesh
NHST Global Team
- Developed and maintained five publications of this Norwegian media conglomerate in a global team.
- Re-designed the digital subscription model that reduced the subscription completion time by 75% using Django REST framework and ReactJS.
- Contributed to building a CI/CD pipeline to automate the application deployment.

Graduate Research Assistant **01/2016 - 12/2018**
Jahangirnagar University Dhaka, Bangladesh
Mobile Cloud Computing and Big Data Research Group (MCCBD)
- Developed RESTful E-Governance application framework for identity verification using deep learning in cloud [B1].
- Applied combined approach of tokenization and mining to secure and optimize Big Data in cloud storage [C1].
- Configured a private cloud with two nodes using OpenStack.

Teaching Experience

Teaching Assistant **01/2016 - 12/2016**
Institute of Information Technology, Jahangirnagar University Dhaka, Bangladesh
Operating System Lab (undergraduate level)
- Led 2-hour weekly lab sessions on shell programming.
- Assisted students with projects and assignments, offering guidance and constructive feedback.
- Designed and evaluated bi-weekly tests on operating system topics.

Bibliometrics

Journal Articles: 3, Book Chapter: 1, Workshop Papers: 2, Conference Papers: 5
Citations: 700, h-index: 6 (retrieved from Google Scholar on 12/09/2023)

Journal Articles

[**J3**] Sidharth Kumar, **Ahmedur Rahman Shovon**, Gopikrishna Deshpande, "**The robustness of persistent homology of brain networks to data acquisition-related non-neural variability in resting state fMRI**", In: *Human Brain Mapping*. doi: 10.1002/hbm.26403. Impact Factor: 4.5, Q1 Journal.

[**J2**] Darshan Shimoga Chandrashekar, Santhosh Kumar Karthikeyan, Praveen Kumar Korla, Henalben Patel, **Ahmedur Rahman Shovon**, Mohammad Athar, George J Netto, Zhaohui S Qin, Sidharth Kumar, Upender Manne, Chad J Crieghton, and Sooryanarayana Varambally, "**UALCAN: An update to the integrated cancer data analysis platform**", In: *Neoplasia*. doi: 10.1016/j.neo.2022.01.001. Impact Factor: 5.71, Q1 Journal.

[**J1**] Md Whaiduzzaman, Md. Razon Hossain, **Ahmedur Rahman Shovon**, Shanto Roy, Aron Laszka, Rajkumar Buyya, and Alistair Barros, "**A Privacy-preserving Mobile and Fog Computing Framework to Trace and Prevent COVID-19 Community Transmission**", In: *IEEE Journal of Biomedical and Health Informatics (J-BHI)*. doi: 10.1109/JBHI.2020.3026060. Impact Factor: 5.22, Q1 Journal.

Book Chapters

[**B1**] **Ahmedur Rahman Shovon**, Shanto Roy, Tanusree Sharma, and Md. Whaiduzzaman, "**A RESTful E-Governance Application Framework for People Identity Verification in Cloud**", In: *Luo M., Zhang LJ. (eds) Cloud Computing – CLOUD 2018. Lecture Notes in Computer Science, vol 10967. Springer, Cham.* https://doi.org/10.1007/978-3-319-94295-7_19.

Workshop Papers

[**W2**] Kashyap Balakavi, Rushitha Janga, **Ahmedur Rahman Shovon**, Don Dempsey, Elliot Lefkowitz, and Sidarth Kumar, "**Scalable, interactive and hierarchical visualization of virus taxonomic data**", In: *2021 IEEE Workshop on Visual Analytics in Healthcare (VAHC)*, Melbourne, Australia, 2023, in conjunction with IEEE VIS 2023.

[**W1**] **Ahmedur Rahman Shovon**, Landon Richard Dyken, Oded Green, Thomas Gilray, and Sidharth Kumar, "**Accelerating Datalog applications with cuDF**", In: *2022 IEEE/ACM Workshop on Irregular Applications: Architectures and Algorithms (IA3)*, Dallas, TX, USA, 2022 pp. 41-45 in conjunction with SC22. doi: 10.1109/IA356718.2022.00012.

Conference Papers

[**C5**] **Ahmedur Rahman Shovon**, Thomas Gilray, Kristopher Micinski, Sidharth Kumar, "**Towards Iterative Relational Algebra on the GPU**", In: *2023 USENIX Annual Technical Conference (USENIX ATC 23)*, Boston, MA, USA, 2023 pp. 1009-1016. ISBN: 978-1-939133-35-9.

[**C4**] Md Whaiduzzaman, Alistair Barros, **Ahmedur Rahman Shovon**, Md Razon Hossain, and Colin Fidge, "**A Resilient Fog-IoT Framework for Seamless Microservice Execution**", In: *IEEE International Conference on Services Computing (SCC) - 2021*, pp. 213-221. doi: 10.1109/SCC53864.2021.00034

[**C3**] Md Shahriare Satu, Md Khalilur Rahman, Maksud Alam Rony, **Ahmedur Rahman Shovon**, Md Jane Alam Adnan, Koushik Chandra Howlader, and M Shamim Kaiser, "**COVID-19: Update, Forecast and Assistant-An Interactive Web Portal to Provide Real-Time Information and Forecast COVID-19 Cases in Bangladesh**", In: *International Conference on Information and Communication Technology for Sustainable Development (ICICT4SD) - 2021*, pp. 456-460.

[**C2**] **Ahmedur Rahman Shovon**, Shanto Roy, Arnab Kumar Shil, and Tanjila Atik, "**GDPR Compliance: Implementation Use Cases for User Data Privacy in News Media Industry**", In: *International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT) - 2019*, pp. 1-6. doi: 10.1109/ICASERT.2019.8934660

[C1] Shanto Roy, **Ahmedur Rahman Shovon**, and Md. Whaiduzzaman, "**Combined approach of Tokenization and Mining to secure and optimize Big Data in Cloud Storage**", In: *IEEE R10 Humanitarian Technology Conference (R10-HTC) - 2017*, pp. 83-88. doi: 10.1109/R10-HTC.2017.8288912

Reviewer Recognition

Journal: Sustainable Cities and Society (SCS)
Impact Factor: 7.587, Publisher: Elsevier.

Awards

USENIX ATC Student Grant 2023
Awarded by the USENIX Association.

Blazer Graduate Research Fellowship 2021
Awarded by the University of Alabama at Birmingham.

National Science and Technology (NST) Fellowship 2016-17
Awarded by the Ministry of Science and Technology, Bangladesh.

University Merit Scholarships 2012-16
Awarded by the Jahangirnagar University.

National Merit Scholarship 2011
Awarded by the Ministry of Education, Bangladesh.

Achievements

Participant @ oneAPI Hackathon: CUDA to SYCL Migration 10/2023
Ported CUDA project to SYCL with automatic and manual interventions.

Participant @ 1st Parallel Programming Marathon SC 2022 11/2022
Optimized sequential programming challenges on Cori (NERSC supercomputer).

Participant @ Argonne GPU Hackathon 2022 07/2022
Benchmarked transitive closure computation, nested loop join on ThetaGPU.

1st @ Hackerrank Python and Security domain 07/2016
Solved all Python and Security domain challenges at Hackerrank.

7th @ IEEEXtreme Programming Competition 9.0 10/2015
Achieved 7th position out of 2,477 teams, Team: *JUIITCoders*.

1st @ Intra University Programming Contest, JU 08/2015
Achieved 1st position in *Intra University Programming Contest, JU, 2015*.

Training

Hands-on HPC Workshop @ ALCF 10/2023
Covers topics to utilize Polaris and AI Testbeds focusing on porting applications to heterogeneous architectures (CPU + GPU) on ALCF systems.

AI for Science on Supercomputers @ ALCF 12/2022
Covers topics to develop and apply AI solutions and scale AI training for science on ThetaGPU (Argonne supercomputer). *(certificate link)*

Hands-On HPC @ OLCF 12/2022
Covers essential tools for High-Performance Computing, including MPI, OpenMP, and GPU programming using Summit supercomputer. *(certificate link)*

Fundamentals of Accelerated Computing @ NVIDIA 06/2022
Covers topics of accelerating CPU-only applications to run their latent parallelism on GPUs utilizing CUDA programming model. *(certificate link)*

Effective Object Oriented Programming @ Cefalo 05/2018
Covers core concepts and principles of Object Oriented Programming. Achievement: Certificate of Excellence (Distinction) *(certificate link)*

Technical Skills

Advanced: Python, JavaScript, Git, LaTeX.
Intermediate: C++, CUDA, MPI, Bash, AWS.
Basic: NoSQL, Java, SQL, JIRA, PHP.
CI/CD: Docker, Github actions, Travis CI.

Community Contributions

Judge @ Spring 2023 Research Expo, UAB 04/2022
Served as a judge under Service Learning and Undergraduate Research, UAB.

Judge @ Fall 2022 Research Expo, UAB 11/2022
Served as a judge under Service Learning and Undergraduate Research, UAB.

Volunteer @ The World Games 2022, Birmingham, USA 07/2022
Served as a volunteer for International World Games Association (IWGA).

Judge @ Spring 2022 Research Expo, UAB 04/2022
Served as a judge under Service Learning and Undergraduate Research, UAB.

Judge @ Fall 2021 Research Expo, UAB 11/2021
Served as a judge under Service Learning and Undergraduate Research, UAB.

Webmaster @ IEEE Student Branch, JU 05/2015 - 10/2016
Developed and maintained IEEE SB, JU website.

Top 1% contributor @ Stack Overflow Username: *arshovon*
Gained 13000+ reputation in *StackOverflow* where developers learn and build careers.

Contribution @ Github Username: *arsho*
Contributor and maintainer of several popular open source projects in *Github*.

Contribution @ PyPI Username: *arsho*
Developed *Bangla*, *AutoLike*, *Opener*, and *CopyUSB* PyPI listed packages.