AHMEDUR RAHMAN SHOVON

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Education

PhD Student (2nd year) - Blazer Graduate Research Fellow (2021-cont.)
Department of Computer Science, University of Alabama at Birmingham (UAB), AL
GPA: 4.00 (in the scale of 4.00).

Master of Science in Information Technology (Thesis Group) (2017-2018)
Institute of Information Technology, Jahangirnagar University (JU), Bangladesh.
CGPA: 3.67 (in the scale of 4.00), research covers 33.33% of total credit.

Bachelor of Science in Information Technology (2012-2016)
Institute of Information Technology, Jahangirnagar University (JU), Bangladesh.
CGPA: 3.73 (in the scale of 4.00).

Research Interest

High Performance Computing
Data Analytics
Cloud Computing

Research Experience

05/2023 - Present: **Argonne National Lab, IL, United States**.
Graduate Student Intern (WJ Cody Associate),
Mathematics and Computer Science Division (MCS).
- Designing and implementing algorithms and software for scientific computing at extreme scale.
- Collaborating with Argonne scientists to gain new insights into parallel programming models, runtime systems, and compilers, as well as various other aspects of computational science.
- Working in a research environment that includes access to one of DOE's leadership-class computers and the Argonne Leadership Computing Facility.

08/2021 - Present: **University of Alabama at Birmingham, AL, United States**.
Graduate Research Assistant (Blazer Graduate Research Fellow),
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].
- 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 [(under review)].

01/2016 - 12/2018: **IIT, Jahangirnagar University, Dhaka, Bangladesh**.
Graduate Research Assistant,
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.

Bibliometrics

Journal Article: 2, Book Chapter: 1, Workshop Papers: 1, Conference Papers: 4
Citations: 409, h-index: 6 (retrieved from Google Scholar on 06/17/2023)

Journal Articles

[**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

[**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

[**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. doi: 10.1109/ICICT4SD50815.2021.9396786

[**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

Academic Awards and Honors

2021: Blazer Graduate Research Fellowship in the Computer Science department at the University of Alabama at Birmingham
2016-2017: National Science and Technology (NST) Fellowship, Ministry of Science and Technology, Bangladesh for Masters Research
2012-2016: University Merit Scholarships at undergraduate level
2011: National Merit Scholarship for Higher Secondary Certificate examination
2010: Champion in higher secondary category at Bangladesh Mathematical Olympiad

Reviewer Recognition

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

Trainings

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)*

Achievements

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*.

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.

Professional Experience

06/2019 - 08/2021: **ICT Division, Government of Bangladesh**.
Assistant Programmer, 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).

12/2017 - 06/2019: **Cefalo Bangladesh Ltd.**
Software Engineer, 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.

Teaching Experience

01/2016 - 12/2016: **IIT, Jahangirnagar University, Dhaka, Bangladesh**.
Teaching Assistant, Operating System Lab.

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: *arsho*
Gained 12000+ 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.