

AHMEDUR RAHMAN SHOYON

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| Education | <p>PhD (2nd year) - Blazer Graduate Research Fellow (2021-cont.) Department of Computer Science, University of Alabama at Birmingham (UAB), Birmingham, AL, United States.</p> <p>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.</p> <p>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).</p> |
| Research Interest | <p>High Performance Computing Data Analytics Cloud Computing Software Engineering</p> |
| Bibliometrics | <p>Journal Article: 2, Book Chapter: 1, Workshop Papers: 1, Conference Papers: 4 Citations: 225, h-index: 5 (retrieved from Google Scholar on 01/23/2023)</p> |
| Journal Articles | <p>[J2] Darshan Shimoga Chandrashekar, Santhosh Kumar Karthikeyan, Praveen Kumar Korla, Henalben Patel, Ahmedur Rahman Shoyon, 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: <i>Neoplasia</i>. doi: 10.1016/j.neo.2022.01.001. Impact Factor: 5.71, Q1 Journal.</p> <p>[J1] Md Whaiduzzaman, Md. Razon Hossain, Ahmedur Rahman Shoyon, 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: <i>IEEE Journal of Biomedical and Health Informatics (J-BHI)</i>. doi: 10.1109/JBHI.2020.3026060. Impact Factor: 5.22, Q1 Journal.</p> |
| Book Chapters | <p>[B1] Ahmedur Rahman Shoyon, Shanto Roy, Tanusree Sharma, and Md. Whaiduzzaman, “A RESTful E-Governance Application Framework for People Identity Verification in Cloud”, In: <i>Luo M., Zhang L.J. (eds) Cloud Computing – CLOUD 2018. Lecture Notes in Computer Science, vol 10967. Springer, Cham.</i> https://doi.org/10.1007/978-3-319-94295-7_19.</p> |
| Workshop Papers | <p>[W1 (Accepted)] Ahmedur Rahman Shoyon, Landon Richard Dyken, Oded Green, Thomas Gilray, and Sidharth Kumar, “Accelerating Datalog applications with cuDF”, In: <i>2022 IEEE/ACM 12th Workshop on Irregular Applications: Architectures and Algorithms (IA3)</i>, Dallas, TX in conjunction with SC22.</p> |

**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

**Research
Experience**

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.

**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.

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| 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). (<i>certificate link</i>) |
| | Hands-On HPC @ OLCF 12/2022 Covers essential tools for High-Performance Computing, including MPI, OpenMP, and GPU programming using Summit supercomputer. (<i>certificate link</i>) |
| | 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. (<i>certificate link</i>) |
| | Effective Object Oriented Programming @ Cefalo 05/2018 Covers core concepts and principles of Object Oriented Programming. Achievement: Certificate of Excellence (Distinction) (<i>certificate link</i>) |
| 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 @ IEEEExtreme Programming Competition 9.0 10/2015 Achieved 7 th position out of 2,477 teams, Team: <i>JUITCodere</i> . |
| | 1st @ Intra University Programming Contest, JU 08/2015 Achieved 1 st position in <i>Intra University Programming Contest, JU, 2015</i> . |
| 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. <i>Assistant Programmer</i> , Department of Information & Communication Technology. <ul style="list-style-type: none"> • 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. <i>Software Engineer</i> , NHST Global Team. <ul style="list-style-type: none"> • 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. <i>Teaching Assistant</i> , Operating System Lab. |

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| Community Contributions | 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: <i>arsho</i> |
| | Gained 12000+ reputation in <i>StackOverflow</i> where developers learn and build careers. | |
| | Contribution @ Github | Username: <i>arsho</i> |
| | Contributor and maintainer of several popular open source projects in <i>Github</i> . | |
| | Contribution @ PyPI | Username: <i>arsho</i> |
| | Developed <i>Bangla</i> , <i>AutoLike</i> , <i>Opener</i> , and <i>CopyUSB</i> PyPI listed packages. | |