

AHMEDUR RAHMAN SHOYON

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Education **PhD (2nd year) - Blazer Graduate Research Fellow** (2021-cont.)
Department of Computer Science, University of Alabama at Birmingham (UAB),
Birmingham, AL, United States.

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
Software Engineering

Bibliometrics 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)

Journal Articles [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: *Neoplasia*. doi: 10.1016/j.neo.2022.01.001. Impact Factor: 5.71, Q1 Journal.

[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: *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 Shoyon**, Shanto Roy, Tanusree Sharma, and Md. Whaiduzzaman, “**A RESTful E-Governance Application Framework for People Identity Verification in Cloud**”, In: *Luo M., Zhang L.J. (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 Shoyon**, 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	<p>[C4] Md Whaiduzzaman, Alistair Barros, Ahmedur Rahman Shovon, Md Razon Hossain, and Colin Fidge, “A Resilient Fog-IoT Framework for Seamless Microservice Execution”, In: <i>IEEE International Conference on Services Computing (SCC) - 2021</i>, pp. 213-221. doi: 10.1109/SCC53864.2021.00034</p> <p>[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: <i>International Conference on Information and Communication Technology for Sustainable Development (ICICT4SD) - 2021</i>, pp. 456-460. doi: 10.1109/ICICT4SD50815.2021.9396786</p> <p>[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: <i>International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT) - 2019</i>, pp. 1-6. doi: 10.1109/ICASERT.2019.8934660</p> <p>[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: <i>IEEE R10 Humanitarian Technology Conference (R10-HTC) - 2017</i>, pp. 83-88. doi: 10.1109/R10-HTC.2017.8288912</p>
Research Experience	<p>08/2021 - Present: University of Alabama at Birmingham, AL, United States. <i>Graduate Research Assistant (Blazer Graduate Research Fellow)</i>, High-performance Automated Reasoning and Programming Lab (HARP). <ul style="list-style-type: none"> • 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)]. </p> <p>01/2016 - 12/2018: IIT, Jahangirnagar University, Dhaka, Bangladesh. <i>Graduate Research Assistant</i>, Mobile Cloud Computing and Big Data Research Group (MCCBD). <ul style="list-style-type: none"> • 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. </p>
Academic Awards and Honors	<p>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</p>
Reviewer Recognition	<p>Journal: Sustainable Cities and Society (SCS) <i>Impact Factor: 7.587</i>, Publisher: Elsevier.</p>

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>JUITCodiers</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.

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.	