

# Ahmedur Rahman Shovon

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🏠 Chicago, IL

## EDUCATION

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### Ph.D. (Student) in Computer Science

August 2023 - present

[University of Illinois Chicago](#) · Chicago, IL

Third year doctoral student (Graduate Research Assistant)

### Ph.D. (Student) in Computer Science

August 2021 - August 2023

[University of Alabama at Birmingham](#) · Birmingham, AL

Graduate Research Assistant, Blazer Graduate Research Fellow

### MSc in Information Technology

December 2015 - December 2016

[Jahangirnagar University](#) · Dhaka, Bangladesh

CGPA: 3.67 out of 4.00

### BSc in Information Technology

December 2011 - December 2015

[Jahangirnagar University](#) · Dhaka, Bangladesh

CGPA: 3.73 out of 4.00

## EXPERIENCES

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### Graduate Research Assistant

August 2021 - Cont.

[Department of Computer Science, University of Illinois Chicago](#) · Chicago, IL

- 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)

May 2023 - August 2023

[Argonne National Laboratory](#) · Lemont, IL

- 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 Graduate Research Fellow)**

August 2021 - August 2023

[Department of Computer Science, University of Alabama at Birmingham](#) · Birmingham, AL

- Demonstrated the feasibility of a high-performance relational algebra backend for a subset of Datalog applications leveraging GPU parallelism.
- Developed a visualization tool to create Kaplan Meier survival probability graph for cancer data analysis.
- Designed a topological data analysis pipeline to apply persistent homology on brain networks resting state fMRI data.

### **Assistant Programmer**

June 2019 - August 2021

[Department of ICT, ICT Division](#) · Dhaka, Bangladesh

- 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**

December 2017 - June 2019

[Cefalo](#) · Dhaka, Bangladesh

- Developed and maintained five publications of NHST Media Group 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.

### **Software Engineer**

October 2016 - November 2017

[Codalo](#) · Dhaka, Bangladesh

- Developed a Education as a Service(EaaS) application
- Created real time fingerprint based attendance system with instant messaging service.
- Designed a CI/CD pipeline for web application auto deployment.

### **Freelancer**

April 2015 - August 2019

[Upwork](#)

- Developed custom plugins and data scrapper as per clients' requirements.
- Worked on web and data driven application development on contractual and hourly basis.
- Developed a web app to calculate height of the tide between high and low water.

## PUBLICATIONS

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### Scalable, interactive and hierarchical visualization of virus taxonomic data

Kashyap Balakavi, Rushitha Janga, [Ahmedur Rahman Shovon](#), Don Dempsey, Elliot Lefkowitz, Sidarth Kumar

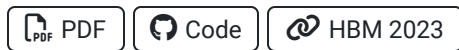
In *2021 IEEE Workshop on Visual Analytics in Healthcare (VAHC)*, in conjunction with *IEEE VIS 2023*



### The robustness of persistent homology of brain networks to data acquisition-related non-neural variability in resting state fMRI

Sidharth Kumar, [Ahmedur Rahman Shovon](#), Gopikrishna Deshpande

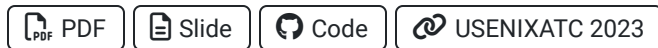
In *Human Brain Mapping (Q1 Journal)*



### Towards Iterative Relational Algebra on the GPU

[Ahmedur Rahman Shovon](#), Thomas Gilray, Kristopher Micinski, Sidharth Kumar

In *2023 USENIX Annual Technical Conference (USENIX ATC 2023)*



### Accelerating Datalog applications with cuDF

[Ahmedur Rahman Shovon](#), Landon Richard Dyken, Oded Green, Thomas Gilray, Sidharth Kumar

In *2022 IEEE/ACM Workshop on Irregular Applications: Architectures and Algorithms (IA3 2022)*, in conjunction with SC22



### UALCAN: An update to the integrated cancer data analysis platform

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, Sooryanarayana Varambally

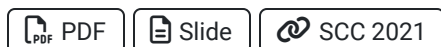
In *Neoplasia by Elsevier (Q1 Journal)*



### A Resilient Fog-IoT Framework for Seamless Microservice Execution

Md Whaiduzzaman, Alistair Barros, [Ahmedur Rahman Shovon](#), Md Razon Hossain, Colin Fidge

In *IEEE International Conference on Services Computing (SCC) - 2021, Chicago, IL.*



### COVID-19: Update, Forecast and Assistant - An Interactive Web Portal to Provide Real-Time Information and Forecast COVID-19 Cases in Bangladesh

Md. Shahriare Satu, Md. Khalilur Rahman, Maksud Alam Rony, [Ahmedur Rahman Shovon](#), Md. Jane Alam Adnan, Koushik Chandra Howlader, M Shamim Kaiser

In *International Conference on Information and Communication Technology for Sustainable Development 2021 (ICICT4SD 2021)*.



## A Privacy-preserving Mobile and Fog Computing Framework to Trace and Prevent COVID-19 Community Transmission

Md Whaiduzzaman, Md Hossain, [Ahmedur Rahman Shovon](#), Shanto Roy, Aron Laszka, Rajkumar Buyya, Alistair Barros

In *IEEE Journal of Biomedical and Health Informatics* (IEEE JBHI, Q1 Journal)



## GDPR Compliance: Implementation Use Cases for User Data Privacy in News Media Industry

[Ahmedur Rahman Shovon](#), Shanto Roy, Arnab Kumar Shil, Tanjila Atik

In *International Conference on Advances in Science, Engineering and Robotics Technology 2019 (ICASERT 2019)*.



## A RESTful E-Governance Application Framework for People Identity Verification in Cloud

[Ahmedur Rahman Shovon](#), Shanto Roy, Tanusree Sharma, Md. Whaiduzzaman

In *International Conference on Cloud Computing - 2018, Seattle, WA*.



## Combined approach of Tokenization and Mining to secure and optimize Big Data in Cloud Storage

Shanto Roy, [Ahmedur Rahman Shovon](#), Md. Whaiduzzaman

In *IEEE R10 Humanitarian Technology Conference (R10 - HTC) - 2017*.



## AWARDS

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### USENIX ATC Student Grant

2023

[The USENIX Association](#) · Boston, MA

Awarded by the USENIX Association for conference attendance.

### Blazer Graduate Research Fellowship

2021 - 2022

[The University of Alabama at Birmingham](#) · Birmingham, AL

Awarded by UAB recognizing outstanding qualification for doctoral research.

<b>National Science and Technology (NST) Fellowship</b> <a href="#">Ministry of Science and Technology</a> · Dhaka, Bangladesh Awarded by Ministry of Science & Technology, Bangladesh for research excellence at graduate level.	2016 - 2017
<b>University Merit Scholarships</b> <a href="#">Jahangirnagar University</a> · Dhaka, Bangladesh Awarded by Jahangirnagar University for academic excellence at undergraduate level.	2011 - 2015
<b>National Merit Scholarship</b> <a href="#">Education Boards</a> · Dhaka, Bangladesh Awarded by Education Boards, Bangladesh for academic excellence at higher secondary level.	2011
<b>National Merit Scholarship</b> <a href="#">Education Boards</a> · Dhaka, Bangladesh Awarded by Education Boards, Bangladesh for academic excellence at secondary level.	2009

## SERVICES

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<b>Judge @ Spring 2023 Research Expo, UAB</b> <a href="#">Service Learning and Undergraduate Research - UAB</a> Served as a judge of <a href="#">Spring 2023 Research Expo</a> .	April 2023
<b>Judge @ Fall 2022 Research Expo, UAB</b> <a href="#">Service Learning and Undergraduate Research - UAB</a> Served as a judge of <a href="#">Fall 2022 Research Expo</a> .	November 2022
<b>Volunteer @ The World Games 2022, Birmingham, USA</b> <a href="#">International World Games Association (IWGA)</a> Served as a volunteer at the <a href="#">The World Games 2022</a> .	July 2022
<b>Judge @ Spring 2022 Research Expo, UAB</b> <a href="#">Service Learning and Undergraduate Research - UAB</a> Served as a judge of <a href="#">Spring 2022 Research Expo</a> .	April 2022
<b>Judge @ Fall 2021 Research Expo, UAB</b> <a href="#">Service Learning and Undergraduate Research - UAB</a> Served as a judge of <a href="#">Fall 2021 Research Expo</a> .	November 2021
<b>Journal reviewer @ Sustainable Cities and Society (SCS)</b>	November 2021

[Elsevier](#)

Served as a reviewer for [Sustainable Cities and Society \(SCS\) journal](#).

**Webmaster @ IEEE SB JU**

May 2015 - October 2017

[IEEE Student Branch · Jahangirnagar University](#)

I was responsible for development and maintenance of [IEEE Student Branch, JU website](#).

**App Developer @ ICEEICT 2015**

May 2015

[International Conference on Electrical Engineering and Information & Communication Technology \(ICEEICT\) 2015](#)

Developed the mobile application for ICEEICT 2015 conference.

## TRAINING

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**ALCF Hands-on HPC Workshop**

October 10-12, 2022

[Argonne National Laboratory](#)

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 ([View Certificate](#))([Digital Badge](#))**

December 06, 2022

[Argonne National Laboratory](#)

Covers topics to develop and apply AI solutions and scale AI training for science on ThetaGPU (Argonne supercomputer).

**Hands-On HPC ([View Certificate](#))**

December 05, 2022

[Oak Ridge Leadership Computing Facility](#)

Covers essential tools for High-Performance Computing, including MPI, OpenMP, and GPU programming using Summit supercomputer.

**Fundamentals of Accelerated Computing with CUDA C/C++ ([View Certificate](#))**

July 30, 2022

[NVIDIA Deep Learning Institute](#)

Covers topics of accelerating CPU-only applications to run their latent parallelism on GPUs utilizing CUDA programming model.

**Problem Solving ([View Certificate](#))**

January 07, 2021

[Hackerrank](#)

Covers topics of Data Structures (such as HashMaps, Stacks and Queues) and Algorithms (such as Optimal Solutions).

**C programming language ([View Certificate](#))**

September 15, 2020

[Hackerrank](#)

Covers topics of Conditionals, Loops, Arrays, Strings, Functions, Structs, and Enums.

**Rest API ([View Certificate](#))**

July 11, 2020

[Hackerrank](#)

Covers topics of getting data from an API and process using parameters or paging.

**JavaScript ([View Certificate](#))**

May 07, 2020

[Hackerrank](#)

Covers topics of Functions, Currying, Hoisting, Scope, Inheritance, Events and Error Handling.

**Python programming language ([View Certificate](#))**

May 05, 2020

[Hackerrank](#)

Covers topics of Scalar Types, Operators and Control Flow, Strings, Collections and Iteration, Modularity, Objects and Types and Classes.

**The International English Language Testing System(IELTS) - Academic**

October 31, 2019

[British Council](#)

*Band 7.5:* (Listening-8.5, Reading-8.5, Writing-6.0, Speaking-7.0)

**Effective Object Oriented Programming ([View Certificate](#))**

March 21, 2018 - May 30, 2018

[Cefalo](#)

Covers core concepts and principles of Object Oriented Programming. *Achievement:* Certificate of Excellence (Distinction)

**Information Technology Passport Examination (ITEE - IP)**

April 24, 2016

[Bangladesh Computer Council \(BCC\) governed by IPA, Japan](#)

*Passer ID:* IP2016Apr00048

*Achievement:* Certificate of Excellence (3rd position in Bangladesh)

**Front End Development Certification ([View Certificate](#))**

October 22, 2015 - March 10, 2016

[freeCodeCamp](#)

Covers HTML5 and CSS, Responsive Design with Bootstrap, JavaScript, jQuery, Object Oriented and Functional Programming, JSON APIs and Ajax, Algorithm Scripting, Front End Development Projects.

**Mobile Application Development (Android)**

November 2, 2015 - January 2, 2016

[BASIS Institute of Technology and Management \(BITM\)](#)

It covers Android Overview, Main Building blocks, Java Basics, OOP, UI, SQLite, Broadcast Receiver, Services, Content Providers, Lists & Adapters, Preferences, API, Web Service, Deployment.

## ACHIEVEMENTS

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**Top 3% contributor @ StackOverflow** 2013 - present

[StackOverflow profile](#)

Contributing regularly at StackOverflow and have more than 13,000 reputation.

**Winner @ oneAPI Hackathon: CUDA to SYCL Migration 2023** October 2023

[oneapi-sycl-hackathon](#)

Ported CUDA project to SYCL with automatic and manual interventions.

**Participant @ 1st Parallel Programming Marathon 2022** November 2022

[SC22\(View Certificate\)](#)

Optimized sequential programming challenges on Cori (NERSC 30 petaflops supercomputer).

**Participant @ Argonne GPU Hackathon 2022** July 2022

[Event link](#)

Benchmarked transitive closure computation and nested loop join on [ThetaGPU](#) using CUDA and cuDF.

**1st @ Hackerrank Python domain** July 2016

[Rank list](#)

Solved all Python domain challenges at Hackerrank.

**1st @ Hackerrank Security domain** July 2016

[Rank list](#)

Solved all security domain challenges at Hackerrank.

**7th @ IEEEExtreme Programming Competition 9.0** October 2015

[Rank list](#)

Achieved 7<sup>th</sup> position out of 2,477 teams.

**1st @ Intra University Programming Contest, Jahangirnagar University** August 2015

[Organized by JU CSE](#)

Achieved 1st position in Intra University Programming Contest, Jahangirnagar University, 2015.



# PROJECTS

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## Tradewinds

- TradeWinds is the world's biggest shipping news service, publishing both online news and a printed weekly newspaper, that covers shipping as a global industry. *(developer)*

## Upstream

- The leading global oil, gas and energy news resource. Covering the latest oil and gas news including shale, lng, drilling, exploration and production. *(developer)*

## Recharge

- Recharge provides business intelligence for the renewable-energy industries, that matter most to the wind and solar sectors. *(developer)*

## Easy C

- A real time web and mobile application to learn C programming language. *(team leader and developer)*

## CBPen

- A web application for penetration testing to expose vulnerabilities associated with the network. *(developer)*

## ImageStego

- ImageStego is an image steganography tool. *(developer)*

## Bangla, Opener, AutoLike, CopyUSB

- Python Package Index enlisted Python packages. *(developer)*

## Dictmate

- English to English and English to Bangla Dictionary. *(developer)*

## Type Speed

- One minute typing test with popular 5000 English words. *(developer)*

## Drumpad Web, Drumpad Android

- Application to play virtual drums. *(developer)*

## Coders-Theme

- Coders theme for Brackets editor enlisted in Brackets registry. *(developer)*