Naw Safrin Sattar, M.Sc., Ph.D.

515 Morrell Rd Apt G107
Knoxville, TN, 37919
(504) 570-0965
nawsafrin.sattar@mmc.edu

Last updated: July 09, 2025

Current Position

Assistant Professor – High Performance Computing   07/2025-Present
Computer Science and Data Science
School of Applied Computational Sciences
Meharry Medical College, Nashville, TN, USA

Education

Ph.D. in Computer Science, University of New Orleans, New Orleans, LA, USA   2017-2022
M.Sc. in Computer Science, University of New Orleans, New Orleans, LA, USA   2017-2019
B.Sc. in Computer Science and Engineering,   2011-2016
Bangladesh University of Engineering & Technology (BUET), Dhaka, Bangladesh.

Academic Appointments

Assistant Professor – High Performance Computing   07/2025 – Present
Computer Science and Data Science
School of Applied Computational Sciences
Meharry Medical College, Nashville, TN, USA

Course Instructor   2020 – 2022
Department of Computer Science
University of New Orleans, New Orleans, LA, USA

Graduate Research Assistant   08/2017 – 06/2022
Department of Computer Science
University of New Orleans, New Orleans, LA, USA

Course Grader   01/2018 – 05/2018
Department of Computer Science
University of New Orleans, New Orleans, LA, USA

Professional Positions and Experience

Postdoctoral Research Associate- AI Technologies for HPC   08/2022-06/2025
Operational Data Analytics
Oak Ridge National Laboratory, Oak Ridge, TN, USA.

Parallel Computing Summer Research Intern   06/2021-08/2021
Los Alamos National Laboratory (LANL), TRIAD National Security, LLC
Los Alamos, NM 87545, USA

HPC Programmer   05/2020-08/2020
Aspen Systems Inc, Wheat Ridge, CO 80033, USA

Computing Sciences Research Pathways Fellow 06/2019-08/2019
Performance and Algorithms Research Group, Computational Research Division
Lawrence Berkeley National Laboratory (LBNL), Berkeley, California 94720, USA

Management Trainee Officer (MTO)-IT Operation 12/2016-07/2017
BIFFL-Bangladesh Infrastructure Finance Fund Limited (under Finance Ministry)
Dhaka, Bangladesh.

System Analyst 09/2016-11/2016
Health Information System (HIS) ERP Implementation,
Labaid Group Limited, Dhaka, Bangladesh.

Software Developer 03/2016-06/2016
Aus-Bangla Communications Ltd., Dhaka, Bangladesh

Certification and Licensure

Graduate Certificate in Machine Learning and AI 2021

Research Interests

Scientific Large-scale & High Performance Computing	Scalable Parallel and Distributed Algorithms	Large Graph Mining, Modeling, and Analysis	HPC Operational Data Analytics	Multicore Architecture
Heterogeneous Computing and Distributed Systems	Big Data Mining and Analytics	Generative AI, Large Language Models (LLM)	Machine/Deep Learning at Scale	Cloud Computing

Publications
Peer-reviewed Full-length Journals and Conference Papers

1. **Naw Safrin Sattar**, Hao Lu, and Feiyi Wang, "*Memory vs Performance: Efficient Memory Usage with BCSR on GPUs for Large Graph Algorithms on Exascale Systems*", Journal of Supercomputing, March 2025. [Submitted]
2. Marco Minutoli, Reece Neff, **Naw Safrin Sattar**, Hao Lu, et al, "*DIMPLES: Distributed Influence Maximization for Pandemic pLanning on Exascale System*", ACM International Conference on Supercomputing 2025, ICS'25, June 2025. **Best Paper Award**
3. Ahmad Maroof Karimi, Woong Shin, **Naw Safrin Sattar**, Feiyi Wang, et al "Driving HPC Operational Descriptive and Predictive Analytics Transformation with Open-LLMs", 2025 SC, Supercomputing Conference, November 2025 [Apr'25 Submitted]
4. **Naw Safrin Sattar**, Abigail Kapocius, Hao Lu, Mahantesh Halappanavar, and Feiyi Wang, "*Exploring the Landscape of Distributed Graph Clustering on Leadership Supercomputers*", proc of 2024 IEEE Conference on Big Data (Big Data), pp 3754-3763, Washington D.C., USA, December 2024. DOI: 10.1109/BigData62323.2024.10825700
5. **Naw Safrin Sattar**, Hao Lu, and Feiyi Wang, "*BCSR on GPU: A Way Forward Extreme-scale Graph Processing on Accelerator-enabled Frontier Supercomputer*", proc of 2024 SCW, 10th International Workshop on Data Analysis and Reduction for Big Scientific Data, 2024 SuperComputing Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis, Atlanta, GA, USA, November 2024. DOI: 10.1109/SCW63240.2024.00044
6. **Naw Safrin Sattar**, Khaled Ibrahim, Aydin Buluc and Shaikh Arifuzzaman, "*DyG-DPCD: A Distributed Parallel Community Detection Algorithm for Large-scale Dynamic Graphs*", International Journal of Parallel Programming, 53, 4 (2025), November 2024. DOI: https://doi.org/10.1007/s10766-024-00780-1

7   Haoshen Yang, Hao Lu, **Naw Safrin Sattar**, et al, "*Establish the basis for Breadth-First Search on Frontier System: XBFS on AMD GPUs*", proc of 2024 SCW, 14th Workshop on Irregular Applications: Architectures and Algorithms, 2024 SuperComputing Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis, Atlanta, GA, USA, November 2024. DOI: 10.1109/SCW63240.2024.00090

8   Ahmad Maroof Karimi**,** Matthias Maiterth, **Naw Safrin Sattar**, et al. "*Exploring the Frontiers of Energy Efficiency using Power Management at System Scale",* proc of 2024 SCW, Sustainable Supercomputing Workshop, 2024 SuperComputing Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis, Atlanta, GA, USA, November 2024.
DOI: 10.1109/SCW63240.2024.00230 Arxiv Preprint: https://doi.org/10.48550/arXiv.2408.01552

9   Woong Shin, Ahmad Maroof Karimi**, Naw Safrin Sattar**, et al "*Navigating Exascale Operational Data Analytics: From Inundation to Insight",* proc of 2024 SCW, Sustainable Supercomputing Workshop, 2024 SuperComputing Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis, Atlanta, GA, USA, November 2024. DOI: 10.1109/SCW63240.2024.00226

10   Ahmad Maroof Karimi**, Naw Safrin Sattar**, Woong Shin, and Feiyi Wang "*Profiling and Modeling of Power Characteristics of Leadership-Scale HPC System Workloads",* proc. of 2024 44th IEEE International Conference on Distributed Computing Systems (ICDCS), New Jersey, NY, USA, July 2024.
DOI: 10.1109/ICDCS60910.2024.00018 Arxiv Preprint: https://doi.org/10.48550/arXiv.2402.00729

11   M Shafiqur Rahman, **Naw Safrin Sattar**, Radif Ahmed**,** et al, "*A Machine Learning Framework for Melt-Pool Geometry Prediction and Process Parameter Optimization in the Laser Powder-Bed Fusion Process*", ASME Journal of Engineering Materials and Technology, August 2024. DOI: 10.1115/1.4065687

12   **Naw Safrin Sattar**, Hao Lu, Feiyi Wang and Mahantesh Halappanavar, "*Multi-GPU Louvain Algorithm for Community Detection on Large Graphs for Heterogeneous Computing Platforms*", proc of 2024 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW), San Francisco, CA, USA, May 2024. DOI: 10.1109/IPDPSW63119.2024.00147

13   **Naw Safrin Sattar**, Aydin Buluc, Khaled Ibrahim, and Shaikh Arifuzzaman, "*Exploring Temporal Community Evolution: Algorithmic Approaches and Parallel Optimization for Dynamic Community Detection*", Applied Network Science, September 2023. DOI: 10.1007/s41109-023-00592-1

14   **Naw Safrin Sattar** and Shaikh Arifuzzaman, "*Scalable Community Detection using Distributed Louvain Algorithm*", Journal of Supercomputing, November 2021. DOI: 10.1007/s11227-021-04224-2

15   **Naw Safrin Sattar**, and Shaikh Arifuzzaman, "*Covid-19 Vaccination Awareness & Aftermath: Public Sentiment Analysis on Twitter Data and Vaccinated Population Prediction in USA",* Appl. Sci. 2021, Volume 11, Issue 13, 6128, June 2021. DOI: 10.3390/app11136128

16   **Naw Safrin Sattar**, and Shaikh Arifuzzaman, "*Community Detection using Semi-supervised Learning with Graph Convolutional Network on GPUs*", proc. of 2020 IEEE International Conference on Big Data (IEEE Big Data 2020), Atlanta, GA, USA, December 2020**.** DOI**:** 10.1109/BigData50022.2020.9378123

17   **Naw Safrin Sattar**, and Shaikh Arifuzzaman, "*Parallel Large Sparse Deep Neural Network on GPU*", proc. of 2020 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW), New Orleans, LA, USA, May 2020. DOI: 10.1109/IPDPSW50202.2020.00170

18   **Naw Safrin Sattar**, Shaikh Arifuzzaman, Minhaz Zibran, and Md Mohiuddin Sakib, *"Detecting Web Spams in Webgraphs with Predictive Model Analysis"*, proc. of 2019 IEEE International Conference on Big Data (IEEE Big Data 2019), Los Angeles, CA, USA, December 2019. DOI: 10.1109/BigData47090.2019.9006282

19   **Naw Safrin Sattar** and Shaikh Arifuzzaman, "*Overcoming MPI Communication Overhead for Distributed Community Detection*", Software Challenges to Exascale Computing, in **Springer** Communications in Computer and Information Science (CCIS) series, December 2018. DOI: 10.1007/978-981-13-7729-7_6

20   **Naw Safrin Sattar**, Md A. M. Faysal, Minhaz Zibran, Shaikh Arifuzzaman, and Md Rakibul Islam, *"Data Mining in-IDE Activities: Why Software Developers Fail"*, proc. of 27th International Conference on Software Engineering and Data Engineering SEDE 2018, New Orleans, Louisiana, USA, October 2018.
Available: https://www.researchgate.net/publication/334129367_Data_Mining_in-IDE_Activities_Why_Software_Developers_Fail

21   **Naw Safrin Sattar** and Shaikh Arifuzzaman, *"Parallelizing Louvain Algorithm: Distributed Memory Challenges",* proc. of 16th IEEE International Conference on Dependable, Autonomic and Secure Computing DASC 2018, Athens, Greece, August 2018. DOI: 10.1109/DASC/PiCom/DataCom/CyberSciTec.2018.0012

22   **Naw Safrin Sattar**, Muhammad Abdullah Adnan and Maimuna Begum, "*Secured Aerial Photography using Homomorphic Encryption",* proc. of IEEE International Conference on Networking, Systems and Security NSysS 2017, Dhaka, Bangladesh, January 2017. (Acceptance Rate 26%) DOI:

10.1109/NSysS.2017.7885810

23   Imran Hossain Newton, Abir Biswas, Md Mohiuddin Sakib, Shamrita Zaman, **Naw Safrin Sattar**, Rabeya Akter, "*Development of Extreme Rainfall Based Intensity-Duration-Frequency Curves for Dhaka City in Bangladesh*", International Journal of Scientific and Engineering Research, Volume 8, Issue 6, ISSN 2229-5518 June 2017. Available: https://www.ijser.org/onlineResearchPaperViewer.aspx?Development-of-Extreme-Rainfall-Based-Intensity-Duration-Frequency-Curves-for-Dhaka-City-in-Bangladesh.pdf

24   **Naw Safrin Sattar**, Tasmia Aqila and Rifat Shahriyar, "*Towards Concurrent Data Structure Development with Relaxed Synchronization*", proc. of IEEE 9th International Conference on Electrical and Computer Engineering ICECE 2016, Dhaka, Bangladesh, December 2016. DOI: 10.1109/ICECE.2016.7853907

Work-In-Progress Full-length Journals and Conference Papers

25   **Naw Safrin Sattar**, Hao Lu, Dan Jacobson, Feiyi Wang, et. al. "*Multi-GPU Louvain Application: Large Climate Network*", [In Preparation]

26   **Naw Safrin Sattar**, Abigail Kapocius, Hao Lu, and Feiyi Wang, "Graph500: SSSP GPU Performance on Frontier Supercomputer", 2025 SCW / IEEE Big Data, August 2025

27   **Naw Safrin Sattar**, Hao Lu, and Feiyi Wang, "*Graph500: Multi-GPU BFS on Exascale Systems: Challenges and Optimizations*", IPDPS 2025

28   **Naw Safrin Sattar**, Hao Lu, Mahantesh Halappanavar, and Feiyi Wang, "*Multi-GPU Louvain Application: Large Protein / Biological Networks*", Journal, 2025.

29   **Naw Safrin Sattar**, Ahmad Maroof Karimi, Woong Shin, and Feiyi Wang, "HPC Workload Characterization for Frontier Supercomputer", 2025 IPDPS / IEEE Big Data, October 2025

30   Piyush Sao, Hao Lu, **Naw Safrin Sattar**, et al, "Multi-GPU BFS with Pruning on Frontier Supercomputer", 2025 VLDB

Published Abstracts and Presentations
Peer-Reviewed Short Paper / Ext. Abstract (2-4 pg.)

1   Abby Kapocius, **Naw Safrin Sattar*** and Feiyi Wang, "*Evaluating Distributed Community Detection Methods for Large Graphs on Leadership Supercomputers*", PASC'25, June 2025. [Submitted]

2   **Naw Safrin Sattar**, Ahmad Maroof Karimi, Woong Shin, and Feiyi Wang, "*Discovering Power Patterns in time varying HPC Workloads with Matrix Profile: A Clustering Approach*", 19th Workshop for Women in Machine Learning (WiML), NeurIPS 2024, Vancouver, BC, Canada, December 2024. Available: https://www.researchgate.net/publication/386455716_Discovering_Power_Patterns_in_Time_varying_HPC_Workloads_with_Matrix_Profile_A_Clustering_Approach

3   **Naw Safrin Sattar** "*Energy Efficient Large Graph Workloads on the Exascale System*", proc of WHPC'24: Women in HPC Workshop, SC'24 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Atlanta, GA, USA, November 2024. [Submitted]

4   **Naw Safrin Sattar** "*Scalable Graph Analytics and HPC Operational Enhancement: Parallel Computing and ML/DL Innovations*", proc of WHPC'23: Women in HPC Workshop, SC'23 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Denver, CO, USA, November 2023. DOI: https://zenodo.org/doi/10.5281/zenodo.10116236

5   Radif Uddin Ahmed, **Naw Safrin Sattar****, and M Shafiqur Rahman, "*Process Analysis of the Friction-Stir Welding TechniqueUsing Machine Learning*", Proceedings of Louisiana EPSCoR RII LAMDA 2023 Symposium, LA, USA, November 2023.

6   **Naw Safrin Sattar**, and Ying-Wai Li, "Accelerating parallel Monte Carlo simulations for statistical physics: Portability on many-core processors", SC'21 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in St. Louis, MO, USA, November 2021
Available: https://sc21.supercomputing.org/proceedings/tech_poster/poster_files/rpost171s2-file3.pdf

7   **Naw Safrin Sattar**, and Shaikh Arifuzzaman, "Understanding Performance Bottlenecks to Improve Parallel Efficiency of Louvain Algorithm", PDSW-DISCS Workshop in SC'19, Denver, CO, USA, November 2019. Available: http://www.pdsw.org/pdsw19/wips/NawSafrinSattar-pdswWIP.pdf

8   Shaikh Arifuzzaman, **Naw Safrin Sattar**, and Md A. M. Faysal "Parallel Algorithms for Mining Large-scale Time-varying (Dynamic) Graphs", PDSW-DISCS Workshop in SC'18, Dallas, TX, USA, November 2018. Available: http://www.pdsw.org/pdsw-discs18/wips/abstracts/arifuzzaman-wip-pdsw-discs18.pdf
* Supervised Summer Intern through DOE-funded project at Oak Ridge National Laboratory
**Supervised PhD Student as secondary advisor on Machine Learning at Louisiana Tech University

Oral Presentations

1 "*Exploring the Landscape of Distributed Graph Clustering on Leadership Supercomputers*", Speaker, 2024 IEEE Conference on Big Data (Big Data), Washington D.C., USA. 12/2024

2 "*BCSR on GPU: A Way Forward Extreme-scale Graph Processing on Accelerator-enabled Frontier Supercomputer*", Speaker, 10th International Workshop on Data Analysis and Reduction for Big Scientific Data, 2024 SC'24 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis, Atlanta, GA, USA. 11/2024

3 "*Multi-GPU Louvain Algorithm for Community Detection on Large Graphs for Heterogeneous Computing Platforms*", Speaker, 2024 IEEE International Parallel and Distributed Processing Symposium (IPDPS), San Francisco, CA, USA. 05/2024

4 "*Scalable Graph Analytics and HPC Operational Enhancement: Parallel Computing and ML/DL Innovations*", Speaker, WHPC'23: Women in HPC Workshop, SC'23 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Denver, CO, USA. 11/2023

5 "*Parallel Algorithms for Scalable Graph Mining: Applications on Big Data and Machine Learning*", Speaker, Doctoral Showcase, SC'21 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in St. Louis, MO, USA. 11/2021

6 "*Shared Memory Parallel Temporal Community Detection using Permanence on Multi-core Processors*", Speaker, Research Symposium InnovateUNO 2021, University of New Orleans, New Orleans, LA, USA. 11/2021

7 "*Community Detection using Semi-supervised Learning with Graph Convolutional Network on GPUs*", Speaker, IEEE International Conference on Big Data (IEEE Big Data 2020), Atlanta, GA, USA. 12/2020

8 "*Parallel Large Sparse Deep Neural Network on GPU*", Speaker, 2020 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW), New Orleans, LA, USA 05/2020

9 "*Detecting Web Spams in Webgraphs with Predictive Model Analysis*", Speaker, IEEE International Conference on Big Data (IEEE Big Data 2019), Los Angeles, CA, USA 12/2019

10 "Understanding Performance Bottlenecks to Improve Parallel Efficiency of Louvain Algorithm", Speaker, International Workshop on Parallel Data Storage & Data Intensive Scalable Computing Systems, PDSW-DISCS Workshop in SC'19, Denver, CO, USA 11/2019

11 "*Distributed Community Detection in Large-scale Graphs*", Guest Speaker, in the Colloquium of Department of Computer Science, University of New Orleans, New Orleans, LA, USA. 03/2019

12 "*Overcoming MPI Communication Overhead for Distributed Community Detection*", Speaker, Workshop on Software Challenges to Exascale Computing, New Delhi, India. 12/2018

13 "*Parallel Algorithms for Mining Large-scale Time-varying (Dynamic) Graphs*", Speaker, International Workshop on Parallel Data Storage & Data Intensive Scalable Computing Systems, PDSW-DISCS Workshop in SC'18, Dallas, TX, USA. 11/2018

14 "*Parallelizing Louvain Algorithm: Distributed Memory Challenges*", Speaker, 16th IEEE International Conference on Dependable, Autonomic and Secure Computing DASC 2018, Athens, Greece. 08/2018

15 "*Secured Aerial Photography using Homomorphic Encryption*", Speaker, IEEE International Conference on Networking, Systems and Security NSysS 2017, Dhaka, Bangladesh. 01/2017

16 "*Towards Concurrent Data Structure Development with Relaxed Synchronization*", Speaker, IEEE 9th International Conference on Electrical and Computer Engineering ICECE 2016, Dhaka, Bangladesh 12/2016

Poster Presentations

1. **Naw Safrin Sattar**, Ahmad Maroof Karimi, Woong Shin, and Feiyi Wang, "*Discovering Power Patterns in time varying HPC Workloads with Matrix Profile: A Clustering Approach*", 19th Workshop for Women in Machine Learning (WiML), NeurIPS 2024, Vancouver, BC, Canada, December 2024.

2. Abby Kapocius, **Naw Safrin Sattar*** and Feiyi Wang, "*Evaluating Distributed Community Detection Methods for Large Graphs on Frontier Supercomputer*", 2024 Cybersecurity & Technology Innovation Conference in Dallas, TX, USA, July 2024.

3. Abby Kapocius, **Naw Safrin Sattar*** and Feiyi Wang, "*Evaluating Distributed Community Detection Methods for Large Graphs on Leadership Supercomputers*", PASC'25, June 2025. [Submitted]

4. Alexander Harvey**, Naw Safrin Sattar***, and Feiyi Wang, "*Performance Portability Analysis and Optimization of GPU-based Large-scale Graph Algorithms on the Summit and Frontier Supercomputers*", 2023 Summer Intern Poster Symposium, Oak Ridge National Laboratory, Oak Ridge, TN, USA, August 2023

5. **Naw Safrin Sattar**, Hao Lu, and Feiyi Wang, "*Leveraging Multi-GPUs for Large-scale Graph Analytics on Frontier*", ORPA Symposium 2023, Oak Ridge National Laboratory, Oak Ridge, TN, USA.

6. **Naw Safrin Sattar**, and Shaikh Arifuzzaman, "*Parallel Algorithms for Scalable Graph Mining: Applications on Big Data and Machine Learning"*, Doctoral Showcase, SC'21 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in St. Louis, MO, USA, November 2021. Available: https://sc21.supercomputing.org/proceedings/doctoral_showcase/doc_showcase_pages/drs111.html

7. **Naw Safrin Sattar**, and Ying-Wai Li, "Accelerating parallel Monte Carlo simulations for statistical physics: Portability on many-core processors", SC'21 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in St. Louis, MO, USA, November 2021 Available: https://sc21.supercomputing.org/proceedings/tech_poster/poster_files/rpost171s2-file2.pdf

8. **Naw Safrin Sattar**, Shaikh Arifuzzaman, Khaled Ibrahim and Aydin Buluc "*Parallel Algorithm and Analysis for Understanding Evolving Community Structures in Temporal Graphs*", SIAM Conference on Computational Science and Engineering (CSE21), Fort Worth, Texas, USA, February, 2021.

9. **Naw Safrin Sattar** and Shaikh Arifuzzaman, "*Preventing Epidemic Spreading by Community Detection with Semi-supervised Node Classification on GPU*", Grace Hopper Celebration (GHC-2020), Orlando, FL, USA, October 2020.

10. **Naw Safrin Sattar** and Shaikh Arifuzzaman, "*Community Detection with Graph Convolutional Networks using Semi-supervised Node Classification*", 14th Women in Machine Learning Workshop (WiML 2019), Vancouver, British Columbia, Canada, December 2019.

11. **Naw Safrin Sattar,** Shaikh Arifuzzaman, and Minhaz Zibran, "*Recommender System to Detect Web Spams in Webgraphs*", 14th Women in Machine Learning Workshop (WiML 2019), Vancouver, British Columbia, Canada, December 2019.

12. **Naw Safrin Sattar** and Shaikh Arifuzzaman, "*Scalable Algorithmic Methods for Large-scale Graph Mining*", Grace Hopper Celebration (GHC-2019), Orlando, FL, USA, October 2019.

13. **Naw Safrin Sattar,** Shaikh Arifuzzaman, Aydin Buluc, and Khaled Ibrahim, "*Parallel Community Detection in Dynamic Networks using Permanence*", **2019 Computing Science Summer Students Poster Session,** Lawrence Berkeley National Laboratory (LBNL), Berkeley, California, USA, August 2019.

14. **Naw Safrin Sattar** and Shaikh Arifuzzaman, "*Scalable Community Detection using Parallel Louvain Algorithms*", CRA-W Grad Cohort for Women Workshop, Chicago, IL, USA, April 2019.

15. **Naw Safrin Sattar** and Shaikh Arifuzzaman, "*A Comparative Analysis of Parallel Louvain Algorithms for Community Detection*", SIAM Conference on Computational Science and Engineering (CSE19), Minisymposterium, Spokane, Washington, USA, February 2019.

16. **Naw Safrin Sattar** and Shaikh Arifuzzaman, "*A Comparative Analysis of Parallel Louvain Algorithms for Community Detection*", research symposium **InnovateUNO**, University of New Orleans, New Orleans, LA, November 2018.

17. **Naw Safrin Sattar** and Shaikh Arifuzzaman, "*A Comparative Analysis of Parallel Louvain Algorithms for Community Detection*", 6th Annual Texas STEM Conference, Lamar University, Beaumont, Texas, November 2018.

   * Supervised Summer Intern through DOE-funded project at Oak Ridge National Laboratory

Technical Skills

Programming	C/C++, Python, Scala, Java
Proficient	MPI, OpenMP, HIP, CUDA, MATLAB
Profiling/Debugging	Intel VTune, CrayPat, mpiP, TAU, TotalView, DDT, Valgrind, gdb, darshan, HPC-toolkit, rocprof, Nsight Compute
Big Data/ ML	Apache-Spark, Hadoop, PyTorch, TensorFlow, LangChain
Web Programming	HTML, PHP, CSS, JavaScript, CodeIgniter, Laravel, Bootstrap
Database	Oracle, Mysql, Tableau
Others	Shell Scripting, Perl, Slurm, pbs, Amazon Web Service – EC2, Weka, Assembly (8086), Prolog, NS2, Cisko Packet Tracer, Maven, Cygwin, PuTTY
Version Control	GitHub/Gitlab, Bitbucket
IDE	Microsoft Visual Studio, Visual Studio Code, Dev C++, Netbeans, Ecllipse, Jcreator, Dreamweaver
Modeling Tools	Enterprise Architecture, Pencil, Creately, Microsoft Visio
Type Setting	LATEX, Microsoft Office, Microsoft Sharepoint
Operating System	Microsoft Windows, Linux (Ubuntu, CentOS, Red Hat), Mac
Mobile Prog.	Android

Professional Development

19th Women in Machine Learning Workshop (WiML2024), collocated NeurIPS 2024 Vancouver, British Columbia, Canada	2024
Early Career Participant in SC'24 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Atlanta, GA, USA.	2024
Early Career Participant in SC'23 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Denver, CO, USA.	2023
CRA-CMW (Computing Research Association) Career and Mentoring Workshop in Chicago, IL, USA.	2023
CRA-W (Computing Research Association Women) Grad Cohort for Women Workshop, New Orleans, LA, USA	2020, 2021
Broader Engagement Program in SIAM CSE21 Conference in Fort Worth, Texas, USA.	2021
Grace Hopper Celebration (GHC-2019, GHC-2020), Orlando, FL, USA.	2019, 2020
Broader Engagement Program in SIAM CSE19 Conference in Spoken, Washington, USA.	2019
CRA-W (Computing Research Association Women) Grad Cohort for Women Workshop in Chicago, IL, USA	2019

Professional Memberships and Activities

Member at Association for Computing Machinery (ACM)	2022-Present
Member at SigHPC	2022-Present
Mentor at WHPC: Women in HPC	2022-Present
Member / Mentor at Women in Machine Learning (WiML)	2019-Present

Mentor at BWCSE (Bangladeshi Women in Computer Science & Engineering)	2016-Present
Student Member at Association for Computing Machinery (ACM)	2019-2022
Mentor at Association for Computing Machinery Women (ACM-W) Chapter at University of New Orleans	2019-2022
Student Member at Society for Industrial and Applied Mathematics (SIAM)	2019-2022

Reviewer / Editorial Board Appointments

AD/AE Reviewer: SC'25 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis, USA.	2023-Present
Poster Reviewer: WHPC: Women in HPC Workshop at ISC'24, ISC'25 High Performance Computing, Germany.	2025, 2024
Reviewer: Oak Ridge National Laboratory (ORNL) Director's Discretionary (DD) Allocation	2024
Reviewer: 18th and 19th Women in Machine Learning Workshop (WiML 2024, WiML 2024)	2024, 2023
Reviewer: Elsevier: Journal of Parallel and Distributed Computing	2022-Present
Reviewer: Springer: The Journal of Supercomputing	2021-Present
Reviewer: Elsevier: Swarm and Evolutionary Computation	2021-Present
Reviewer: MDPI: Electronics, Data, Applied Sciences, MAKE	2021-Present
Judge Undergraduate Research Presentation (Computer Science) University of New Orleans's annual Research Symposium InnovateUNO hosted by the Office of Research	2021, 2020
Reviewer: 4th and 5th International Workshop on Big Data Analytic for Cybercrime Investigation and Prevention, co-located with IEEE Big Data 2020 and 2021 Conference	2021, 2020
Reviewer: 14th Women in Machine Learning Workshop (WiML 2019) Vancouver, British Columbia, Canada.	2019

Committee Assignments and Administrative Services

1	Technical Committee member (Reproducibility Subcommittee) at SC'25 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Saint Louis, MO, USA.	2024-2025
2	Program Committee Member, Benchmarking at IPDPS 2025 IEEE International Parallel and Distributed Processing Symposium	2024-2025
3	Program Committee Member for Workshops, Birds of Feather, and Poster at ISC 2025 High Performance Computing	2024-2025
4	Volunteer at 19th Women in Machine Learning (WiML 2024) Workshop, collocated with NeurIPS, Vancouver, BC, Canada.	2024
5	Program Committee Member for Poster at ISC 2024 High Performance Computing	2023-2024
6	Technical Committee member (Reproducibility Subcommittee) at SC'24 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Atlanta, GA, USA.	2023-2024
7	Speed Mentoring Chair, Students@SC: Networking and Mentoring Subcommittee in SC'24 (SuperComputing) Conference, the International Conference for High	2023-2024

Performance Computing, Networking, Storage, and Analysis in Atlanta, GA, USA

8	Speed Mentoring Chair, Students@SC: Networking and Mentoring Subcommittee in SC'23 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Denver, CO, USA	2022-2023
9	Program Committee Member of 4th and 5th International Workshop on Big Data Analytic for Cybercrime Investigation and Prevention, co-located with IEEE Big Data 2020 and 2021 Conference	2020-2021
10	Career and Mentoring Chair, ACM-W (Association for Computing Machinery Women) Student Chapter at University of New Orleans	2020-2022
11	Publicity Chair, ACM-W (Association for Computing Machinery Women) Student Chapter at University of New Orleans	2019-2020
12	Student Volunteer in SC'18, SC'19, SC'20, SC'21 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis	2018-2021

Educational Activities

Bachelor Student mentoring through U.S. Department of Energy (DOE) funded project Spring 2025
Oak Ridge National Laboratory, Oak Ridge, TN
- Mentee: Abigail Kapocius
- Institution: University of North Carolina at Charlotte
- Degree: Bachelor (Senior)
- Project: Performance Analysis and Scaling Large-scale Graph Algorithms on Heterogenous Computing Platforms
- Outcome:
    - WIP Poster Presentation- Abigail Kapocius, **Naw Safrin Sattar**, and Feiyi Wang, "*Performance Portability Analysis and Optimization of GPU-based Single Source Shortest Path Algorithm on the Frontier Supercomputers*", 2025 SULI Spring 2025 Intern Poster Symposium, Oak Ridge National Laboratory, Oak Ridge, TN, USA, April 2025.
    - WIP Conference Paper-**Naw Safrin Sattar**, Abigail Kapocius, Hao Lu, and Feiyi Wang, "Graph500: SSSP GPU Performance on Frontier Supercomputer", 2025 SCW / IEEE Big Data, August 2025 tent.

Bachelor Student mentoring through DoE-funded project Summer 2024-Fall 2024
Oak Ridge National Laboratory, Oak Ridge, TN
- Mentee: Abigail Kapocius
- Institution: University of North Carolina at Charlotte
- Degree: Bachelor (Senior)
- Project: Performance Analysis of Distributed Community Detection Algorithms for Large-scale Graph Analysis on Heterogenous Computing Platforms
- Outcome:
    - Published **Conference Paper**- Naw Safrin Sattar, Abigail Kapocius, Hao Lu, Mahantesh Halappanavar, and Feiyi Wang, "*Exploring the Landscape of Distributed Graph Clustering on Leadership Supercomputers*", proc of 2024 IEEE Conference on Big Data (Big Data), pp 3754-3763, Washington D.C., USA, December 2024. DOI: 10.1109/BigData62323.2024.10825700
    - **Poster** Presentation- Abby Kapocius, **Naw Safrin Sattar** and Feiyi Wang, "*Evaluating Distributed Community Detection Methods for Large Graphs on Frontier Supercomputer*", 2024 Cybersecurity & Technology Innovation Conference in Dallas, TX, USA, July 2024.

PhD Student mentoring as a Secondary Advisor on Machine Learning Spring 2023-Fall 2024
Oak Ridge National Laboratory, Oak Ridge, TN
- Mentee: Radif Uddin Ahmad
- Institution: Louisiana Tech University, Ruston, LA
- Degree: PhD Student

- Project / Topic: Machine Learning for Additive Manufacturing
- Outcome:
  - Published **Journal**- M Shafiqur Rahman, **Naw Safrin Sattar**, Radif Ahmed**,** et al, "*A Machine Learning Framework for Melt-Pool Geometry Prediction and Process Parameter Optimization in the Laser Powder-Bed Fusion Process*", ASME Journal of Engineering Materials and Technology, August 2024. DOI: 10.1115/1.4065687
  - Published **4-pg Extended Abstract**- Radif Uddin Ahmed, **Naw Safrin Sattar**, and M Shafiqur Rahman, "*Process Analysis of the Friction-Stir Welding Technique Using Machine Learning*", Proceedings of Louisiana EPSCoR RII LAMDA 2023 Symposium, LA, USA, November 2023.

Post Bachelor Student mentoring through DoE-funded project   Summer 2023
Oak Ridge National Laboratory, Oak Ridge, TN
- Mentee: Alexander Hervey
- Institution: University of North Carolina at Chapel Hill
- Degree: Bachelor completed
- Project: Performance Analysis and Optimization of Large-scale Graph Algorithms on GPUs
- Outcome: **Poster** Presentation- Alexander Harvey**, Naw Safrin Sattar**, and Feiyi Wang, "*Performance Portability Analysis and Optimization of GPU-based Large-scale Graph Algorithms on the Summit and Frontier Supercomputers*", 2023 Summer Intern Poster Symposium, Oak Ridge National Laboratory, Oak Ridge, TN, USA, August 2023.
- Current Role: Graduate Student at North Carolina State University

Course Instructor: CSCI 1581: Software Design and Development I Laboratory   Spring 2022
(Object-oriented Programming -OOP: Java), Dept Computer Science, University of New Orleans
- 5 sections with 16-30 students in each section
- Designing Lab demonstrations to illustrate the concepts of the course
- Applications, exercises, and explorations in methodologies, software design, and development of OOP (elementary class, basic algorithm, fundamental structural relations)
- Demonstrating Hands-on Programs/Applications each class
- Exercises on similar problem afterwards

Guest Lecturer: CSCI 6454: Big Data Analytics and Systems   April 2022
Dept Computer Science, University of New Orleans
- Lecture on recent trends of Big Graphs with Machine Learning and some applications

Guest Lecturer: CSCI 6454: Parallel and Scientific Computing   Fall 2021, 2020, 2019
Dept Computer Science, University of New Orleans
- Lecture on Importance of Parallel Computing; Designing efficient parallel algorithms and some applications

Course Instructor: CSCI 1205: Introduction to Programming in C++   Fall 2021, 2020
Dept Computer Science, University of New Orleans
- Class of 100 students
- Designing and preparing full course materials
- Conducting, and grading quizzes, exams, and assignments all by myself

Course Grader: CSCI 2450: Assembly Language   Spring 2018
Dept Computer Science, University of New Orleans
- Class of 70 students
- Setting questions and conducting exams
- Grading assignments, quizzes, and exams
- Lecturing and discussions on solutions

Honors and Awards

Academic

1	Best Paper Award in ACM International Conference on Supercomputing 2025, ICS'25	06/2025
2	One of the Selected Early Career Participant in SC'24, SC'23 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in USA.	2023-2024
3	Certificate for Early Career Talks at WHPC'23: Women in HPC Workshop, SC'23 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in Denver, CO, USA.	11/2023
4	Graduate Assistantship Award for PhD [Full Tuition Waiver and yearly stipend] by Computer Science Department in the University of New Orleans.	2017 - 2022
5	Postdoctoral Fellowship offered at Argonne National Laboratory	03/2022
6	1st Prize in the Privateer Choice Award (Most favorite presentation voted by the students) in the Graduate Oral Presentation at the university wide research symposium InnovateUNO 2021 organized by Office of Research at University of New Orleans.	11/2021
7	Scholarship Recipient of Student Volunteer Program for SC'21, SC'20, SC'19, SC'18 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in USA.	2018-2021
8	Student Travel Award by Student Government Association (SGA) at University of New Orleans to attend SC'21 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in St. Louis, MO, USA. [Amount; $500 USD]	11/2021
9	Nomination for the Silent Inspiration (UNO Student) Award in the University of New Orleans 37th and 36th Leadership Recognition Award Ceremony	04/2021, 04/2020
10	Competitive Summer Internship: Parallel Computing Summer Research Internship (PCSRI) offered at Los Alamos National Laboratory (LANL) (Only 16 Participants Selected nationally)	06/2021, 06/2020
11	Scholarship Recipient Broader Engagement Program to attend the SIAM CSE21, SIAM CSE19 Conference, USA.	02/2021, 02/2019
12	Grace Hopper Celebration (GHC-2020, GHC-2019) General Registration awarded by AnitaB.org, Orlando, FL, USA.	10/2020, 10/2019
13	Summer Internship offered at *Lawrence Berkeley National Laboratory (Berkeley Lab - LBL)* to work on extensive performance modeling	06/2020
14	Primary selection for 2020 SIParCS Internship Program at the National Center for Atmospheric Research	06/2020
15	Computational Science Internship offered at Fermi National Accelerator Laboratory	06/2020
16	Outstanding Graduate Assistant Award in consecutive two years by Computer Science Department in the University of New Orleans 35th and 36th Leadership Recognition Award Ceremony	04/2020, 04/2019
17	Certificate for *Poster* Presentation in 2019 Computing Science Summer Students Poster Session by CSSSP (Computing Science Summer Students Program) at Lawrence Berkeley National Laboratory (LBL).	08/2019
18	Computing Sciences Research Pathways Fellowship from *Lawrence Berkeley National Laboratory (Berkeley Lab - LBL)*	06/2019
19	Givens Associate Intern offered at *Argonne National Lab* (ANL)	06/2019
20	Nomination for ACM SIGHPC / Intel Computational & Data Science Fellowship (a single student gets selected from the entire University) by Computer Science Department in the University of New Orleans	04/2019
21	Certificate for *Poster* Presentation at the University of New Orleans's research symposium InnovateUNO by Graduate School and Office of Research at University of New Orleans	11/2018
22	Certificate for Poster Presentation in 6th Annual Texas STEM Conference at Lamar University, TX, USA.	11/2018
23	Scholarship Recipient and attendee of GHCI 2015 (Grace Hopper Celebration for Women in Computing) in Bangalore, India. [Amount: 10,000 INR]	12/2015
24	Merit-Based Scholarship for Undergraduate Study presented by Bangladesh University of Engineering & Technology (BUET)	2011-2016

	Merit Position 315 out of 6000 selected candidates countrywide, in the competitive Entrance Exam in the top Engineering Institution of Bangladesh, Bangladesh University of Engineering & Technology (BUET)	02/2011

Extra-Curricular

1	Prestigious and long-time established (since 1985) **Edgar E. Burks Memorial Award** for outstanding leadership qualities in the University of New Orleans 36th Leadership Recognition Award Ceremony. [Amount: $500]	04/2020
2	**Winner of Lip-Sync Battle** Competition, UNO Leadership Retreat Fall 2021 organized by Student Involvement and Leadership (SIL)	10/2021
3	**Best Student Organization Award** during the tenure **serving as President** of Bangladesh Student Association (BSA) in the University of New Orleans 37th Leadership Recognition Award Ceremony.	04/2021
4	Nomination for **President** of Bangladesh Student Association (BSA) in the University of New Orleans 37th Leadership Recognition Award Ceremony.	04/2021
5	Nomination for **Dr. Polly Guthrie Service Award for Community Service sponsored by the League of Women Voters of New Orleans!** in the University of New Orleans 37th, 36th and 35th Leadership Recognition Award Ceremony	2019-2021
6	**Recognition Award for Meritorious Service** at Muslim Student Association in the University of New Orleans 36th Leadership Recognition Award Ceremony.	04/2020
7	**Recognition Award for Outstanding Leadership** at Muslim Student Association in the University of New Orleans 36th Leadership Recognition Award Ceremony.	04/2020
8	**Recognition Award for Outstanding Leadership** at Bangladesh Student Association in the University of New Orleans 36th Leadership Recognition Award Ceremony.	04/2020
9	**Finalist of 2019 Ms. APAS** (Asian Pacific American Society) representing Bangladesh as Ms. Bangladesh, in the APAS 40th Anniversary Fundraising Gala.	10/2019
10	Nomination for the Prestigious and long-time established (since 1985) **Edgar E. Burks Memorial Award** for outstanding leadership qualities in the University of New Orleans 35th Leadership Recognition Award Ceremony.	04/2019
11	**Winner of Lip-Sync Battle** Competition, UNO Leadership Retreat Fall 2018 organized by Student Involvement and Leadership (SIL)	10/2018
12	Certificate for successfully completing **Leadership** Training Retreat, University of New Orleans	10/2018

Grants and Contract Awards

Projects

1	"Performance Analysis and Scaling Large-scale Graph Algorithms on Heterogenous Computing Platforms", U.S. Department of Energy (DOE) funded Science Undergraduate Laboratory Internships (SULI) program, 4 months, January – April 2025, Amount: $14,400 USD, role: PI	Spring 2025
2	"Performance Analysis of Distributed Community Detection Algorithms for Large-scale Graph Analysis on Heterogenous Computing Platforms", U.S. Department of Energy (DOE) funded Omni Technology Alliance Internship Program, 6.5 months, June – December 2024, Amount: $26,000 USD, role: PI	Summer, Fall 2024
3	"Performance Analysis and Optimization of Large-scale Graph Algorithms on GPUs", U.S. Department of Energy (DOE) funded Science Undergraduate Laboratory Internships (SULI) program, 2.5 months, June – August 2023, Amount: $9,000 USD, role: PI	Summer 2023

Travel Grants

1	WiML Travel Funding for 19th Women in Machine Learning Workshop (WiML2024), NeurIPS 2024, Vancouver, British Columbia, Canada, December 2024. [Amount: $730 USD]	12/2024
2	NSF Travel Grant to attend CRA-CMW (Computing Research Association) Career and Mentoring Workshop in Chicago, IL, USA. [Amount: $1500 USD]	11/2023

3	Travel Grant for Student Volunteer Program for SC'21, SC'20, SC'19 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis, USA.	2021-2019
4	Student Travel Award by Student Government Association (SGA) at University of New Orleans to attend SC'21 (SuperComputing) Conference, the International Conference for High Performance Computing, Networking, Storage, and Analysis in St. Louis, MO, USA. [Amount; $500 USD]	11/2021
5	Travel Grant to attend CRA-W (Computing Research Association Women) Grad Cohort for Women Workshop in New Orleans, LA, USA	04/2021, 04/2020
6	Travel Grant to attend the SIAM CSE21 Conference in Fort Worth, Texas, USA.	02/2021
7	WiML Travel Funding by NSF [*Funded by National Science Foundation (NSF)*] for 14th Women in Machine Learning Workshop (WiML 2019), Vancouver, British Columbia, Canada.	12/2019
8	Travel Award by Student Government Association (SGA) at University of New Orleans to attend Grace Hopper Celebration (GHC-2019), Orlando, FL, USA. [Amount; $500 USD]	10/2019
9	NSF Student Travel Grant [*Funded by National Science Foundation (NSF)*] to attend the COMBINE 2019 (Computational Modeling in Biology Network) in Heidelberg, Germany. [Amount: $1650 USD]	07/2019
10	Travel Grant to attend CRA-W (Computing Research Association Women) Grad Cohort for Women Workshop in Chicago, IL, USA. [Amount: $1200 USD]	04/2019
11	Travel Grant to attend the SIAM CSE19 Conference in Spokane, Washington, USA. [Amount: $1850 USD]	02/2019
12	Travel Grant [*Funded by National Science Foundation (NSF)*] for attending SCEC 2018 (Second Workshop on Software Challenges to Exascale Computing) in Delhi, India. [Amount: $2700 USD]	12/2018
13	Bangladesh - Sweden Trust Fund (BSTF) Travel Grant 2017 awarded by Bangladeshi Government to Bangladeshi students for securing Graduate Scholarship at foreign universities [Amount: $500 USD]	11/2018

Social Media

Google Scholar: https://scholar.google.com/citations?user=09bl0GIAAAAJ&hl=en
[Citations: 316, h-index: 9, i10-index: 8]
ResearchGate: https://www.researchgate.net/profile/Naw_Safrin_Sattar
LinkedIn: https://www.linkedin.com/in/nawsafrin/

Professional Community Activities

Senator from College of Sciences at Student Government Association (SGA) at University of New Orleans	2021-2022
President at BSA-UNO (Bangladesh Student Association at University of New Orleans)	2020-2021
Social Media Coordinator at MSA-UNO (Muslim Student Association at University of New Orleans)	2018-2021
Vice-President at BSA-UNO (Bangladeshi Student Association at University of New Orleans).	2019-2020
Webmaster at BSA-UNO (Bangladesh Student Association at University of New Orleans)	2018-2019

Volunteering Activities

Crawfish Mambo: SucBauF at University of New Orleans organized by Student Activity Council (SAC)	2022, 2021

Bangladeshi Night Celebration by BSA at UNO	2017-2021
International Mother Language Day Celebration by BSA at UNO	2018-2021
Volunteer at STEM NOLA to assist k-12th grade participants in small groups with STEM (Science, Engineering, Technology and Mathematics) activities.	2019-2020

- St. John STEM Saturday: Structures and Hydraulics (February 29, 2020): Helping Students build a hydraulic structure.
- Sanchez Center STEM Saturday: Mardi Gras Decorating Activity 2020 (Feb 8, 2020): Helping students decorate the Mardi Gras Float and one of the students was the finalist for the activity.
- 7th annual STEM Fest (14 December 2019): Helping students understanding chemical reactions to make slime

Fall 2018 Career Fair organized by Career Services at UNO	2018
Beach Sweep 2018- Pontchartrain Beach presented by Lake Pontchartrain Basin Foundation (LPBF) and Toyota	2018
International Night at UNO organized by International Student Organization (ISO),	2018-2019
CSE Festival at BUET	2011, 2013, 2015