

SHAREEF AHMED

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RESEARCH INTERESTS

Real-Time and Cyber-Physical Systems, Autonomous Systems, Formal Methods, Parallel and Distributed Systems, and Algorithms and Theory of Computation.

EDUCATION

- **University of North Carolina at Chapel Hill** Aug 2019 - May 2025 (expected)
Ph.D. in Computer Science
 - Advisor: Prof. James H. Anderson
 - Dissertation Title: Efficient Scheduling and Analysis of Complex Real-Time Systems.
- **Bangladesh University of Engineering and Technology** Apr 2016 - Mar 2019
M.Sc. in Computer Science and Engineering
- **Bangladesh University of Engineering and Technology** Feb 2011 - Mar 2016
B.Sc. in Computer Science and Engineering

PUBLICATIONS

C=CONFERENCE, J=JOURNAL

- C.15 [RTAS'25] Shareef Ahmed, Denver Massey, and James H. Anderson, *Scheduling Processing Graphs of Gang Tasks on Heterogeneous Platforms*, Proceedings of the 31st IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), IEEE, to appear, 2025.
- C.14 [RTNS'24] Denver Massey, Shareef Ahmed, and James H. Anderson, *On the Feasibility of Sporadic Tasks with Restricted Parallelism on Heterogeneous Multiprocessors*, Proceedings of the 32nd International Conference on Real-Time Networks and Systems (RTNS), pages 105–116, 2024. **Best Paper Nomination**
- C.13 [ECRTS'24] Shareef Ahmed and James H. Anderson, *Open Problem Resolved: The “Two” in PI-Blocking is Fundamental*, Proceedings of the 36th Euromicro Conference on Real-Time Systems (ECRTS), Schloss Dagstuhl - Leibniz-Zentrum für Informatik, pages 11:1–11:23, 2024. **Outstanding Paper Award**
- C.12 [RTSS'23] Shareef Ahmed and James H. Anderson, *Soft Real-Time Gang Scheduling*, Proceedings of the 44th IEEE Real-Time Systems Symposium (RTSS), IEEE, pages 331–343, 2023.
- C.11 [RTSS'23] Zelin Tong, Shareef Ahmed, and James H. Anderson, *Holistically Budgeting Processing Graphs*, Proceedings of the 44th IEEE Real-Time Systems Symposium (RTSS), IEEE, pages 27–39, 2023.
- C.10 [ECRTS'23] Shareef Ahmed and James H. Anderson, *Optimal Multiprocessor Locking Protocols under FIFO Scheduling*, Proceedings of the 35th Euromicro Conference on Real-Time Systems (ECRTS), Schloss Dagstuhl - Leibniz-Zentrum für Informatik, pages 16:1–16:21, 2023.
- C.9 [RTSS'22] Shareef Ahmed and James H. Anderson, *Exact Response-Time Bounds of Periodic DAG Tasks under Server-Based Global Scheduling*, Proceedings of the 43rd IEEE Real-Time Systems Symposium (RTSS), IEEE, pages 447–459, 2022.
- C.8 [ECRTS'22] Zelin Tong, Shareef Ahmed, and James H. Anderson, *Overrun-Resilient Multiprocessor Real-Time Locking*, Proceedings of the 34th Euromicro Conference on Real-Time Systems (ECRTS), Schloss Dagstuhl - Leibniz-Zentrum für Informatik, pages 9:1–9:24, 2022.
- J.2 [DMAA'22] Shareef Ahmed, Shin-ichi Nakano, and Md. Saidur Rahman, *r-gatherings on a Star and Uncertain r-gathering on a Line*, Journal of Discrete Mathematics, Algorithms, and Applications, Volume 14, Issue 5, 2022.
- C.7 [ECRTS'21] Shareef Ahmed and James H. Anderson, *Tight Tardiness Bounds for Pseudo-Harmonic Tasks Under Global-EDF-Like Schedulers*, Proceedings of the 33rd Euromicro Conference on Real-Time Systems (ECRTS), Schloss Dagstuhl - Leibniz-Zentrum für Informatik, pages 11:1–11:24, 2021. **Outstanding Paper Award**
- C.6 [RTAS'21] Joshua Bakita, Shareef Ahmed, Sims H. Osborne, Stephen Tang, Jingyuan Chen, F. Don Smith, and James H. Anderson, *Simultaneous Multithreading in Mixed-Criticality Real-Time Systems*, Proceedings of the 27th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), IEEE, pages 278–291, 2021.
- J.1 [AIJGC'20] Md. Saidur Rahman and Shareef Ahmed, *A survey on pairwise compatibility graphs*, AKCE International Journal of Graphs and Combinatorics, Volume 17, Issue 3, pages 788–795, 2020.
- C.5 [RTCSA'20] Shareef Ahmed and James H. Anderson, *A Soft-Real-Time-Optimal Semi-Clustered Scheduler with a Constant Tardiness Bound*, Proceedings of the 26th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), IEEE, pages 1–10, 2020.

- C.4** [RTCSA'20] Sims H. Osborne, Shareef Ahmed, Saujas Nandi, and James H. Anderson, *Exploiting Simultaneous Multithreading in Priority-Driven Hard Real-Time Systems*, Proceedings of the 26th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), IEEE, pages 1–10, 2020. **Best Paper Award**
- C.3** [AAIM'19] Shareef Ahmed, Shin-ichi Nakano, and Md. Saidur Rahman, *One-Dimensional r -Gathering Under Uncertainty*, Proceedings of the 13th International Conference on Algorithmic Aspects in Information and Management (AAIM), Lecture Notes in Computer Science, Springer, pages 1–15, 2019.
- C.2** [WALCOM'19] Shareef Ahmed, Shin-ichi Nakano, and Md. Saidur Rahman, *r -Gatherings on a Star*, Proceedings of the 13th International Conference and Workshops on Algorithms and Computation (WALCOM), Lecture Notes in Computer Science, Springer, pages 31–42, 2019.
- C.1** [TAMC'17] Shareef Ahmed and Md. Saidur Rahman, *Multi-interval Pairwise Compatibility Graphs*, Proceedings of the 14th Theory and Applications of Models of Computation (TAMC), Lecture Notes in Computer Science, Springer, pages 71–84, 2017.

RESEARCH FUNDING

None

TEACHING EXPERIENCE (SELECTED)

- **Instructor** Fall 2023
University of North Carolina at Chapel Hill
 - COMP 550 Algorithms and Analysis
- **Lecturer** 2016 - 2019
Bangladesh University of Engineering and Technology
 - CSE 309 Compiler
 - CSE 411 Simulation and Modeling
 - CSE 461 Algorithm Engineering
 - CSE 463 Computational Geometry
- **Guest Lecturer** Fall 2021, Fall 2022, Fall 2023
University of North Carolina at Chapel Hill
 - COMP 737 Real-Time Systems
 - COMP 750 Algorithm Analysis

HONORS AND AWARDS

- **Dissertation Completion Fellowship** 2024 - 2025
University of North Carolina at Chapel Hill
- **CPS Rising Star** 2024
University of Virginia
- **Student Travel Grant** 2022, 2023
IEEE Real-Time Systems Symposium
- **University Merit Scholarship** 2012 - 2015
Bangladesh University of Engineering and Technology
- **Dean's List Award** 2012 - 2015
Bangladesh University of Engineering and Technology

PROFESSIONAL SERVICES

- **Program Committee Member:**
 - 17th Junior Researcher Workshop on Real-Time Computing (JRWRTC) 2024.
 - 16th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPs) Posters and Demos
 - 37th Euromicro Conference on Real-Time Systems (Shadow TPC)
- **Reviewer:** Real-Time Systems Journal, Theoretical Computer Science Journal, Discrete Mathematics & Theoretical Computer Science Journal.
- **External Reviewer:**
 - IEEE Real-Time Systems Symposium (RTSS) 2021, 2023
 - IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS) 2021, 2022

- Euromicro Conference on Real-Time Systems (ECRTS) 2021, 2023, 2024
- International Conference on Real-Time Networks and Systems (RTNS) 2021, 2022, 2023
- International Conference on Embedded Software (EMSOFT) 2021
- International Conference and Workshops on Algorithms and Computation (WALCOM) 2023, 2024
- International Symposium on Algorithms and Computation (ISAAC) 2019.
- **Organizing Committee Member:** International Conference on Networking, Systems and Security (NSysS) 2016–2018; International Conference and Workshops on Algorithms and Computation (WALCOM) 2018; UNC Real-Time Systems Lunch (Spring 2021, 2022; and Fall 2022).

PUBLIC TALKS

- Lightning talk at the Embedded Systems Week, Raleigh, USA, 2024.
- Research paper presentation for C.13 at the 36th ECRTS, Lille, France, 2024
- Research paper presentation for C.12 at the 44th RTSS, Taipei, Taiwan, 2023
- Research paper presentation for C.10 at the 35th ECRTS, Vienna, Austria, 2023
- Research paper presentation for C.9 at the 43rd RTSS, Houston, USA, 2022
- Research paper presentation for C.7 at the 33rd ECRTS, Online (due to COVID), 2022
- Research paper presentation for C.5 at the 26th RTCSA, Online (due to COVID), 2021
- Research paper presentation for C.2 at the 13th WALCOM, Guwahati, India, 2019
- Research paper presentation for C.1 at the 14th TAMC, Bern, Switzerland, 2017

REFERENCES

Available upon request