SHAREEF AHMED

ENB 367, 4202 E. Fowler Avenue, Tampa, FL 33620, USA

Email: shareefahmed@usf.edu | Homepage: http://shareefahmed.myweb.usf.edu/ | Google Scholar | dblp

RESEARCH INTERESTS

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

CURRENT POSITION

- **University of South Florida[⊕]** — *August 2025 - Present*
  Assistant Professor, Bellini College of Artificial Intelligence, Cybersecurity and Computing — Tampa, Florida

EDUCATION

- **University of North Carolina at Chapel Hill** — *August 2025*
  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** — *March 2019*
  M.Sc. in Computer Science and Engineering

- **Bangladesh University of Engineering and Technology** — *March 2016*
  B.Sc. in Computer Science and Engineering

PUBLICATIONS   C=CONFERENCE, J=JOURNAL, T=THESIS

C.17 **[RTSS'25]** Sizhe Liu, Rohan Wagle, <u>Shareef Ahmed</u>, Zelin Tong, and James H. Anderson, *ROS^{RT}: Enabling Flexible Scheduling in ROS 2*, Proceedings of the 46th IEEE Real-Time Systems Symposium (**RTSS**), to appear.

C.16 **[RTSS'25]** <u>Shareef Ahmed</u> and James H. Anderson, *A Soft-Real-Time Optimal Scheduler for DAG Tasks with Node-Level Self Dependencies*, Proceedings of the 46th IEEE Real-Time Systems Symposium (**RTSS**), to appear.

T.1 **[UNC'25]** <u>Shareef Ahmed</u>, *Efficient Scheduling and Analysis for Complex Real-Time Systems*, PhD thesis, University of North Carolina at Chapel Hill, 2025.

C.15 **[RTAS'25]** <u>Shareef Ahmed</u>, 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, pages 362-–374, 2025.

C.14 **[RTNS'24]** Denver Massey, <u>Shareef Ahmed</u>, 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**), ACM, pages 105–116, 2024. **Best Paper Nomination**

C.13 **[ECRTS'24]** <u>Shareef Ahmed</u> 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]** <u>Shareef Ahmed</u> 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, <u>Shareef Ahmed</u>, 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]** <u>Shareef Ahmed</u> 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]** <u>Shareef Ahmed</u> 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, <u>Shareef Ahmed</u>, 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]** <u>Shareef Ahmed</u>, 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]** <u>Shareef Ahmed</u> 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, <u>Shareef Ahmed</u>, 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 <u>Shareef Ahmed</u>, *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]** <u>Shareef Ahmed</u> 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, <u>Shareef Ahmed</u>, 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]** <u>Shareef Ahmed</u>, 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]** <u>Shareef Ahmed</u>, 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]** <u>Shareef Ahmed</u> 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.

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

- **Outstanding and Best Paper Awards**
  ECRTS 2021, 2024; RTCSA 2020, RTNS 2024

- **Student Travel Grant**
  RTSS 2022, 2023

- **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:**

    - 14th International Real-Time Scheduling Open Problems Seminar (RTSOPS), 2025.

    - 37th Euromicro Conference on Real-Time Systems (Shadow TPC), 2025.

    - 16th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS) Posters and Demos, 2025.

    - 17th Junior Researcher Workshop on Real-Time Computing (JRWRTC), 2024.

- **Reviewer:** Real-Time Systems Journal, Theoretical Computer Science Journal, Discrete Mathematics & Theoretical Computer Science Journal, Journal of Combinatorial Optimization, IEEE Transaction on Mobile Computing.

- **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

- Research paper presentation for C.14 at the 31st RTAS, Irvine, California, USA, 2025

- 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, Texas, 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