

MAHBUBUR RAHMAN

Assistant Professor, Computer Science
City University of New York –
Queens College & Graduate Center

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RESEARCH INTEREST

Internet of Things
Cyber-Physical Systems
Wireless Networks and Communication
Embedded and Distributed Systems
Embedded Learning and Security

EDUCATION

- AUG 2020 **PhD**, Computer Science
Wayne State University, Detroit, MI
Dissertation: Low-Power Wide-Area Network Design
- APR 2012 **Bachelor of Science**, Computer Science and Engineering
Bangladesh University of Engineering and Technology, Dhaka, Bangladesh
Thesis: Application and Performance of Bloom Filters in P2P Networks

EMPLOYMENT

- AUG 26, 2020 – **Assistant Professor**, Department of Computer Science
Current City University of New York - Queens College and Graduate Center, NY
- JAN 1, 2015 – **Graduate Research/Teaching Assistant**, Department of Computer Science
AUG 14, 2020 Missouri University of Science and Technology, Rolla, MO
Wayne State University, Detroit, MI
- NOV 2011 – **Software Engineer**
DEC 2014 CIMSOLUTIONS Bangladesh Limited, Dhaka, Bangladesh
Samsung R&D Institute Bangladesh Limited, Dhaka, Bangladesh
Structured Data Systems Limited, Dhaka, Bangladesh

JOURNAL PUBLICATION

- Prashant Modekurthy, Dali Ismail, **Mahbubur Rahman** and Abusayeed Saifullah; "Extending Coverage through Integrating Multiple Low-Power Wide-Area Networks: A Latency Minimizing Approach"; in *IEEE Transactions on Mobile Computing*; pp. 1–18; 2024.
- **Mahbubur Rahman** and Abusayeed Saifullah; "Transparent and Tamper-Proof Event Ordering in the Internet of Things Platforms"; in *IEEE IoT Journal*; pp. 1–14; 2022.
- **Mahbubur Rahman**, Dali Ismail, Venkata Prashant Modekurthy, and Abusayeed Saifullah; "LPWAN in the TV White Spaces: A Practical Implementation and Deployment Experiences"; in *ACM Transactions on Embedded Computing Systems*; pp. 1–25; 2021.
- **Mahbubur Rahman** and Abusayeed Saifullah; "Integrating Low-Power Wide-Area Networks for Enhanced Scalability and Extended Coverage"; in *IEEE/ACM Transactions on Networking*; pp. 1–14; 2020.

- **Mahbubur Rahman** and Abusayeed Saifullah; "A Comprehensive Survey on Networking over TV White Spaces"; in *Elsevier Pervasive and Mobile Computing*; pp. 1–17; 2019.
- **Mahbubur Rahman***, Abusayeed Saifullah*, Dali Ismail, Chenyang Lu, Jie Lu, and Ranveer Chandra; "Low-Power Wide-Area Network over White Spaces"; in *IEEE/ACM Transactions on Networking*; pp. 1–14; 2018. *First co-author. **Michael E. Conrad Outstanding Publication Award (Individual)**.

CONFERENCE PUBLICATION

- **Mahbubur Rahman** and Abusayeed Saifullah; "Boosting Reliability and Energy-Efficiency in Indoor LoRa"; in *ACM/IEEE IoTDI '23 (The 8th ACM/IEEE International Conference on Internet of Things Design and Implementation)*; pp. 1–14; 2023.
- Sezana Fahmida, Venkata Prashant Modekurthy, **Mahbubur Rahman**, and Abusayeed Saifullah; "Handling Coexistence of LoRa with Other Networks Through Embedded Reinforcement Learning"; in *ACM/IEEE IoTDI '23 (The 8th ACM/IEEE International Conference on Internet of Things Design and Implementation)*; pp. 1–14; 2023.
- **Mahbubur Rahman** and Pushpen B. Goala; "Enabling Massive Scalability in Low-Power Wide-Area Networks"; in *IEEE ICSS '22 (The 18th IEEE International Conference on Embedded Software and Systems)*; pp. 1–8; 2022. **Best Paper Award**.
- Venkata Modekurthy, Dali Ismail, **Mahbubur Rahman**, and Abusayeed Saifullah; "Low-latency In-Band Integration of Multiple Low-Power Wide-Area Networks"; in *IEEE RTAS '21 (The 27th IEEE Real-Time and Embedded Technology and Applications Symposium)*; pp. 1–13; 2021.
- Sezana Fahmida, Venkata Modekurthy, **Mahbubur Rahman**, Abusayeed Saifullah, and Marco Brocanelli; "Long-Lived LoRa: Prolonging the Lifetime of a LoRa Network"; in *IEEE ICNP '20 (The 28th IEEE International Conference on Network Protocols)*; pp. 1–12; 2020.
- **Mahbubur Rahman**, Dali Ismail, Venkata Prashant Modekurthy, and Abusayeed Saifullah; Implementation of LPWAN over White Spaces for Practical Deployment; in *ACM/IEEE IoTDI '19 (The 4th ACM/IEEE Conference on Internet-of-Things Design and Implementation)*; pp. 1–12; 2019.
- **Mahbubur Rahman**, Abusayeed Saifullah; "Integrating Low-Power Wide-Area Networks in White Spaces"; in *ACM/IEEE IoTDI '18 (ACM/IEEE International Conference on Internet-of-Things Design and Implementation)*; 2018.
- Venkata Prashant Modekurthy, Dali Ismail, **Mahbubur Rahman**, and Abusayeed Saifullah. "A Utilization Based Approach for Schedulability"; in *IEEE ICII '18 (The 1st IEEE International Conference on Industrial Internet)*; pp. 1–10; 2018. **Best Paper Award**.
- **Mahbubur Rahman***, Abusayeed Saifullah*, Dali Ismail, Chenyang Lu, Jie Liu, and Ranveer Chandra, Enabling Reliable, Asynchronous, and Bidirectional Communication in Sensor Networks over White Spaces, in *ACM SenSys 17 (15th ACM Conference on Embedded Networked Sensor Systems)*; pp. 1–14; 2017. *First co-author.
- **Mahbubur Rahman***, Dali Ismail*, Abusayeed Saifullah*, Sanjay Madria; RnR: Reverse & Replace Decoding for Collision Recovery in Wireless Sensor Networks, in *IEEE SECON 17 (The 14th IEEE International Conference on Sensing, Communication and Networking)*; pp. 1-9; 2017. *First co-author.
- Dali Ismail, **Mahbubur Rahman**, Venkata Modekurthy, and Abusayeed Saifullah, Work-in-Progress: Utilization Based Schedulability Analysis for Wireless Sensor-Actuator Networks, in *IEEE RTAS '17 (The IEEE Real-Time and Embedded Technology and Applications Symposium)*; 2017.
- **Mahbubur Rahman***, Abusayeed Saifullah*, Dali Ismail, Chenyang Lu, Ranveer Chandra, and Jie Liu, SNOW: Sensor Network over White Spaces, in *ACM SenSys 16 (14th ACM Conference on Embedded*

Networked Sensor Systems); pp. 272–285; 2016. * First co-author. **Best Paper Award Nominee.**

WORKSHOP PUBLICATION

- Venkata Modekurthy, **Mahbubur Rahman**, and Abusayeed Saifullah; "Towards Mixed Criticality Industrial Wireless Sensor-Actuator Network"; in *ICDCN '23 (Proceedings of the Workshop Program of the 24th International Conference on Distributed Computing and Networking)*; pp. 1–6, 2023. **Best Paper Award.**
- Dali Ismail, **Mahbubur Rahman**, and Abusayeed Saifullah. "Low-power wide-area networks: opportunities, challenges, and directions"; in *ICDCN '18 (Proceedings of the Workshop Program of the 19th International Conference on Distributed Computing and Networking)*; pp. 1–6, 2018.

POSTER/DEMO PUBLICATION

- Pushpen B. Goala and **Mahbubur Rahman**; "Poster: Towards Highly Scalable Hardware-Based Implementation of Low-Power Wide-Area Networks"; in *CUNY Graduate Center*; 2022.
- **Mahbubur Rahman**, Dali Ismail, and Abusayeed Saifullah; "Demo Abstract: Enabling Inter-SNOW Concurrent P2P Communications"; in *ACM/IEEE IoTDI '18 (ACM/IEEE International Conference on Internet-of-Things Design and Implementation)*; 2018.
- Dali Ismail, **Mahbubur Rahman**, and Abusayeed Saifullah; "Demo Abstract: Implementing SNOW on Commercial Off-The-Shelf Devices"; in *ACM/IEEE IoTDI '18 (ACM/IEEE International Conference on Internet-of-Things Design and Implementation)*; 2018. **Best Demo Runner-up.**
- Dali Ismail, **Mahbubur Rahman**, Venkata Modekurthy, and Abusayeed Saifullah; "Poster: Exploiting White Spaces for Low-Power Long-Range Communication"; in *MetroCAD '18 (1st Metro Detroit Workshop on Connected and Autonomous Driving)*; 2018.

THESIS

Mahbubur Rahman. "Low-Power Wide-Area Network Design"; Ph.D. Thesis; Department of Computer Science, Wayne State University; pp. 1–227; August 2020.

TEACHING

Queens College, City University of New York

- CSCI 381 Special Topics: Wireless Networks and Signals (F '24)
- CSCI 348/748 Data Communications/Computer Networks (SP & F '22) (SP & SS '23)
- CSCI 343/744 Computer Architecture and Networks (F '20) (SP & F '21) (SP & F '22)(F '23)
- CSCI 340 Operating Systems Principles (SP & F '23) (SP '24 & F '24)

Graduate Center, City University of New York

- CSC 82020 Advanced Wireless Networks (SP '24)

Wayne State University

- CSC 3100 Computer Architecture and Organization (SP/S '19)
- CSC 3101 Computer Architecture and Organization: Lab (F '18) (W, SP/S '19)

AWARD

- 2023 **Best Paper Award** at ICDCN '23 IoST 5G&B Workshop
The 24th International Conference on Distributed Computing and Networking
January 4–7, 2023, IIT Kharagpur, India

- 2022 **Best Paper Award** at IEEE ICESSE '22
The 18th IEEE International Conference on Embedded Software and Systems
December 18–21, 2022, Chengdu, China
- 2019 **Michael E. Conrad Outstanding Publication Award**
Department of Computer Science, Wayne State University
April 30, 2019, Detroit, MI, USA
- 2019 **Professional Travel Award**
College of Engineering, Wayne State University
March 8, 2019, Detroit, MI, USA
- 2018 **Best Paper Award** at IEEE ICII '18
The 1st IEEE International Conference on Industrial Internet
October 21-18, 2018, Bellevue, WA, USA
- 2018 **Best Demo Runner-up** at IEEE/ACM IoTDI '18
The 3rd ACM/IEEE Intl. Conference on Internet of Things Design and Impl.
April 17-20, 2018, Orlando, FL, USA
- 2017 **Travel Grant** at ACM SenSys '17
The 15th ACM Conference on Embedded Networked Sensor Systems
November 5-8, 2017, Delft, The Netherlands
- 2016 **Best Paper Award Nominee** at ACM SenSys '16
The 14th ACM Conference on Embedded Networked Sensor Systems
November 14-16, 2016, Stanford, CA, USA

PROFESSIONAL SERVICE

Technical Program Committee Member

ACM/IEEE Conference on Internet of Things Design and Implementation (IoTDI) 2024
BP Track - IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS) 2024
International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP) 2023
Shadow PC - ACM Conference on Embedded Networked Sensor Systems (SenSys) 2022
IEEE International Conference on Embedded Software and Systems (ICESSE) 2020, 2021, 2022
Poster Track, ACM/IEEE Conference on Internet of Things Design and Implementation (IoTDI) 2018

Conference Referee

ACM Conference on Embedded Networked Sensor Systems (SenSys) 2017, 2018, 2020, 2022
USENIX Symposium on Networked Systems Design and Implementation (NSDI) 2016
IEEE International Conference on Embedded Software and Systems (ICESSE) 2020, 2021, 2022
ACM/IEEE Conference on Internet of Things Design and Implementation (IoTDI) 2018, 2024
IEEE Real-Time Systems Symposium (RTSS) 2017, 2019, 2020
IEEE Real-Time & Embedded Tech. & Applications Symposium (RTAS) 2017, 2018
IEEE Conference on Computer Communications (INFOCOM) 2020
ACM Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc) 2016
IEEE International Conference on Big Data (BigData) 2019
ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS) 2017, 2018
IEEE International Conference on Industrial Internet (ICII) 2018, 2019
European Conference on Wireless Sensor Networks (EWSN) 2017, 2018
IEEE/ACM International Symposium on Quality of Service (IWQoS) 2020
International Conference on Computer Communications and Networks (ICCCN) 2019
IEEE Intl. Conf. on Embedded and Real-Time Computing Sys. and App. (RTCSA) 2017, 2019

Journal Referee

IEEE/ACM Transactions on Networking (TON) 2020

IEEE Access Journal 2019

Computer Networks Journal (COMNET) 2021

ACM Transactions on Sensor Networks (TOSN) 2015

ACM Transactions on Cyber-Physical Systems (TCPS) 2016, 2018

IEEE Transactions on Mobile Computing (TMC) 2017

IEEE Transactions on Wireless Communications (TWC) 2019

Elsevier Pervasive and Mobile Computing journal (PMC) 2018, 2019, 2020

Elsevier Computer Networks 2022

REFERENCE

Available on request