

# Bashima Islam

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## Research Description

My research interests include **mobile and pervasive computing**, **machine learning** for **Internet-of-Things**, **cyber-physical systems**, and **mobile health**. I am especially interested in **intermittent computing**. The goal of my research is to understand and enhance the processing capabilities of tiny energy-constrained computing devices. I aim to introduce a new set of time-aware, intelligent, and personalized edge computers and provide sustainable and scalable sensing solutions in various application domains ranging from health monitoring to smart agriculture. *I work on the control and processing layers of resource-constrained embedded systems and use both commercial-of-the-shelf and custom-designed hardware to achieve this goal.* As a recognition of my work, I have been named the **Finalist** for the **Gaetano Borriello Outstanding Student Award** of UbiComp 2020 and one of the top 30 most influential scientists under the age of 30 (**30 under 30**) by **Forbes** in 2021.

## Professional Experience

- August '22 ■ **Assistant Professor, Department of Electrical and Computer Engineering, Worcester Polytechnic Institute.**
- June '21 – July '22 ■ **Affiliated Assistant Professor, Department of Electrical and Computer Engineering, Worcester Polytechnic Institute.**
- June '21 – June '22 ■ **Visiting Postdoctoral Research Associate, Beckman Institute, University of Illinois at Urbana-Champaign.**  
– Advisor: *Dr. Romit Roy Chowdhury* and *Dr. Nancy McElwain*
- Aug '16 – May '21 ■ **Graduate Research Assistant, Department of Computer Science, University of North Carolina at Chapel Hill.**  
– Advisor: *Dr. Shahriar Nirjon*
- May '20 – Aug '20 ■ **Summer Research Intern, Samsung Research America, CA.**  
– Mentors: *Dr. Md Mahbubur Rahman*, *Dr. Tousif Ahmed*, and *Dr. Jilong Kuang*
- Jun '17 – Aug '17 ■ **Summer Research Intern, Nokia Bell Labs, NJ.**  
– Mentors: *Dr. Mostafa Uddin*, *Dr. Sarit Mukherjee*, and *Dr. TV Lakshman*
- Feb '15 – Jun '16 ■ **Quantitative Software Developer, Stochastic Logic Ltd, Bangladesh.**  
– Supervisor: *Dr. Arif Dowl*

## Education

- 2021 ■ **Ph.D. in Computer Science, University of North Carolina at Chapel Hill**  
Advisor: *Dr. Shahriar Nirjon*  
Dissertation Title: *Scheduling Tasks on Intermittently-Powered Real-Time Systems.*  
Dissertation Committee: *Dr. Kevin Jeffay*, *Dr. Donald E. Porter*, *Dr. Xiaofan (Fred) Jiang*, *Dr. Parasara Sridhar Duggirala*, and *Dr. Shahriar Nirjon*
- 2016 ■ **B.Sc. in Computer Science & Engineering, Bangladesh University of Engineering & Technology**  
Thesis Title: *High Performance Approximate Computing by Adaptive Relaxed Synchronization.*  
Thesis Advisor: *Dr. Rifat Shahriar*  
Awards: *Dean's List Award*, *University Merit*, and *Technical Board Scholarship.*

## Awards and Achievements

- 2022 ■ **Forbes 30 under 30 (Science), 2022.**
- 2021 ■ **Samsung Best Paper Award**(health category), Samsung Research America, 2021.
- 2020 ■ **Rising Stars in EECS 2020** at University of California, Berkeley.  
■ **Finalist, Gaetano Borriello Outstanding Student Award**, UbiComp 2020.  
■ **Best Presentation Judge's Award**, UbiComp 2020.  
■ **CRA-WP Career Mentoring Workshop**, 2020.

## Awards and Achievements (continued)

- 2018    **Best Presentation Award**, Vehicular Networking Conference 2018.
- Best App Runner-Up Award**, Vehicular Networking Conference 2018.
- Grace Hopper Conference Scholarship**, UNC CS.
- 2018-19    **Computing Research Association (CRA) grants** for CRA-W grad cohort.
- 2017    **N2Women Young Researcher Fellowship Award**, MobiSys 2017.
- Best Summer Intern Presentation Award**, Nokia Bell Labs.
- 2016    **Best Demo Runner-Up Award**, SenSys 2016.
- 2016-18    **Travel Grant**, SenSys, MobiSys, CPS Week, MMSys.
- 2015    **Dean's List Award & University Scholarship**: Academic Honor by Bangladesh University of Engineering & Technology (BUET), Bangladesh.
- 2014    **Popular Poster Award**, Workshop on Women Empowerment through ICT 2014.
- 2013    **World Finalist and National Champion**, Microsoft Imagine Cup, Russia.
- Best Demo Award**, WDIECS 2013.
- 2011    **Technical Board Scholarship**, by BUET, Bangladesh.

## Research Publications

### Peer-Reviewed Journals and Conference Publications

- 1 Abu Bakar, Rishabh Goel, Jasper de Winkel, Jason Huang, Saad Ahmed, **Bashima Islam**, Przemysław Pawełczak, Kasim Sinan Yildirim and Josiah Hester: *Protean: An Energy-Efficient and Heterogeneous Platform for Adaptive and Hardware-Accelerated Battery-free Computing*. In: ACM Conference on Embedded Networked Sensor Systems (**SenSys'22**), 2022.
- 2 **Rose Bohrer** and **Bashima Islam**: *Cyber-Physical Verification of Intermittently Powered Embedded Systems*. In: International Conference on Embedded Software (**EMSOFT '22**), 2022.
- 3 **Bashima Islam**, Md Mahbubur Rahman, Tousif Ahmed, Mohsin Yusuf Ahmed, Ebrahim Nemati, Korosh Vatanparvar, Viswam Nathan, Daniel McCaffrey, Jilong Kuang and Jun Alex Gao: *BreathTrack: Tracking Breathing Biomarkers Using Smartphone Acoustic Sensor*. In: ACM Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT/UBICOMP '21**), 2021.
- 4 **Bashima Islam** and Shahriar Nirjon: *Zygarde: Time-Sensitive On-Device Deep Inference and Adaptation on Intermittently-Powered Systems*. In: ACM Proceedings on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT/UBICOMP '20**), Volume 4, Issue 3, 2020.
- 5 **Bashima Islam** and Shahriar Nirjon: *Scheduling Computational and Energy Harvesting Tasks in Deadline-Aware Intermittent Systems*. In: IEEE International Conference on Real-Time and Embedded Technology and Applications Symposium (**RTAS '20**), 2020.
- 6 Rahman, Md Mahbubur, Mohsin Yusuf Ahmed, Tousif Ahmed, **Bashima Islam**, Viswam Nathan, Korosh Vatanparvar, Ebrahim Nemati, Daniel McCaffrey, Jilong Kuang and Jun Alex Gao: Md Mahbubur Rahman, Mohsin Yusuf Ahmed, Tousif Ahmed, **Bashima Islam**, Viswam Nathan, Korosh Vatanparvar, Ebrahim Nemati, Daniel McCaffrey, Jilong Kuang and Jun Alex Gao: *BreathEasy: Assessing Respiratory Diseases Using Mobile Multimodal Sensors*. In: ACM International Conference on Multimodal Interaction (**ICMI '20**), in: ACM International Conference on Multimodal Interaction (**ICMI '20**), 2020.
- 7 Tousif Ahmed, Mohsin Yusuf Ahmed, Md Mahbubur Rahman, Ebrahim Nemati, **Bashima Islam**, Korosh Vatanparvar, Viswam Nathan, Daniel McCaffrey, Jilong Kuang and Jun Alex Gao: Tousif Ahmed, Mohsin Yusuf Ahmed, Md Mahbubur Rahman, Ebrahim Nemati, **Bashima Islam**, Korosh Vatanparvar, Viswam Nathan, Daniel McCaffrey, Jilong Kuang and Jun Alex Gao: *Automated Time Synchronization of Multimodal Cough Events from Mobile Devices*. In: ACM International Conference on Multimodal Interaction (**ICMI '20**), in: ACM International Conference on Multimodal Interaction (**ICMI '20**), 2020.
- 8 Alma Probstl, **Bashima Islam**, Shahriar Nirjon, Naehuck R Chang and Samarjit Chakraborty: *Intelligent Chargers will Make Mobile Devices Live Longer*. In: IEEE Design and Test Journal, 2020.

- 9 Seulki Lee, **Bashima Islam**, Yubo Luo and Shahriar Nirjon: *Intermittent Learning: On-Device Machine Learning on Intermittently Powered System*. In: ACM Proceedings on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT '19/UBICOMP '20**), Volume 3, Issue 4, **Best Presentation Judge's Award**, 2019.
- 10 **Bashima Islam**, Md Tamzeed Islam and Shahriar Nirjon: *Glimpse.3D: A Motion-Triggered Stereo Body Camera for 3D Experience Capture and Preview*. In: ACM/IEEE International Conference on Information Processing in Sensor Networks (**IPSN '18**), 2018.
- 11 **Bashima Islam**, Mostafa Uddin, Sarit Mukherjee and Shahriar Nirjon: *Rethinking Ranging of Unmodified BLE Peripherals in Smart City Infrastructure*. In: ACM Multimedia Systems Conference (**MMSys '18**), 2018.
- 12 Md Tamzeed Islam, **Bashima Islam** and Shahriar Nirjon: *Duty-Cycle-Aware Real-Time Scheduling of Wireless Links in Low Power WANs*. In: IEEE International Conference on Distributed Computing in Sensor Systems (**DCOSS '18**), 2018.
- 13 Daniel de Godoy, **Bashima Islam**, Stephen Xia, Md Tamzeed Islam, Rishikanth Chandrasekaran, Yen-Chun Chen, Shahriar Nirjon, Peter R Kinget and Xiaofan Jiang: *Paws: A Wearable Acoustic System for Pedestrian Safety*. In: IEEE/ACM International Conference on Internet-of-Things Design and Implementation (**IoTDI '18**), 2018.
- 14 Chong Shao, **Bashima Islam** and Shahriar Nirjon: *Marble: Mobile Augmented Reality using a Distributed BLE Beacon Infrastructure*. In: IEEE/ACM International Conference on Internet-of-Things Design and Implementation (**IoTDI '18**), 2018.
- 15 Md Tamzeed Islam, **Bashima Islam** and Shahriar Nirjon: *SoundSifter: Mitigating Overhearing of Continuous Listening Devices*. In: ACM Proceedings Conference on Mobile Systems, Applications, and Services (**MobiSys '17**), 2017.
- 16 Stephen Xia, Daniel de Godoy, **Bashima Islam**, Md Tamzeed Islam, Rishikanth Chandrasekaran, Yen-Chun Chen, Shahriar Nirjon, Peter R Kinget and Xiaofan Jiang: Stephen Xia, Daniel de Godoy, **Bashima Islam**, Md Tamzeed Islam, Rishikanth Chandrasekaran, Yen-Chun Chen, Shahriar Nirjon, Peter R Kinget, Xiaofan Jiang: *Improving Pedestrian Safety in Cities using Intelligent Wearable Systems*. In: IEEE Internet of Things Journal (**IoTJ '19**), in: IEEE Internet of Things Journal, 2019.
- 17 Ravi Srinivasan, Md Tamzeed Islam, **Bashima Islam**, Zeyu Wang, Tamim Sookoor, Omprakash Gnawali and Shahriar Nirjon: Ravi Srinivasan, Md Tamzeed Islam, **Bashima Islam**, Zeyu Wang, Tamim Sookoor, Omprakash Gnawali and Shahriar Nirjon: *Preventive Maintenance of Centralized HVAC Systems: Use of Acoustic Sensors, Feature Extraction, and Unsupervised Learning*. In: Proceedings of Building Simulation, in: Proceedings of Building Simulation, 2017.
- 18 Md Shihabul Islam, Mohammad Ali, Kazi Hasan Zubaer, Saiyma Sarmin, Md Tamzeed Islam, **Bashima Islam**, A.B.M. Alim Al Islam and Asif Mohaisin Sadri: Md Shihabul Islam, Mohammad Ali, Kazi Hasan Zubaer, Saiyma Sarmin, Md Tamzeed Islam, **Bashima Islam**, A.B.M. Alim Al Islam and Asif Mohaisin Sadri: *Trusted Worrier: A Low-Cost and High-Accuracy User Authentication System for Firearm Exploiting Dynamic Hand Pressure Biometrics*. In: IEEE International Conference on Networking, Systems and Security (**NSys '17**), in: IEEE 2017 International Conference on Networking, Systems and Security (**NSys '17**), 2017.
- 19 **Bashima Islam**, Faysal Hossain and Rifat Shahriyar: *High Performance Approximate Computing by Adaptive Relaxed Synchronization*. In: IEEE International Conference on High Performance Computing and Communication (**HPCC '16**), 2016.

## US Patent

- 1 Rahman, Md Mahbubur, Bashima Islam, Tousif Ahmed, Nathan Robert Folkman, Anh Minh Dinh, Sean Bornheimer, Ebrahim Nematihosseiniabadi, Jilong Kuang and Jun Gao: Breathing measurement and management using an electronic device, US Patent App. 17/406,086, Feb. 2022.

## Peer-Reviewed Workshop

- 1 **Bashima Islam**: *PhD Forum Abstract: Scheduling Tasks on Intermittently Powered Systems*. In: PhD Forum in ACM/IEEE International Conference on Information Processing in Sensor Networks (**IPSN '20**), 2020.

- 2 **Bashima Islam**, Yubo Luo, Seulki Lee and Shahriar Nirjon: *Time-Aware Deep Intelligence on Batteryless Systems*. Work in Progress Paper. In: Proceedings of IEEE Real-Time and Embedded Technology and Application Symposium (**RTAS '19**), 2019.
- 3 **Bashima Islam**, Md Tamzeed Islam and Shahriar Nirjon: *LoRaIn: Making a Case for LoRa in Indoor Localization*. Work in Progress Paper. In: IEEE International Conference on Pervasive Computing and Communications, (**PerCom '19**), 2019.
- 4 Md Tamzeed Islam, **Bashima Islam** and Mohammed Eunus Ali: *A System for Identifying and Visualizing Influential Communities*. In: Workshop on Social Data Analytics and Management, (**VLDB '16**), 2016.

## Peer-Reviewed Posters and Demos

- 1 **Bashima Islam**, Yubo Luo and Shahriar Nirjon: Poster Abstract: On-Device Training from Sensor Data on Batteryless Platforms. In: ACM/IEEE International Conference on Information Processing in Sensor Networks (**IPSN '19**) 2019.
- 2 **Bashima Islam**, Md Tamzeed Islam and Shahriar Nirjon: *A Motion-Triggered Stereo Camera for 3D Experience Capture*. In: ACM/IEEE International Conference on Information Processing in Sensor Networks (**IPSN '18**), Porto, Portugal 2018.
- 3 Stephen Xia, Daniel de Godoy, **Bashima Islam**, Md Tamzeed Islam, Shahriar Nirjon, Peter R. Kinget and Xiaofan Jiang: *A Smartphone-Based System for Improving Pedestrian Safety*. In: IEEE Vehicular Networking Conference (**VNC '18**) 2018, **Runner-Up Best App Award and Best Presentation Award**.
- 4 Rishikanth Chandrasekaran, Daniel de Godoy, Stephen Xia, **Bashima Islam**, Md Tamzeed Islam, Shahriar Nirjon, Peter R. Kinget and Xiaofan Jiang: *Demo Abstract: SEUS: A Wearable Multi-Channel Acoustic Headset Platform to Improve Pedestrian Safety*. In: ACM Conference on Embedded Network Sensor Systems (**Sensys '16**). 2016, **Best Demo Runner Up**.
- 5 Tanzila Choudhury, **Bashima Islam** and A. B. M. Alim Al Islam: *Poster Abstract: Super-savior: A System to Aid Combating Harassment and Violence Against Women*. In: Proceedings of Workshop on Women Empowerment through ICT: Higher Studies, Research and Career (**WE-ICT '14**). 2014, **Popular Poster Award**.
- 6 **Bashima Islam**, Md Tamzeed Islam, Zaheen Mustakin, MM Haque and Hasan Shahid Ferdous: *Demo Abstract: Happy Watch: A Portable Health Monitoring System*. In: Workshop on Design and Implementation of Emerging & Computing Systems (**WDIECS '13**). 2013, **Best Demonstration Award**.

## Selected Research Experience

### University of Illinois at Urbana-Champaign

Mentor: *Dr. Romit Roy Chowdhury* and *Dr. Nancy McElwain*

- Topic: **Monitoring Development of Infant and their Interaction with Parents** [2021–2022]
  - Understanding the relating between mental development and the interaction with parents from infant's acoustic and motion activities and heart-rate variability.

### Dept of Computer Science, UNC Chapel Hill

Mentor: *Dr. Shahriar Nirjon*

- Topic: **Time-Aware On-Device Computing and Deep Inference in Intermittently-Powered Systems**. [2018–2020]
  - Proposed scheduling algorithms for *intermittent* systems by integrating *real-time* systems with characteristics intermittent energy.
  - Proposed an imprecise DNN structure for on-line on-device learning in *batteryless* system.
  - Implemented real-time scheduler with multiple tasks including imprecise deep neural network in a small embedded system (e.g., *MSP430FR5994*).
  - Studied *energy harvesting patterns* of different sources and proposed a metric to characterize them.
  - Provided *scheduling analysis* and *necessary conditions* for proposed scheduling algorithms.

## Selected Research Experience (continued)

- **Topic: Complex Assessment of Military Performance (CAMP).** [2019–2020]  
Funding Source: *U.S. Department of Defense.*
  - Worked on the Response Time Analysis system which indicates the presence of concussion.
  - Developed the complete system which is currently in pilot test at Fort Bragg, North Carolina, which is a military installation of the United States Army in North Carolina. This system will be deployed in two other military installation in future.
  - *Faculty Collaborators:* Karen McCulloch (Department of Allied Health Sciences, UNC), Oleg Favorov (Department of Biomedical Engineering, UNC), Robert Hubal (School of Pharmacy, UNC) and Amy Cecchini (Womack Army Medical Center).
- **Topic: 3D Reconstruction in Low-Resource Systems.** [2017–2018]
  - Proposed an optimized *3D reconstruction* framework for resource-constrained body-camera systems that utilizes human movement to minimize computational and energy cost.
  - Defined a *quality metric for 3D point clouds* using their structural similarity index.
  - Formulated an *optimization problem* that finds an *optimal trigger-point* for the body camera to prolong its battery life while maximizing the quality of the captured 3D environment.
  - Implemented structure from motion on *Raspberry Pi* using *OpenCV*.
- **Topic: Pedestrian Safety by Audio Sensing.** [2016–2018]  
Funding Source: *NSF CSR: CHS: Medium: Improving Pedestrian Safety in Urban Cities using Intelligent Wearable Systems. Award #1704469.*
  - Created a *custom wearable system* and smartphone application for car detection and localization.
  - Implemented machine learning pipeline to detect and localize cars using acoustic features from multi-channel audio recordings.
  - *Faculty Collaborators:* Xiaofan Jiang and Peter R Kinget (University of Columbia).

### Digital Health Lab, Samsung Reseach America

Mentors: *Dr. Md Mahbubur Rahman and Dr. Tousif Ahmed*

- **Topic: Breathing Phase Detection and Biomarker Estimation using Audio.** [2020]
  - Redesigned the *teacher-student network* architecture by fusing signal processing technique with a deep learning model and transferring knowledge from inertial sensing modality to acoustic sensing modality to eliminate the need of breathing sound annotations.

### Nokia Bell Labs

Mentors: *Dr. Mostafa Uddin and Dr. Sarit Mukherjee*

- **Topic: Passive Localization of Bluetooth Low Energy (BLE) devices.** [2017]
  - Exploited reflection and multipath profiling to passively determine range of BLE peripheral devices.
  - Modified *source code* of *Ubetooth One* and implemented BLE protocol in software defined radio (*HackRF*).
  - Part of my work has been deployed as a demo in the *Future X Lab* to showcase localization of visitors in real-time.

## Teaching Experience

### Department of Electrical and Computer Engineering, Worcester Polytechnic Institute

Spring 2023 ■ **Instructor**, Discrete-Time Signal Processing (ECE 2312).

### Department of Computer Science, University of North Carolina at Chapel Hill

Fall 2020 ■ **Guest Lecturer**, Mobile Sensing and Inference Systems (COMP 790).  
– Topic: *Motion-Triggered Stereo Body Camera for 3D Experience Capture and Preview.*

Spring 2019 ■ **Teaching Assistant**, Mobile Computing Systems (COMP 433).  
– Course Description: An undergraduate course that covers the basics of Mobile Applications development using Android APIs, and selected topics on Mobile Systems.  
– Number of Students: 37  
– Responsibilities: Held weekly office hours and assisted students with programming assignments to understand object-oriented programming and Android APIs. Graded programming assignments and classworks including programming tasks and application design.

## Teaching Experience (continued)

- Fall 2019    ■ **Teaching Assistant**, Embedded Intelligent Systems (COMP 790).  
– Course Description: A graduate course that teaches the advancement of intelligent mobile and embedded systems. Along with research paper presentation and discussion it has lab sessions for learning embedded programming and PCB development.  
– Responsibility: Assisted in lab sessions by providing hands-on instructions to the students about the fundamental of PCB designing, printing, and assembly.

## Mentorship Experience

### PhD Students

- **Mohammad Nur Hossain Khan, Subrata Biswas**, Dept. of Electrical and Computer Engineering, Worcester Polytechnic Institute.
- **Payal Mohapatra**, Dept. of Computer Science, North Western University.
- **Abu Bakar**, School of Interactive Computing, Georgia Institute of Technology.

### Undergraduate Students

- **Haoyu Fu, Zhuolin Liu, Michael Rothstein, Yveder Joseph (MQP 2022-23)**, Dept. of Electrical and Computer Engineering, Worcester Polytechnic Institute.
- **Krish Patel, Aritro Sarker, Joshua Hollyer, Alex Colwell (Undergraduate Research)**, Dept. of Electrical and Computer Engineering, Worcester Polytechnic Institute.
- **Emily Bubencik, Vibhuti Pathare, Anna Shi (MQP 2021-22)**, Dept. of Electrical and Computer Engineering, Worcester Polytechnic Institute.
- **Payal Mohapatra**, Dept. of Computer Science, Northwestern University.
- **Arna Roy Puja**, Dept. of Computer Science & Engineering, Khulna University of Engineering and Technology.
- **Argha Dhar**, Dept. of Computer Science & Engineering, Khulna University of Engineering and Technology.
- **Sultan Mahmud Sajal**, Dept. of Computer Science & Engineering, Bangladesh University of Engineering and Technology.  
– Current: Ph.D. Student, Department of Computer Science and Engineering at Pennsylvania State University.
- **Rubaba Hasan**, Dept. of Computer Science & Engineering, Bangladesh University of Engineering and Technology.  
– Current: Ph.D. Student, Department of Computer Science and Engineering at Pennsylvania State University.
- **Saad Manzur**, Dept. of Computer Science & Engineering, Bangladesh University of Engineering and Technology.  
– Current: Ph.D. Student, Donald Bren School of Information and Computer Sciences at University of California, Irvine.
- **Marjan Ferdousi Orthy**, Dept. of Computer Science & Engineering, Bangladesh University of Engineering and Technology.  
– Current: Chief Technology Officer (CTO) at Insight Labs-MetSys.

### High School Student

- **Nithya Sampath**, North Carolina School of Science and Mathematics.  
– Current: Undergraduate Student, Department of Electrical and Computer Engineering, Carnegie Mellon University.  
– Mentored Nithya during the summer before her senior year of high school and introduce her to the research in computer science.  
– Her research under my supervision resulted in a publication at Journal of Emerging Investigators.



## Professional Services and Leadership Experience

- 2023    ■ **Publication Chair**.  
– The ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), 2023

## Professional Services and Leadership Experience (continued)




- 2021–2023 **Program Chair.**
- Conference for Wearable Computing (ISWC), 2023
  - Workshop on Energy Harvesting & Energy-Neutral Sensing Systems (Co-located with SenSys), 2022
  - Workshop on Intelligent Acoustic Systems and Application (Co-located with MobiSys), 2022
- 2019–2022 **Program Committee Member.**
- MobiCom, 2023
  - ICDCS, 2023
  - IoTDI, 2023
  - DigiBiom Workshop, 2023
  - IMWUT/ISWC, 2022
  - ENSsys, 2021, 2022
  - CPS-IoTBench, 2022
  - LPIoT, 2021
  - ACM SenSys (Poster and Demo), 2019
- 2021– **Associate Editor.**
- International Journal of Wireless Information Network
  - IEEE Sensors (Guest)
- 2020 **Session Chair.**
- BuildSys, 2020
  - ENSsys, 2020.
- 2017–2021 **Primary Reviewer.**
- IEEE Sensors, 2022
  - IEEE Transaction of Mobile Computing, 2022
  - IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2022
  - IEEE transaction of Embedded Computing, 2022
  - CHI, 2022
  - IEEE PerCom, 2021
  - IEEE Access, 2021, 2022
  - IMWUT, 2020, 2021, 2022
  - IEEE Internet of Things Journal, 2020, 2021
  - CHASE, 2020
  - Transactions on Network Science & Engineering, 2018
  - MobiSys Women’s Workshop, 2017
- Secondary Reviewer.**
- RTAS, 2020
  - IPSN, 2017, 2020
  - MMSys, 2018
- 2022 **Instructor**
- WPI Summer K-12 Outreach Program (Frontier)
- 2019 **Mentor**
- MobiSys 2021 Mentoring Program
  - North Carolina School of Science and Mathematics – Mentoring Program
- Panelist**
- SenSys 2022 N2women
  - MobiSys 2022 N2women
- 2018–2019 **President, Computer Science Student Association (CSSA) at UNC.**
- Organizer and Instructor, TARHEEL Hackathon (for Middle School and High School Girls).**
- Held hands-on embedded system development sessions for Middle School and High School female students (age range: 11 – 16).
- 2017 **Organizer, The 2nd MobiSys Women’s Workshop.**
- 2017–Present **Career Event Officer & General Secretary (2018–2019), Graduate Women in Computer Science at UNC.**
- 2012–2016 **Trainer & Organizer, BUET System Analysis, Design & Development Group.**

## Professional Services and Leadership Experience (continued)



- 2013–2014     **Microsoft Student Partner**, Microsoft Student Partners Bangladesh.  
2011–2012     **General Secretary**, Viqarunnisa Noon Science Club.

## Selected Talks

### Invited University Talks

- December 2022     *The Road to 2050*, Franklin Institute (Franklin Museum).  
 Century Lives podcast from the Stanford Center on Longevity.
- November 2022     *Sustainable Intelligent Everyday Objects*, Guest Speaker, University of Colorado Boulder Colloquium Series.
- October 2022     Engineering & Technology club's speaker series at American High School in Fremont, California.
- October 2021     *Mobile and Ubiquitous Computing*, Guest Speaker, Syracuse University.
- September 2021     *Sustainable Intelligent Everyday Objects*, Guest Speaker, Worcester Polytechnic Institute.
- April 2021     *Computing on the Extreme Edge Devices*, Notre Dame University (CS).
- March 2021     *Computing on the Extreme Edge Devices*, University of Utah (CS).  
 *Computing on the Extreme Edge Devices*, University of Texas Austin (ECE).  
 *Computing on the Extreme Edge Devices*, Worcester Polytechnic Institute (ECE).  
 *Computing on the Extreme Edge Devices*, Vanderbilt University (EECS).  
 *Computing on the Extreme Edge Devices*, New Jersey Institute of Technology (CS).  
 *Computing on the Extreme Edge Devices*, Auburn University (CSSE).
- February 2021     *Computing on the Extreme Edge Devices*, Northwestern University (CS).  
 *Computing on the Extreme Edge Devices*, Syracuse University (EECS).
- January 2021     *Computing on the Extreme Edge Devices*, Carnegie Mellon University (ECE).
- December 2020     *Computing on the Extreme Edge Devices*, Portland State University (CS).
- October 2020     *Computing on the Extreme Edge Devices*, Georgia Institute of Technology.
- Feb 2020     *Introduction to Embedded Intelligence*, Chancellor's Science Scholars Program, University of North Carolina at Chapel Hill.

### Invited Industry Talks

- Aug 2020     *Tracking Breathing Biomarkers Using Smartphone Acoustic Sensor*, Digital Health Lab, Samsung Research America.
- Aug 2017     *Passive Ranging of Unmodified BLE Peripherals*, Nokia Bell Labs. **Best Presentation Award.**

### Conference Talks

- Dec 2021     *Sustainable and Intelligent Everyday Objects for Health Monitoring*, the International Conference on Networking, Systems and Security, (NSysS) 2021.
- Sep 2020     *Zygarde: Time-Sensitive On-Device Deep Inference and Adaptation on Intermittently-Powered Systems*, the ACM international joint conference on pervasive and ubiquitous computing (UBICOMP) 2020.
- Apr 2020     *Scheduling Computational and Energy Harvesting Tasks in Deadline-Aware Intermittent Systems*, IEEE Real-Time and Embedded Technology and Application Symposium (RTAS), CPS-IoT Week 2020.  
 *Scheduling Tasks on Intermittently Powered Systems*, PhD Forum in ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), CPS-IoT Week 2020.
- Apr 2019     *Time-Aware Deep Intelligence on Batteryless Systems*, IEEE Real-Time and Embedded Technology and Application Symposium (RTAS), CPS-IoT Week 2019.
- Jun 2018     *Rethinking Ranging of Unmodified BLE Peripherals in Smart City Infrastructure*, ACM Multimedia Systems Conference (MMSyS) 2018.
- Apr 2018     *Glimpse.3D: a motion-triggered stereo body camera for 3D experience capture and preview*, ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), CPS-IoT Week 2018.



# References

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Available on Request