# MD SAHABUL HOSSAIN

Research Assistant, Department of Electrical and Computer Engineering,
The University of New Mexico, Albuquerque, New Mexico, USA

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## Education

**Ph.D. in Computer Engineering** Fall 2021 -
University of New Mexico Present
Advisor: Dr. Eirini Eleni Tsiropoulou

**Bachelor of Science in Electrical and Electronic Engineering** November 2015
Islamic University of Technology (IUT), Gazipur, Bangladesh
*CGPA*: 3.90/4.00
*Relevant coursework*:

- Linear Algebra and Ordinary Differential Equations
- Statistics
- Computer programming
- Data Structures and Algorithms
- Peripherals and Microprocessor Based Design
- Numerical Analysis

## Research Interest

My research interest lies in the fields of artificial intelligence, reinforcement learning, distributed system, distributed decision making, artificial intelligence enabled solutions, and game theory.

## Teaching experience

**Lecturer** October 2016 –
Department of Electrical and Electronic Engineering, July 2021
Bangladesh University of Business and Technology (BUBT), Dhaka,
Bangladesh
*Courses taught:*

- Structured Programming Language (Theory and Lab)
- Numerical Analysis for Engineers (Theory)
- Microprocessor and Interfacing (Theory and Lab)
- Introduction to MATLAB (Lab)
- Mobile Cellular Communication (Theory)
- Digital Signal Processing (Theory and Lab)

*Responsibilities:* Prepared and conducted nine one-hour theoretical lectures (40 – 60 students) and three three-hour laboratory sessions (30 – 40 students) per week.

## Honors and Awards

- OIC granted scholarship for 4 years of undergraduate study. 2011 - 2015
- Government Scholarship in Higher Secondary School Certificate (HSC) examination from Education Board 2011 - 2015
- Government Scholarship in Secondary School Certificate (SSC) examination from Education Board 2010 - 2011

## Technical Skills

- Programming languages: Python, MATLAB and Simulink, C/C++, JavaScript, PHP, SQL.
- Python packages: scikit-learn, scikit-image, keras, tensorflow, stable baseline.
- Embedded systems: AVR and PIC micro-controllers, Raspberry Pi, Arduino.
- Computer aided design/engineering: AutoCAD, Proteus, PSpice, MicroWind.

## University Service

**Intake In-charge** 2018 - 2021
Bangladesh University of Business and Technology (BUBT)
*Responsibilities:* Helped three intakes of students with course registrations and acted as their academic advisor.

**Member of Question Moderation Committee** 2019 - 2020
Bangladesh University of Business and Technology (BUBT)
*Responsibilities:* Moderated mid-term and final examination question papers of electronics major courses.

**Member of Course distribution and Routine management Committee** 2019 - 2021
Bangladesh University of Business and Technology (BUBT)
*Responsibilities:* Together with other members of the committee made academic routines for the department of Electrical and Electronic Engineering.

## Undergraduate Projects

- Developing a simulator for nano-plasmonic structures using MATLAB GUIDE.
- CAM security system using IP camera with instant messaging in case of intrusion and live video streaming.
- Ultrasonic 2D mapping robot using ultrasonic sensor and Arduino.
- Designing a “Smart Traffic Control System” using Arduino, LDR and LASER, optimized for the roads of Bangladesh with low cost of installation.
- Designing an “Arithmetic Logic Unit (ALU) with seven segment display” using DSCH simulator and Proteus and implementation of the same using different digital logic IC’s.
- Bank vault security system using LASER, LDR, smoke sensor and vibration sensor with real time message alert and live video streaming.
- Designing a Smart campus with smart attendance system and instant messaging to parents about results, institution fees and students’ entering and leaving the campus.

## Achievements

- Champion, 4th National Chemistry Olympiad (Divisional Stage) 2011
- Champion, Higher secondary category, 9th National Math Olympiad (Divisional Stage) 2011
- Champion, Secondary category, 7th National Math Olympiad (Divisional Stage) 2009
- Champion, Junior category, 5th National Math Olympiad (Divisional Stage) 2007

## Publications

1. M.S. Hossain, N. Irtija, M. Diamanti, F. Sangoleye, E.E. Tsiropoulou, and S. Papavassiliou, "Location-aware Task Offloading in Edge Computing enabled by Reconfigurable Intelligent Surfaces", IEEE Transactions on Green Communications and Networking, 2022. (Under review)

2. M.S. Hossain, E.E. Tsiropoulou, and S. Papavassiliou, "Power Optimization enabled by Reconfigurable Intelligent Surfaces assisting Positioning, Navigation, and Timing Services", IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks, 2022. (Under review)

3. M.S. Hossain, N. Irtija, E.E. Tsiropoulou, and S. Papavassiliou, "Kalman filter enabling Positioning, Navigation, and Timing Services in Featureless Terrain", IEEE International Conference on Distributed Computing in Sensor Systems, 2022. (Under review)

4. N. Irtija, M.S. Hossain, M. Diamanti, E.E. Tsiropoulou, and S. Papavassiliou, "Incentive Mechanism Design for Wireless Federated Learning Networks: A Contract Theory Approach", IEEE International Conference on Smart Computing, 2022. (Under review)

5. M.S. Hossain, F. Sangoleye, O. Poudyal, and E.E. Tsiropoulou, "Network Economics-enabled Edge Computing in UAV-assisted Public Safety Systems", IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks, 2022. (Under review)

6. F. Sangoleye, M.S. Hossain, E.E. Tsiropoulou, and J. Plusquellic, "Network Economics-based Crowdsourcing in UAV-assisted Smart Cities Environments", IEEE International Conference on Distributed Computing in Sensor Systems, 2022. (Under review)

7. M.S. Hossain, N. Irtija, E.E. Tsiropoulou, J. Plusquellic, and S. Papavassiliou, "Reconfigurable Intelligent Surfaces enabling Positioning, Navigation, and Timing Services", IEEE International Conference on Communications, 2022. (To appear)

8. M. Hasan, F. Maoya, M.S. Hossain, R. Ahmed, M. Hossain, K. Ali, and S. Islam, "Plasmonic corrugated waveguide coupled to a rectangular nano-resonator as an optical filter", OSA Continuum, 2020. doi: 10.1364/OSAC.403762