

# Md Tarek Hassan

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in [Tarek-Hassan](#) | <sup>G</sup> [Tarek Hassan](#) | <sup>R</sup> [Tarek Hassan](#) |

Belfast, Northern Ireland - BT9 5FB, United Kingdom

## CAREER OBJECTIVE

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PhD researcher at Queen's University Belfast, specializing in reconfigurable intelligent surface (RIS)-enabled wireless communication systems for future 6G networks. Actively conducting research on antenna configuration, propagation-aware modeling, and machine learning-based beam management, with a focus on RIS-assisted localization and sensing.

## WORK EXPERIENCE

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- **Queen's University Belfast** *Feb 2025 — Present*  
Belfast, Northern Ireland, UK  
*Doctoral Researcher*
  - Reconfigurable Intelligent Surface (RIS) and RIS-Assisted Localization
  - Machine Learning-Driven Localization and Integrated Sensing and Communication (ISAC)
- **Queen's University Belfast** *Sep 2025 — Present*  
Belfast, Northern Ireland, UK  
*Graduate Teaching Assistant*
  - Demonstrated laboratory experiments and guided students through practical tasks.
  - Assisted students with debugging, measurement setup, circuit/software workflows, and result interpretation.
  - Supported lab assessment, feedback, troubleshooting, and safe laboratory practice.
- **Rajshahi University of Engineering & Technology (RUET)** *Dec 2021 — Present*  
Rajshahi, Bangladesh  
*Lecturer (On Leave)*
  - Lesson planning, preparation and research and contact/teaching time with students
  - Encouraging personal development via tutorial/pastoral work
  - Invigilating examinations and liaising with other professionals/employers
  - Arranging work experience placements and attending staff meetings
- **Robi Axiata Limited** *Apr 2019 — May 2019*  
On site  
*Intern in Radio Access Network*
  - Interfaced with LAN and WAN telecommunications operations on secure compatibility and connectivity matters
  - Performed system by remote access and coordinated and prepared reports to support operation and planning of telecommunications systems

## EDUCATION

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- **Queen's University Belfast (QUB)** *Feb 2025 – Present*  
Belfast, United Kingdom  
*Doctor of Philosophy (Ph.D.) in Electrical and Electronic Engineering*
  - **Research Title:** Intelligent AI Electromagnetic Environment for Communication and Sensing within 6G
  - **Specialization:** 6G and beyond, Machine Learning, Reconfigurable Intelligent Surface (RIS), Localization, Integrated Sensing and Communication (ISAC)
- **Rajshahi University of Engineering & Technology (RUET)** *Sep 2021 – Dec 2024*  
Rajshahi, Bangladesh  
*Master of Science (M.Sc.) in Electronics and Telecommunication Engineering (ETE)*
  - **CGPA:** 3.92 / 4.00 (First Class Honors/Distinction) [First Position]
  - **Research Title:** Machine Learning Driven Mobile Edge Computing for Connectivity and QoS in Next Generation Networks
  - **Specialization:** Edge Computing, Machine Learning, Beyond 5G/6G
- **Rajshahi University of Engineering & Technology (RUET)** *Jan 2016 – Mar 2021*  
Rajshahi, Bangladesh  
*Bachelor of Science (B.Sc.) in Electronics and Telecommunication Engineering (ETE)*
  - **CGPA:** 3.85 / 4.00 (First Class Honors/Distinction) [First Position]

- **Research Title:** Radio Resource Management in 5G Heterogeneous Networks
- **Specialization:** 5G, mmWave, Radio Resource Management

## PUBLICATIONS

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### Submitted

1. **M. T. Hassan**, D. Zelenchuk, and M. A. B. Abbasi, “RIS-Aided Near-Field mmWave Localization Under Cross-Link Interference via Beam-Domain ML Fingerprinting,” submitted to *2026 IEEE Global Communications Conference (GLOBECOM)*, Macau, China, 2026.
2. K. Manglani, M. A. B. Abbasi, S. Shahid, **M. T. Hassan**, and D. Zelenchuk, “A Machine Learning-Assisted Beamformer Controller for Channel-Driven Analogue Beamforming,” submitted to *2026 IEEE International Microwave and Antenna Symposium (IMAS)*, Jeddah, Saudi Arabia, 2026.
3. C. Larmour, F. Kasem, **M. T. Hassan**, D. Zelenchuk, O. Yurduseven, V. Fusco, N. Buchanan, and M. A. B. Abbasi, “Over-the-Air Experimentation of B5G/6G Mobile Device in RIS-Assisted Link,” submitted to *IEEE Transactions on Antennas and Propagation*, 2026.

### Accepted

1. **M. T. Hassan**, D. Zelenchuk, G. Travers, M. A. B. Abbasi, and G. G. Machado, “Experimental Validation of Localisation in RIS-Assisted mmWave Networks,” in Proc. *19th IEEE United Conference on Millimetre Waves and Terahertz Technologies (UCMMT)*, Birmingham, U.K., 2026.
2. **M. T. Hassan**, D. Zelenchuk, M. A. B. Abbasi, and A. Ullah, “Efficient Angular Localization in RIS-Assisted mmWave Network via Learning-Based Estimations,” in Proc. *2026 32nd International Conference on Telecommunications (ICT)*, Thessaloniki, Greece, 2026.
3. **M. T. Hassan**, D. Zelenchuk, and M. A. B. Abbasi, “Near Field-Aware UE Localization in RIS-Aided Wireless Networks Through ML-Regressor,” in Proc. *2026 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting (AP-S/URSI)*, Detroit, MI, USA, 2026.
4. **M. T. Hassan**, D. Zelenchuk, M. A. B. Abbasi, and I. Munina, “Impact of RIS Size on Machine Learning-Enabled Beam Sweeping for User Localization,” in Proc. *20th European Conference on Antennas and Propagation (EuCAP)*, Dublin, Ireland, 2026.

### Published

1. **M. T. Hassan**, D. Zelenchuk, and M. A. B. Abbasi, “Machine Learning-Driven User Localization in RIS-Assisted Wireless Systems,” 20th RIA/URSI Research Colloquium on Radio Science and Communications, Royal Irish Academy, Dublin, Ireland, arXiv:2510.23908, 2025.
2. **M. T. Hassan** and M. K. Hosain, “A Comprehensive Analysis of KNN and Order Preserving Techniques for Offloading Efficiency in MEC Networks,” in Proc. *2024 27th International Conference on Computer and Information Technology (ICCIT)*, Cox’s Bazar, Bangladesh, 2024, pp. 1334-1338.
3. **M. T. Hassan** and M. K. Hosain, “Optimization of Computation Offloading in Mobile-Edge Computing Networks with Deep Reinforcement Approach,” in Proc. *2024 IEEE International Conference on Communication, Computing and Signal Processing (IICCCS)*, Asansol, India, 2024, pp. 1-6.
4. A. Uz Zaman, **M. T. Hassan** and A. S. M. Badrudduza, “A Deep Reinforcement Learning Approach for Power Allocation in 5G Homogeneous Network Scenario,” in Proc. *2024 IEEE International Conference on Power, Electrical, Electronics and Industrial Applications (PEEIACON)*, Rajshahi, Bangladesh, 2024, pp. 948-953.
5. M. Rahman Jony, **M. T. Hassan** and K. Hosain, “A Coastal Area Based Statistical Channel Modeling for 5G Millimeter Wave (mmWave) Heterogeneous Networks,” in Proc. *2024 IEEE International Conference on Power, Electrical, Electronics and Industrial Applications (PEEIACON)*, Rajshahi, Bangladesh, 2024, pp. 1-6.
6. V. Roy, **M. T. Hassan**, M. K. Hosain, and L. Islam, “Analyzing Spatial Consistency and Human Blockage in mmWave Channel Modeling within Metrorail Scenarios in Next Generation Networks,” in Proc. *2024 IEEE International Conference on Power, Electrical, Electronics and Industrial Applications (PEEIACON)*, Rajshahi, Bangladesh, 2024, pp. 272-277.
7. L. Islam and **M. T. Hassan**, “Performance Evaluation of Vehicle-Centered Traffic Management Using Fog Computing-Based Wireless Network,” in Proc. *2023 26th International Conference on Computer and Information Technology (ICCIT)*, Cox’s Bazar, Bangladesh, 2023, pp. 1-6.

8. M. R. Hassen, **M. T. Hassan** and M. R. Imrose, "Multi RIS-Integrated MIMO Wireless Communication: End-to-End (E2E) Learning Performance Across Diverse Network Scenarios," in Proc. *2023 26th International Conference on Computer and Information Technology (ICCIT)*, Cox's Bazar, Bangladesh, 2023, pp. 1-6.
9. M. A. Hasan, **M. T. Hassan** and F. Haque, "A Deep Learning-Based Efficient BeamSpace Estimation Approach in Millimeter-Wave Massive MIMO Systems," in Proc. *2023 6th International Conference on Electrical Information and Communication Technology (EICT)*, Khulna, Bangladesh, 2023, pp. 1-6.
10. M. R. Imrose, **M. T. Hassan** and M. R. Hassen, "A Comprehensive Study on Statistical Channel Modeling for Outdoor-to-Indoor (O2I) Penetration Concern of 5G mmWave Access Networks," in Proc. *2023 6th International Conference on Electrical Information and Communication Technology (EICT)*, Khulna, Bangladesh, 2023, pp. 1-6.
11. M. R. Imrose, **M. T. Hassan**, M. R. Hassen, and M. M. Mowla, "A Statistical Investigation of Spatial Consistency and Human Blockage Consideration Based mmWave Channel Modeling for 5G Back-Haul Networks," in Proc. *2023 International Conference on Electrical, Computer and Communication Engineering (ECCE)*, Chittagong, Bangladesh, 2023, pp. 1-6.
12. **M. T. Hassan** and M. M. Mowla, "A Novel MAC Scheduling Approach for Mobility-Based 5G Millimeter Wave Networks," in Proc. *2022 4th International Conference on Electrical, Computer and Telecommunication Engineering (ICECTE)*, Rajshahi, Bangladesh, 2022, pp. 1-4.
13. **M. T. Hassan** and M. Munjure Mowla, "An Efficient Proportional Fair MAC Scheduling for Resource Allocation in 5G Millimeter Wave Networks," in Proc. *2022 25th International Conference on Computer and Information Technology (ICCIT)*, Cox's Bazar, Bangladesh, 2022, pp. 276-281.
14. **M. T. Hassan** and M. M. Mowla, "Investigation of TCP Performance in 5G mmWave Networks," in Proc. *2020 IEEE Region 10 Symposium (TENSYMP)*, Dhaka, Bangladesh, 2020, pp. 1688-1691.

## SKILLS

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- **Programming Languages:** Python, MATLAB, C++, C
- **Web Technologies:** HTML5, CSS3, Bootstrap, JavaScript, PHP, WordPress
- **Database Systems:** MySQL, Firebase
- **Data Science & Machine Learning:** Scikit-learn, Pandas, Matplotlib, TensorFlow, Keras, NumPy
- **Specialized/Research Area:** 5G/6G, Wireless Communication, mmWave, Reconfigurable Intelligent Surface
- **Mathematical & Statistical Tools:** GNU Octave, MATLAB, R
- **Other Tools & Technologies:** CST Studio, NS-3, Anaconda, Jupyter Notebook, LaTeX

## PROJECTS

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- **Design and Development of IoT Based Swarm Intelligence System for Environmental Sustainability** *Dec 2022 — Sep 2024*
  - Developed a distributed IoT monitoring system using **Python**, **Arduino**, and wireless sensor networks.
  - Implemented swarm intelligence algorithms, including Particle Swarm Optimization, for decentralized sensor-node decisions.
  - **Tech Skills:** Python, Arduino, MQTT, Swarm Intelligence, Sensor Integration
- **Advanced Mobile Phone Controlled Electrical Appliances** *Nov 2017 — Feb 2018*  
[\[GitHub\]](#)
  - Designed a mobile phone-based system for remote electrical appliance control.
  - Developed microcontroller logic using embedded C for practical low-cost switching.
  - **Tech Skills:** Electronics, Arduino, Atmel Studio
- **Automated & Manual Amplitude Modulation (AM) Modulator & Demodulator** *Dec 2018 — Jul 2019*  
[\[GitHub\]](#)
  - Designed automated and manual AM modulator and demodulator circuits.
  - Built audio, carrier, filtering, modulation, and demodulation circuit stages.
  - **Tech Skills:** Electronics, Arduino, Passive Electric Filters, Modulator and Demodulator

## HONORS AND AWARDS

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- **Most Impactful Thesis Award** Mar 2021  
*RUET*
  - B.Sc. Thesis Award
  - 3 good conferences based on the thesis
- **Student of the Year** Nov 2018  
*RUET*
  - Awarded for the highest results in a year
  - Got the medal and certification
- **University and Board Scholarships** 2008 — 2022  
*RUET and Bangladesh Government*
  - Undergrad Scholarship in RUET
  - Bangladesh Government Scholarship in HSC, SSC and JSC Examination
- **Travel Grants** 2022 - 2026  
*Conference Travel Support*
  - EEECS School Travel Grant for 2026 IEEE AP-S/URSI, Detroit, Michigan, USA.
  - Telco Renata Travel Grant 2024 for CTTC, Barcelona, Spain.
  - Travel support for ICCIT 2024, ICCIT 2023, ICECTE 2022, IICCCS 2024, and EICT 2023.

## LEADERSHIP EXPERIENCE

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- **General Secretary** Feb 2020 — March 2021  
*Joypurhat Zilla Association*
  - Organized student's farewell and fresher's reception program in the association
  - Arranged the inter college competition in the zilla
- **Electronic Society of RUET** Feb 2017 — October 2017  
*Rajshahi University of Engineering & Technology*
  - Published the information to the students of the upcoming events
  - Arranged the necessary management for the keynote speaker and the organizing body

## CERTIFICATIONS

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- **Cisco:** [CCNA: Routing and Switching](#) Feb 2020
- **IBM:** [IBM Data Science Professional Certification](#) Jul 2020
- **University of Michigan:** [Python For Everyone Specialization](#) Sep 2020

## ADDITIONAL INFORMATION

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**Languages:** English (Proficiency level), Hindi (Intermediate), Bangla (Native)

**Interests:** Traveling, Documentation, Watching Films, Cooking