AHMED MANAVI ALAM

Research Assistant
Information Processing and Sensing Lab
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Summary of Qualifications

- **Ph.D.**: Electrical Engineering from the NC State University. [Expected Graduation Date: April 2026]
- **Experience:** 6 years of research, teaching and industry experience in wireless communication, signal processing and machine learning with applications to radar and remote sensing.
- **Publications:** 20 technical publications, including 5 peer-reviewed journals, 15 peer-reviewed conferences.
- **Grants:** Contributed to proposal writing and research execution for two major federally funded projects:
    - NASA SMAP Project (Award No. 80NSSC25K7061, $493,000): Enhancing SMAP Radiometer Performance via Deep Learning for Calibration and RFI Detection.
    - NSF SWIFT-SAT Project (Award No. 2332661, $750,000): INtegrated Testbed Ensuring Resilient Active/Passive CoexisTence (INTERACT): End-to-End Learning-Based Interference Mitigation for Radiometers.
- **Undergraduate Student Advising:** Advised 15 undergraduate students across 5 capstone design projects during tenure as Lecturer at Daffodil International University (DIU), Bangladesh, providing technical mentorship and project guidance.
- **Teaching:** Taught 24 undergraduate course sections to over 460 students at DIU, covering core Electrical and Computer Engineering subjects including 1) Signals and Systems, 2) Electromagnetics, 3) Control Systems, 4) Electrical Circuits, 5) Digital Electronics and 6) Solid-State Electronics, with emphasis on both theoretical foundations and hands-on laboratory instruction.
- **Curriculum Development:** Contributed to the establishment of the Information and Communication Engineering department at DIU; developed Outcome-Based Education (OBE)-aligned courses, mapped course outcomes to program objectives, and designed assessment strategies to support continuous improvement.
- **Service:** Graduate Student Member of the IEEE. Provided professional service as a peer reviewer for top IEEE journals (JSTARS, TGRS, TRS), session manager for IEEE IGARSS 2023 (RFI Detection and Mitigation), and volunteer for the IEEE Geoscience and Remote Sensing Society (GRSS) booth at AGU 2024, supporting community engagement and technical outreach.
- **Mentored Teaching Experience:** Selected for NC State University's prestigious Mentored Teaching Fellowship; co-taught ECE 301 (Linear Systems), contributed to course design, interactive tools, and direct student support.

Research Interests

- Signal Processing & Wireless Communications
    - Wireless Communication and Passive Sensing Coexistence
    - Integrated Sensing and Communication (ISAC)
    - Cognitive Sensing Systems
    - Physics-Informed Digital Twin Systems
- Artificial Intelligence (AI) & Machine Learning (ML)
    - AI in Next generation of Wireless Communication Systems.
    - ML for Radar Data Processing and Remote Sensing Applications
    - Physics Aware Machine Learning for Radar, Autonomy and Remote Sensing
    - AI for Multi-Modal Remote Sensing and Environmental Intelligence
- Radar & Remote Sensing
    - Radar/Array Signal Processing/Beamforming
    - Time-Frequency Domain Analysis
    - UAS/Satellite Based Remote Sensing
    - Passive radars, Signals of Opportunity (GNSS+R), Sensing with Software Defined Radios
    - Precision Agriculture

Education

- **NC State University**~ Raleigh, NC, USA . . . . . (04/2026)
  PhD in Electrical Engineering,
  CGPA: 4.00 / 4.00
  Dissertation: Spectrum Coexistence Between Wireless Communication and Passive Sensing Systems
  Advisor: Dr. Ali Gurbuz

- **Mississippi State University** ~ Starkville, MS, USA . . . . . (04/2024)
  MS in Electrical and Computer Engineering,
  CGPA: 4.00 / 4.00
  Thesis: Radio Frequency Interference (RFI) Detection and Mitigation in Microwave Radiometers
  Advisor: Dr. Ali Gurbuz

- **Bangladesh University of Engineering and Technology**~ Dhaka, Bangladesh . . . . . (04/2019)
  BS in Electrical and Electronics Engineering

Professional Experience

- **NC State University, Raleigh, NC**
  Graduate Research Assistant . . . . . (01/2025-Present)
  Department of Electrical and Computer Engineering
  Information Processing and Sensing (IMPRESS) Lab

- **Bose Corporation, Framingham**
  Audio Machine Learning and DSP Research Co-op . . . . . (07/2024-12/2024)
  Bose Research and Development

- **Mississippi State University, Starkville, MS**
  Graduate Research Assistant . . . . . (08/2023–06/2024)
  Department of Electrical and Computer Engineering
  Information Processing and Sensing (IMPRESS) Lab

- **High Performance Computing Collaboratory, Starkville, MS**
  Machine Learning Intern . . . . . (05/2023-07/2023)
  Geosystems Research Institute

- **Mississippi State University**
  Graduate Research Assistant . . . . . (08/2021–04/2023)
  Department of Electrical and Computer Engineering
  Information Processing and Sensing (IMPRESS) Lab

- **Daffodil International University, Dhaka, Bangladesh**
  Lecturer . . . . . (09/2019–07/2021)
  Department of Electrical and Telecommunication Engineering

Sponsored Research Projects and Grants

#	Sponsor	Title	Date	Total Awarded
1	NSF	IEEE DySPAN 2024 NSF Student Travel Grant	04/15/2024	$1250
2	NAS	National Academy of Sciences (NAS) Fellowship (Travel Grant for 2024 U.S. National Committee for the International Union of Radio Science (“USNC-URSI”) National Radio Science Meeting)	12/01/2023	$1000

3	NSF	AERPAW Community Workshop Travel Award (Awarded by NSF)	05/15/2023	$1000
4	MSU	Travel Assistance Grants for Graduate Students (TAGGS) (Awarded by Office of the Graduate School, Mississippi State University (MSU))	05/03/2023	$800
5	MSU	Student Travel Award (Awarded by Bagley College of Engineering, Mississippi State University)	04/17/2023	$500

Other Grants:

- **NASA SMAP Project (Award No. 80NSSC25K7061, $493,000):** Contributed to proposal development and research implementation for the project titled "Enhancing SMAP Radiometer Performance via Deep Learning for Calibration and RFI Detection."

- N**SF SWIFT-SAT Project (Award No. 2332661, $750,000):** Participated in proposal writing and research for the project titled "INtegrated Testbed Ensuring Resilient Active/Passive CoexisTence (INTERACT): End-to-End Learning-Based Interference Mitigation for Radiometers."

Publications

To date I have a total of **5 published peer reviewed journal articles** and **15 peer reviewed conference publications**.

PEER REVIEWED JOURNAL ARTICLES

Under review:

1. **A. M. Alam,** M. Kurum, and A. C. Gurbuz, "RFI-Net: Enhancing Passive Sensing through Deep Learning Based Time-Frequency Domain Radio Frequency Interference Detection and Mitigation," submitted to *IEEE Transactions on Geoscience and Remote Sensing*, 2025

Published (reverse chronology):

2. **A. M. Alam,** M. Farhad, W. Al-Qwider, A. Owfi, M. Koosha, N. Maston, F. Afgah, V. Marojevic, m. Kurum, A.C. Gurbuz, "A Physical Testbed and Open Dataset for Passive Sensing and Wireless Communication Spectrum Coexistence," in *IEEE Access*, vol. 12, pp. 131522-131540, 2024, doi: 10.1109/ACCESS.2024.3453774.
3. M. M. Farhad, **A. M. Alam,** S. Biswas, M. A. S. Rafi, A. C. Gurbuz and M. Kurum, "SDR-Based Dual Polarized L-Band Microwave Radiometer Operating From Small UAS Platforms," in *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 17, pp. 9389-9402, 2024, doi: 10.1109/JSTARS.2024.3394054.
4. S. Biswas, **A. M. Alam** and A. C. Gurbuz, "HRSpecNET: A Deep Learning-Based High-Resolution Radar Micro-Doppler Signature Reconstruction for Improved HAR Classification," in *IEEE Transactions on Radar Systems*, vol. 2, pp. 484-497, 2024, doi: 10.1109/TRS.2024.3396172.
5. **A. M. Alam,** M. Kurum, M. Ogut and **A. C. Gurbuz**, "Microwave Radiometer Calibration Using Deep Learning With Reduced Reference Information and 2-D Spectral Features," in *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 17, pp. 748-765, 2024, doi: 10.1109/JSTARS.2023.3333268
6. **A. M. Alam,** M. Kurum and A. C. Gurbuz, "Radio Frequency Interference Detection for SMAP Radiometer Using Convolutional Neural Networks," in *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 15, pp. 10099-10112, 2022, doi: 10.1109/JSTARS.2022.3223198.

PEER REVIEWED CONFERENCES:

Accepted Conf.:

1. **A. M. Alam,** M. Kurum, and A. C. Gurbuz, "Deep Learning-Based High-Resolution Time-Frequency Domain RFI Suppression in Passive Systems," *IGARSS 2025 - 2025 IEEE International Geoscience and Remote Sensing Symposium*, Brisbane, Australia, 2025.
2. K. A. Mahmud, M. Kurum, **A. M. Alam,** and A. C. Gurbuz, "Microwave Radiometry in the Unprotected S-Band: Development of an Adaptive Radiometer and Digital Twin Integration," *IGARSS 2025 - 2025 IEEE International Geoscience and Remote Sensing Symposium*, Brisbane, Australia, 2025.

Published (reverse chronology):

3. **A. M. Alam**, M. Kurum, M. Ogut and A. C. Gurbuz, "A Deep Learning Approach for High-Accuracy Radiometer Calibration Using SMAP Satellite Data," *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium,* Athens, Greece, 2024, pp. 6272-6276, doi: 10.1109/IGARSS53475.2024.10640563.
4. **A. M. Alam,** C. O. Ayna, S. Biswas, J. T. Rogers, J. E. Ball and A. C. Gurbuz, "Deep Learning-Based Direction-of-Arrival Estimation with Covariance Reconstruction," *2024 IEEE Radar Conference (RadarConf24),* Denver, CO, USA, 2024, pp. 1-6, doi: 10.1109/RadarConf2458775.2024.10548988.
5. S. Biswas, **A. M. Alam** and A. C. Gurbuz, "Deep Learning-Based High-Resolution Radar Micro-Doppler Signature Reconstruction for Enhanced Activity Recognition," *2024 IEEE Radar Conference (RadarConf24),* Denver, CO, USA, 2024, pp. 1-6, doi: 10.1109/RadarConf2458775.2024.10548969.
6. **A. M. Alam,** M. M. Farhad, W. AlQwider, V. Marojevic, M. Kurum and A. C. Gurbuz, "Evaluation of Conventional Radio Frequency Interference Detection Algorithms in the Presence of 5G Signals in a Controlled Testbed," *2024 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN),* Washington, DC, USA, 2024, pp. 27-32, doi: 10.1109/DySPAN60163.2024.10632808.
7. **A. M. Alam,** M. M. Farhad, M. Kurum and A. Gurbuz, "An Advanced Testbed for Passive/Active Coexistence Research: A Comprehensive Framework for RFI Detection, Mitigation, and Calibration," *2024 United States National Committee of URSI National Radio Science Meeting (USNC-URSI NRSM),* Boulder, CO, USA, 2024, pp. 280-280, doi: 10.23919/USNC-URSINRSM60317.2024.10464436.
8. W. Al-Qwider, **A. M. Alam**, M. Mehedi Farhad, M. Kurum, A. C. Gurbuz and V. Marojevic, "Software Radio Testbed for 5G and L-Band Radiometer Coexistence Research," *IGARSS 2023 - 2023 IEEE International Geoscience and Remote Sensing Symposium, Pasadena,* CA, USA, 2023, pp. 596-599, doi: 10.1109/IGARSS52108.2023.10283002.
9. M. M. Farhad, S. Biswas, **A. M. Alam**, A. C. Gurbuz and M. Kurum, "SDR Based Agile Radiometer with Onboard RFI Processing on a Small UAS," *IGARSS 2023 - 2023 IEEE International Geoscience and Remote Sensing Symposium, Pasadena,* CA, USA, 2023, pp. 4368-4371, doi: 10.1109/IGARSS52108.2023.10282140.
10. **A. M. Alam,** M. Kurum and A. C. Gurbuz, "High-Resolution Radio Frequency Interference Detection in Microwave Radiometry Using Deep Learning," *IGARSS 2023 - 2023 IEEE International Geoscience and Remote Sensing Symposium, Pasadena, CA, USA*, 2023, pp. 6779-6782, doi: 10.1109/IGARSS52108.2023.10281401.
11. D. R. Boyd, **A. M. Alam**, M. Kurum, A. C. Gurbuz and B. Osmanoglu, "Preliminary Snow Water Equivalent Retrieval of SnowEX20 Swesarr Data," *IGARSS 2022 - 2022 IEEE International Geoscience and Remote Sensing Symposium,* Kuala Lumpur, Malaysia, 2022, pp. 3927-3930, doi: 10.1109/IGARSS46834.2022.9883412.
12. **A. M. Alam,** A. C. Gurbuz and M. Kurum, "SMAP Radiometer RFI Prediction with Deep Learning using Antenna Counts," *IGARSS 2022 - 2022 IEEE International Geoscience and Remote Sensing Symposium,* Kuala Lumpur, Malaysia, 2022, pp. 8016-8019, doi: 10.1109/IGARSS46834.2022.9884010. – Best Student Paper Finalist.
13. **A. M. Alam** and A. C. Gurbuz, "Deep learning based RFI detection and mitigation for SMAP using convolutional neural networks," in *Proc. RFI Workshop, 2022.*
14. **A. M. Alam,** Nahid-Al-Masood, I. Asif Razee and M. Zunaed, "Solar PV Power Forecasting Using Traditional Methods and Machine Learning Techniques," *2021 IEEE Kansas Power and Energy Conference (KPEC),* Manhattan, KS, USA, 2021, pp. 1-5, doi: 10.1109/KPEC51835.2021.9446199.
15. N. -A. -. Masood, M. I. Asif, **A. M. Alam,** S. R. Deeba and T. Aziz, "Forecasting of Photovoltaic Power Generation: Techniques and Key Factors," *2019 IEEE Region 10 Symposium (TENSYMP),* Kolkata, India, 2019, pp. 457-461, doi: 10.1109/TENSYMP46218.2019.8971337.

Teaching

Teaching at NC State University:

Mentored Teaching Fellow – ECE 301, Fall 2025

Selected for NC State's competitive Mentored Teaching Fellowship (MTF), I co-taught ECE 301: Linear Systems (~120 students) under the mentorship of Dr. Ali Gurbuz. My responsibilities included developing MATLAB-based projects, creating interactive simulations, assisting with WebWorks and Moodle assessments, delivering a guest lecture on convolution, and providing individualized tutoring.

Teaching at Daffodil International University:

Between Fall 2019 and Spring 2021 at Daffodil International University (DIU), I taught 24 undergraduate course sections covering a broad spectrum of Electrical and Electronic Engineering subjects, including Control Systems, Digital Signal Processing, Electromagnetics, Power Electronics, Digital Electronics, Solid-State Devices, and Instrumentation. These included both lecture and laboratory courses, emphasizing hands-on skills and theoretical foundations. Total student enrollment across all courses was 467, with several high-enrollment and repeat offerings, reflecting consistent instructional engagement in both core and advanced topics.. Following Tables list the teaching summary at DIU:

Teaching summary for Ahmed Manavi Alam between Fall 2019-Spring 2021

Course Number	Course Title	Semester	Enrollment
ETE 335	Control Systems	Spring 21	13
ETE 336	Control Systems Laboratory	Spring 21	13
EEE 125	Electrical Circuits	Spring 21	17
ECE 126	Electrical Circuits Laboratory	Spring 21	12
ETE 325	Electromagnetic Fields and Waves	Spring 21	21
ETE 321	Digital Signal Processing	Spring 21	25
ETE 313	Numerical Analysis	Fall 20	24
ETE 421	Solid State Electronics	Fall 20	23
ETE 325	Electromagnetic Fields and Waves	Fall 20	18
ETE 236	Digital Electronics Laboratory	Fall 20	17
ETE 235	Digital Electronics	Fall 20	17
ETE 335	Control Systems	Summer 20	18
ETE 336	Control Systems Laboratory	Summer 20	18
ETE 325	Electromagnetic Fields and Waves	Summer 20	23
ETE 323	Industrial Power Electronics	Summer 20	21
ETE 324	Industrial Power Electronics Laboratory	Summer 20	21
ETE 421	Solid State Electronics	Summer 20	19
ETE 224	Electronics II	Spring 20	18
ETE 131	Electrical Circuits I	Spring 20	12
ETE 313	Numerical Analysis	Spring 20	15
ETE 321	Digital Signal Processing	Fall 19	35
ETE 221	Measurement and Instrumentation	Fall 19	23
ETE 222	Measurement and Instrumentation Laboratory	Fall 19	23
ETE 411	Renewable Energy Technology	Fall 19	21

Research Experience and Relevant Projects

1. INtegrated Testbed Ensuring Resilient Active/Passive CoexisTence (INTERACT): End-to-End Learning-Based Interference Mitigation for Radiometers. [Funded by NSF, Award #2332661]~Ongoing
   Supervisor: Dr. Ali Gurbuz, Dr. Mehmet Kurum, and Dr. Vuk Marojevic
   - Designed RFI-Net, a deep learning model for RFI detection and mitigation in passive sensing, achieving over 95 percent accuracy and root mean square error below 0.9 Kelvin, while reducing errors by up to five times compared to spectral kurtosis methods.

2. Enhancing SMAP Radiometer Performance: Calibration and RFI Detection via Deep Learning. [Funded by NASA, Award #NNH23ZDA001N-SMAP]~Ongoing
   Supervisor: Dr. Ali Gurbuz and Dr. Mehmet Kurum
   - Developed deep learning models for RFI detection and radiometer calibration on NASA's SMAP satellite using a semi-synthetic training strategy over 255 million footprints spanning six years, achieving robust generalization to real-world RFI and improving the accuracy of passive microwave remote sensing products.

3. AI-Enabled Spectrum Coexistence between Active Communications and Passive Radio Services: Fundamentals, Testbed and Data. [Funded by NSF, Award #2030291]
   Supervisor: Dr. Ali Gurbuz, Dr. Mehmet Kurum, and Dr. Vuk Marojevic
   - Built a spectrum coexistence testbed within an anechoic chamber for active wireless communication and passive remote sensing. Developed an open-source dataset for scientific community. [Paper, GitHub, Dataset]
   - Optimized a global radio frequency interference (RFI) detection and mitigation algorithm with deep learning for Earth observation and weather satellites. [Poster]
   - Engineered a dual-polarized radiometer utilized in Earth observation satellites with interference processing using SDR technology, reducing measurement uncertainty by 23% and control in data acquisition.

4. Deep Learning Based High-Resolution Crop Mapping. [Funded by USDA]
   Supervisor: Dr. Vitor Martins
   - Implemented a deep learning-based computer vision model for precision agriculture that efficiently classified major crops using CNNs, Sentinel-2 data, and USDA's SCInet high-performance computing clusters.
   - Led the implementation of advanced data preprocessing and vegetation phenology metrics, significantly improving data quality and classification performance. [ArcGIS StoryMap]
   - Achieved 85% accuracy in high-resolution crop mapping by utilizing deep learning techniques, convolutional neural networks, and Sentinel-2 time series data.

5. Estimating Room Dimensions Using Room Impulse Response. [Bose Research and Development]
   Supervisor: Dr. Shuo Zhang and Miriam Israelowitz
   - Designed state-of-the-art DSP and ML techniques for room geometry estimation using room impulse response, including a novel ML model that significantly enhances performance and realism in room acoustics simulation.
   - Worked on multiple room acoustic simulators, refining algorithms for sound propagation, absorption, and reverberation modeling to improve realism and adaptability across different room environments.
   - Collaborated with cross-functional teams to set up and optimize pipelines for audio data collection, preprocessing, and improving model performance.

6. High-Resolution Radar Micro-Doppler Signature Reconstruction. [Funded by NSF, Award #2534621]
   Supervisor: Dr. Ali Gurbuz
   - Introduced HRSpecNET, a ML framework for reconstructing high-resolution radar Micro-Doppler signatures (μ-DS) directly from 1-D complex time-domain signals, achieving a 3.48% improvement in human activity recognition accuracy over traditional STFT methods. [Paper]

7. Physics-Aware Machine Learning for Snow Water Equivalent Retrievals.
   Supervisor: Dr. Mehmet Kurum and Dr. Dylan Boyd
   - Deployed machine learning algorithms (Random Forest, XGBoost) to estimate Snow Water Equivalent (SWE) from SAR data collected by NASA's SWESARR instrument during the 2020 SnowEx campaign. [Jupyter Notebook]

Poster & Conference Presentations

- "Deep Learning-Based High-Resolution Time-Frequency Domain RFI Suppression in Passive Systems," Oral Presentation in *2025 IEEE Int. Geosci. Remote Sens. Symp. (IGARSS), Brisbane, Australia*
- "Evaluation of Conventional Radio Frequency Interference Detection Algorithms in the Presence of 5G Signals in a Controlled Testbed," Oral Presentation in *2024 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN), Washington, DC, USA*
- "An Advanced Testbed for Passive/Active Coexistence Research: A Comprehensive Framework for RFI Detection, Mitigation, and Calibration," Oral Presentation in *2024 United States National Committee of URSI National Radio Science Meeting (USNC-URSI NRSM), Boulder, CO, USA*
- "Microwave Radiometer Calibration Using Deep Learning with Reduced Reference Information and 2-D Spectral Features," Oral Presentation in *Spring 2024 Graduate Research Symposium by MSU*
- "Deep Learning-Based Direction-of-Arrial Estimation with Covariance Reconstruction", Oral Presentation in *2024 IEEE Radar Conference (RadarConf24), Denver, CO, USA*
- "Radio Frequency Interference Detection for Microwave Radiometer Using Convolutional Neural Networks," Oral Presentation in *Spring 2024 Graduate Research Symposium by MSU* [Best Presentation Award]
- "Software Radio Testbed for 5G and L-Band Radiometer Coexistence Research," Oral Presentation in *2023 IEEE International Geoscience and Remote Sensing Symposium, Pasadena, CA, USA*
- "AI-Enabled Spectrum Coexistence Between Active Communications And Passive Radio Services: Fundamentals, Testbed and Data," Oral Presentation in *2023 AERPAW Community Workshop*
- "AI-Driven Strategies For Detecting And Mitigating Radio Frequency Interference In Earth Observation Satellites" Oral Presentation in *Spring 2023 - 3 Minute Thesis Competition by MSU*
- "High-Resolution Radio Frequency Interference Detection in Microwave Radiometry Using Deep Learning," Poster Presentation in *2023 IEEE International Geoscience and Remote Sensing Symposium, Pasadena, CA, USA*
- "SMAP Radiometer RFI Prediction with Deep Learning using Antenna Counts," Oral Presentation in *2022 IEEE International Geoscience and Remote Sensing Symposium, Kuala Lumpur, Malaysia* [Best Student Paper Finalist]
- "Deep learning based RFI detection and mitigation for SMAP using convolutional neural networks" Oral Presentation in *2022 RFI Workshop in London, England*
- "Solar PV Power Forecasting Using Traditional Methods and Machine Learning Techniques," Oral Presentation in *2021 IEEE Kansas Power and Energy Conference (KPEC), Manhattan, KS, USA,*

Project & Undergraduate Student Advising

Undergraduate Researchers Co-Supervised through NSF REU:

- Jacob Taylor

Project Advising:

- Shafiur Rahman, Md Ataul Haque "Empirical Study on Network Management of N-Three Communication" 2021
- Kazi Fayshal Kabir, "Design, Implementation and Monitoring of an Internet Service Provider Establishment Network of Red Online" 2021
- A.K.M. Ahsanul - Huq - Apu, "Practical Study on Network and System Administration with MikroTik and Linux Platform", 2021
- Md Asif Rahman, Golam Sorowar Prince, Samia Ahmed, Ekranul Tanvir, Johan Ferdous, "Arduino Based DIY Vending Machine", 2020
- Nur Mohammad Sarkar, Md Mafiul Islam, Monty Rani Sharker, Nasrin Akter Koli, Sajib Chandra Sutradhar, Md Rifat Hasan, "GSM Based Fire Alarm System using Arduino", 2020

Awards and Scholarships

- Winner, AERPAW Autonomous Data Mule (AADM) Challenge
- 2025 Mentored Teaching Fellowship (Awarded by NC State University)
- Spring 2024 Graduate Research Symposium Winner (Awarded by Mississippi State University)
- IEEE Aerospace and Electronic Systems Society Radar Challenge Finalist in IEEE RadarConf'24
- MSU/USDA Graduate Summer Research Experience in High-Performance Computing and Agriculture
- IEEE IGARSS Best Student Paper Finalist, 2022 (Awarded by IEEE GRSS)
- Graduate Research Assistantship from MSU and NC State University, 2021 - 2025
- Government Merit Scholarship (Awarded by Ministry of Education, Bangladesh), 2015

Service and Professional Activities

University Service:

- Contributed to course development and curriculum alignment for Outcome-Based Education (OBE), including defining course outcomes, mapping to program objectives, and designing assessment strategies for continuous improvement
- Lead Organizer, EEE Day 2019 (Supervising a team of 25 individuals to flawlessly manage every aspect, encompassing registration, coordinating with sponsors like Gigabyte Aorus, and facilitating prize distribution

Society Memberships:

- Member, Institute of Electrical and Electronics Engineers, IEEE
- Member, IEEE Signal Processing Society
- Member, IEEE Geoscience and Remote Sensing Society
- Member, IEEE Aerospace and Electronic Systems Society
- Member, IEEE Wireless Communication Society
- Member, American Geophysical Union
- Member, Audio Engineering Society

Invited Talks:

- NC State ECE Colloquium Talk, "Spectrum Coexistence Between Active Technologies and Passive Sensors", Nov 2025

Conference Program Committees:

- Session Manager, IEEE IGARSS 2023 Conference (Technical Program: RFI Detection and Mitigation)
- IEEE GRSS Volunteer, AGU 2024

Reviewer: (2022-)

For Following Journals:

- IEEE Transactions on Aerospace and Electronic Systems
- IEEE Transactions on Radar Systems
- IEEE Transactions on Geoscience and Remote Sensing
- IEEE Geoscience and Remote Sensing Letters
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

References

- The required number of references is provided as a separate list.