

Ifana Mahbub | Curriculum Vitae

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Education

University of Tennessee, Knoxville <i>Ph.D., Electrical Engineering</i>	Knoxville, TN August 2017
Bangladesh University of Engineering and Technology <i>B.Sc., Electrical and Electronics Engineering</i>	Dhaka, Bangladesh April 2012

Employment History

University of North Texas <i>Assistant Professor</i>	Denton, TX September 2017– present
University of Tennessee, Knoxville <i>Graduate Research Assistant</i>	Knoxville, TN September 2016 – August 2017
Qorvo, Inc. <i>RF Design Engineering Intern</i>	Chelmsford, MA May 2016 – August 2016
Qorvo, Inc. <i>RF Design Engineering Intern</i>	Billerica, MA May 2015 – August 2015
University of Tennessee, Knoxville <i>Graduate Teaching Assistant</i>	Knoxville, TN January 2013 – August 2014
Independent University <i>Junior Lecturer</i>	Dhaka, Bangladesh September 2012 – December 2012
Hi-Tech Bangla, Inc. <i>Research and Development Engineer</i>	Dhaka, Bangladesh April 2012 – August 2012

Awards

External.....

- DARPA Young Faculty Award, 2021
- NSF "Early CAREER Award", 2020
- NSF Smart and Connected Health Aspiring PI workshop travel award, 2020
- NSF Smart and Connected Community Aspiring PI workshop travel award, 2018

Internal/Institution-level Awards.....

- UNT "Presidential Early Career Award", 2021
- PACCAR Distinguished Fellow Award, 2020
- UNT Faculty Success "External Award" recognition, 2019-2021
- UTK Student/Faculty Research Award, 2016
- UTK Chancellor's Citation award for "Extraordinary Professional Promise", 2014 - 2017
- UTK Chancellor's Fellowship, 2014 - 2017

External Funding

Summary

Source	Total Funding	My Total Funding
National Science Foundation	\$883,994	\$857,373
Defense Advanced Research Projects Agency	\$499,998	\$499,998
Department of Defense (DoD) (MRI)	\$211,786	\$143,561
Office of Naval Research (ONR)	\$749,999	\$150,000
xTechSearchHBCU Competition Army Research Office (ARO)	\$5,000	\$5,000
Industry (Sponsored Senior Design Projects)	\$29,100	\$29,100
All	\$2,379,877	\$1,685,032

Grants (Funded)

xTechHBCU competition, sponsored by US Army – selected for phase 2 <i>Closed-loop Mind-Body Interfacing using Wireless, Self-powered, and Flexible sensors</i>	\$5,000	October 2021–January 2022
PI: Ifana Mahbub (100%)		
DARPA Young Faculty Award Program <i>Next generation of wireless power transfer network of Unmanned Aircraft System (UAS) using electromechanical beamforming</i>	\$499,998	August 2021–July 2023
PI: Ifana Mahbub (100%)		
National Science Foundation <i>CAREER: Next-generation of Wirelessly Powered Implantable Neuromodulation and Electrophysiological Recording System for Long-term Behavior Study of Freely-Moving Animals</i>	\$508,000	February 2020–January 2026
PI: Ifana Mahbub (100%), includes \$8,000 from one REU supplement		
National Science Foundation <i>High Surface Area Reverse Electrowetting Mechano-electrical Transduction</i>	\$375,994	September 2019–August 2022
PI: Ifana Mahbub (93%, \$349,373.22), Co-PI: Russell Reid (7%, \$26,620.78), includes \$8,000 from one REU supplement		
Department of Defense (DoD) MRI for MSI <i>Self-powered Wireless Sensors and Interfaces for Unmanned Aerial Vehicles (UAVs)</i>	\$211,786	July 2021–July 2022
PI: Wonbong Choi (50%, \$105,893), co-PI: Ifana Mahbub (50%, \$105,893)		
US Office of Naval Research (ONR) <i>Low-power, miniaturized RF components for wireless, communications and sensing systems to engage a broad cross-section of students for Navy-relevant STEM careers</i>	\$749,999	June 2019–May 2022
PI: Anupama Kaul (80%, \$599,999), co-PI: Ifana Mahbub (20%, \$149,999)		

Grants (Under Review)

U.S. Department of Defense – DOD – MRI for HBCU <i>Broadband Dielectric and Thermally Stimulated Depolarization Current Spectroscopy for High Temperature Additive Manufactured Embedded Wireless Sensing Lightweight Composites</i>	\$428,672	July 2022–July 2023
Co-PI: Ifana Mahbub (50%)		
Department of Defense (DoD) HBCI/MSI <i>Additive Manufacturing Science of Functional Materials for Hybrid 2D/3D 5G Electronics (AiM-5G)</i>	\$7,499,029	September 2021–August 2026
Co-PI: Ifana Mahbub (15%)		

Office of Naval Research (ONR) DURIP <i>Ultrawideband Near-Field Probe System for Antenna Research</i> Co-PI: Ifana Mahbub (50%)	\$325,599 February 2022–January 2023
National Science Foundation (NSF) <i>RINGS: Mobility-driven Spectrum-Agile Resilient mmWave Communication Links for Unmanned Aerial Vehicle Traffic Management in the Sky</i> Co-PI: Ifana Mahbub (25%)	\$1,000,000 February 2022–January 2025

Industry Sponsored Senior Design Projects

Qorvo, Inc. <i>High Efficiency 2 GHz RF Power Amplifier</i> PI: Ifana Mahbub, co-PI: Hung Luyen	\$3,750 Fall 2021 - Spring 2022
Qorvo, Inc. <i>Drive signal control for RF amplifier</i> PI: Ifana Mahbub, co-PI: Hung Luyen	\$3,750 Fall 2021 - Spring 2022
Dualams, Inc. <i>RFID Tracking Small Devices</i> Sole Investigator	\$1,000 Fall 2021 - Spring 2022
Vasant Corporation <i>Fast Huff and Puff Frequency Stabilizer and Frequency Band Selector</i> Sole Investigator	\$1,000 Fall 2020 - Spring 2021
Vasant Corporation <i>Radio Transceiver Subsystem Module Design for Audio Applications</i> Sole Investigator	\$1,000 Spring 2018 - Fall 2018
Plexon Inc. <i>Micro-electrode Impedance Measurement System using AD5940 Evaluation Kit</i> Sole Investigator	\$600 Fall 2019 - Spring 2020
Plexon Inc. <i>Integration and Assembly of a Low-cost Mask Aligner for the UNT Cleanroom</i> Sole Investigator	\$3,500 Fall 2019 - Spring 2020
Peterbilt <i>Electromagnetic radiation discharge remote measurement and shielding</i> Sole Investigator	\$15,000 Spring 2018 - Fall 2018

UNT Internal Seed Grants

UNT College of Engineering Research seed grant <i>The effect of radio-frequency interaction on Chinese hamster cells</i> PI: Ifana Mahbub (100%)	\$3,500 June 2019 - August 2019
UNT Office of Research and Economic Development (Research seed grant) <i>A Prototype Miniaturized Wirelessly Powered Neural Stimulation and Recording System for Brain Optogenetics</i> PI: Ifana Mahbub (100%)	\$7,900 October 2017 - December 2018

Publications

(* indicates student co-author)

Book Chapters

1. Ifana Mahbub, Salvatore A. Pullano, Samira Shamsir, Syed K. Islam. 2018. Low-Power Wearable and Wireless Sensors for Advanced Healthcare Monitoring. *IoT and Low-Power Wireless*. ISBN: 9781351251655, CRC Press.
1. Ifana Mahbub, Farhan Quaiyum, Sakib Hasan, Syed K. Islam. 2015. Electronic Sensor Interfaces with Wireless Telemetry. *Advances in Bioengineering*. ISBN: 978-953-51-2141-1, InTech.

- Journal Articles (Under Review/To Appear)**.....
1. Dipon K. Biswas* and Ifana Mahbub. 2022. Fully-Implantable Wireless Power Transfer (WPT) System Integrated with On-chip Power Management Unit (PMU) for Neuromodulation Application. *IEEE Transactions on Biomedical Circuits and Systems*. Under review.
 2. Salvatore A. Pullano, Deepa Kota*, Karthik Kakaraparthi*, Antonino Fiorillo, Ifana Mahbub. 2022. Optically Unobtrusive Zeolite-Based Dry Electrodes for Wearable ECG Monitoring. *IEEE Sensors*. Under review.
 3. Nishat T. Tasneem*, Dipon K. Biswas*, Pashupati R. Adhikari*, Avinash Gunti*, Adnan B. Patwary*, Russell C. Reid, Ifana Mahbub. 2022. A Self-Powered Wireless Motion Sensor Based on a High-Surface Area Reverse Electrowetting-on-Dielectric Energy Harvester Monitoring. *Scientific Reports*. Under review.
 4. Dipon K. Biswas*, Nabanita Saha* and Ifana Mahbub. 2022. Wirelessly Powered 3-D Printed Headstage Based Neural Stimulation System for Optogenetic Neuromodulation Application. *IEEE journal of Electromagnetics, RF, and Microwave Engineering*. Under review.
 5. Nishat T. Tasneem*, Dipon K. Biswas*, Ifana Mahbub. 2022. Multichannel Electrophysiological Recording with Unsupervised Spike Detection and Spike Sorting in a Duty-cycled Wireless Optogenetic Headstage. *Scientific Reports*. Under review.
- Journal Articles (Published)**.....
1. Pashupati R. Adhikari*, Adnan Patwary*, Karthik Kakaraparthi*, Avinash Gunti*, Russell C. Reid, Ifana Mahbub. 2021. Advancing Reverse Electrowetting-on-Dielectric from Planar to Rough Surface Electrodes for High Power Density Energy Harvesting. *Energy Technology*. Wiley.
 2. Pashupati R. Adhikari*, Russell C. Reid, Ifana Mahbub. 2021. High Power Density and Bias-Free Reverse Electrowetting Energy Harvesting Using Surface Area Enhanced Porous Electrodes. *Journal of Power Sources*. Elsevier.
 3. Venkata Deepa Kota*, Nishat Tasneem*, Karthik Kakaraparty*, Ifana Mahbub, Gayatri Mehta, Kamesh Namuduri. 2021. A Low-power Dry Electrode-based ECG Signal Acquisition with De-noising and Feature Extraction. *Journal of Signal Processing Systems*. Springer.
 4. Nishat Tasneem* and Ifana Mahbub. 2021. A 2.53 NEF 8-bit 10 kS/s 0.5 μm CMOS Neural Recording Read-out Circuit with High Linearity for Neuromodulation Implants. *Electronics*. MDPI. 10(5):590.
 5. Pashupati R. Adhikari*, Nishat T. Tasneem*, Russell C. Reid, Ifana Mahbub. 2021. Electrode-Electrolyte Configuration and Modeling of Low Frequency Motion Energy Harvesting Based on Reverse Electrowetting. *Scientific Reports*. 11(1), 1-13.
 6. Nishat Tasneem*, Dipon K. Biswas*, Ifana Mahbub. 2020. A CMOS Closed-loop Miniaturized Wireless Power Transfer System for Brain Implant Applications. *Analog Integrated Circuits and Signal Processing*. Springer. vol. 105, pp. 335-345.
 7. Nishat Tasneem*, Salvatore A. Pullano, C. D. Critello, Antonino S. Fiorillo, Ifana Mahbub. 2020. A Low-Power On-chip ECG Monitoring System Based on MWCNT/PDMS Dry Electrodes. *IEEE Sensors Journal*. vol. 20, no. 21, pp. 12799-12806.
 8. Dipon K. Biswas* and Ifana Mahbub. 2020. A 0.09 mm² On-Chip Wireless Power Transfer System Designed in 0.5 μm CMOS Process for Brain Neuromodulation Applications. *IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology*. vol. 4, no. 2, pp. 117-125.
 9. Dipon K. Biswas*, Melissa Sinclair*, Tien Le*, Salvatore A. Pullano, Antonino S. Fiorillo, Ifana Mahbub. 2020. Modeling and Characterization of Scaling Factor of Flexible Spiral Coils for Wirelessly Powered Wearable Sensors. *Sensors*. MDPI. 20, 2282.
 10. Tonoy Chowdhury, Nandika D'Souza, Y. H. Ho, Narendra Dahotre, Ifana Mahbub. 2020. Embedded Corrosion Sensing with ZnO-PVDF Sensor Textiles. *Sensors*. MDPI. 20, 3053.
 11. Russell Reid and Ifana Mahbub. 2020. Wearable Self-Powered Biosensors. *Current Opinion in Electrochemistry*. Elsevier. vol. 19, pp. 55 - 62.
 12. Dipon K. Biswas*, Nishat T. Tasneem*, Ifana Mahbub. 2019. Effects of coaxial-lateral and coaxial-

- angular displacements on link efficiency of a wirelessly powered optogenetic implant: Design, modeling and experimental validation. *IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology*. vol. 3, no. 4, pp. 269-275.
13. Salvatore A. Pullano, Nishat T. Tasneem*, Ifana Mahbub, Samira Shamsir, Martha Greco, Syed K. Islam, Antonino S. Fiorillo. 2019. Deep submicron EGFET based on transistor association technique for chemical sensing. *Sensors*. MDPI. 19(5), 1063.
 14. Ifana Mahbub, Samira Shamsir, Salvatore A. Pullano, Syed K. Islam. 2019. Design of a charge amplifier for a low-power respiration monitoring system. *IET Circuits, Devices and Systems*. vol. 13, no. 4, pp. 499-503.
 15. Ifana Mahbub, Samira Shamsir, Salvatore A. Pullano, Syed K. Islam. 2019. Low-Power low-data-rate IR-UWB transmitter for pediatric apnea monitoring system. *IET Circuits, Devices and Systems*. vol. 13, no. 4, pp. 494-498.
 16. Salvatore A. Pullano, C. D. Critello, Ifana Mahbub, Nishat T. Tasneem*, Samira Shamsir, Syed K. Islam, Martha Greco, Antonino S. Fiorillo. 2018. EGFET-based sensors for bioanalytical applications: A review. *Sensors*. MDPI. 18(11), 4042.
 17. Salvatore A. Pullano, Ifana Mahbub, Martha Greco Bianco, Samira Shamsir, Syed K. Islam, M. S. Gaylord, V. Lorch, Antonino S. Fiorillo. 2017. Medical devices for pediatric apnea monitoring and therapy: past and new trends. *IEEE Reviews in Biomedical Engineering*. vol. 10, pp. 199-212.
 18. Ifana Mahbub, H. Wang, Syed K. Islam, Salvatore A. Pullano, Antonino S. Fiorillo, Gary To, M. R. Mahfouz. 2017. A low-power wireless piezoelectric sensor-based respiration monitoring system realized in CMOS process. *IEEE Sensors Journal*. vol. 17, no. 6, pp. 1858-1864.
 19. Salvatore A. Pullano, Ifana Mahbub, Syed K. Islam, Antonino S. Fiorillo. 2017. PVDF sensor stimulated by infrared radiation for temperature monitoring in microfluidic devices. *Sensors*. MDPI. vol. 17, no. 4, pp. 850.
 20. Ifana Mahbub, Samira Shamsir, Syed K. Islam. 2017. A low-power low-data rate impulse radio ultra-wideband (IR-UWB) transmitter. *International Journal on High Speed Electronics (IJHES)*. 1740013, vol. 26, no. 3.
 21. Terence C. Randall, Syed K. Islam, Ifana Mahbub, Nicole McFarlane, and Yongchao Yu. 2016. A low-power, reconfigurable, pipelined ADC for implantable bioimpedance measurement system with vertically aligned carbon nanofibers (VACNF) electrodes. *Analog Integrated Circuits and Signal Processing*. Springer. vol. 89, pp. 139-149.
 22. Melika Roknsharifi, Syed K. Islam, K. Zhu, Ifana Mahbub. 2015. A low power, highly stabilized three electrode potentiostat for biomedical implantable systems. *Analog Integrated Circuits and Signal Processing*. Springer. vol. 83, pp. 217-229.
 23. Liang Zuo, Syed K. Islam, Ifana Mahbub, Farhan Quaiyum. 2015. A low-power 1-V potentiostat for glucose sensors. *IEEE Transactions on Circuits and Systems II: Express Briefs*. vol. 62, pp. 204-208.
 24. Terence C. Randall, Ifana Mahbub, Ashraf B. Islam, M. R. Haider, Syed K. Islam. 2014. Low-power sensor signal monitoring and impulse radio architecture for biomedical applications. *Analog Integrated Circuits and Signal Processing*. Springer. vol. 78, pp. 209-216.
 25. Wenchao Qu, Syed K. Islam, Ifana Mahbub, Terence C. Randall, Gary To, M. Mahfouz. 2014. An energy-efficient reconfigurable analog-to-digital converter for orthopedic implants. *Analog Integrated Circuits and Signal Processing*. Springer. vol. 78, pp. 233-243.
 26. Kai Zhu, Syed K. Islam, Melika Roknsharifi, M. Sakib Hasan, Ifana Mahbub. 2013. A divide-by-3 0.4-1.4 GHz injection-locked frequency divider based on relaxation oscillator. *IEEE Microwave and Wireless Components Letters*. vol. 23, pp. 368-370.

Conference Papers (Under Review/To Appear).....

1. Karthik Kakaraparty*, Ifana Mahbub. 2022. The Design and SAR Analysis of a UWB Bow-tie Antenna for Wireless Wearable Sensors. In *2022 USNC-URSI National Radio Science Meeting (NRSM)*. Accepted (To Appear).
2. Adnan Patwary*, Ifana Mahbub. 2022. Design and Simulation of UWB Phased Array Antenna for

- Wireless Power Transfer to Micro Aerial Vehicle (MAV) Through Beam Steering. In *2022 Radio and Wireless Symposium (RWS)*. Accepted (To Appear).
3. Adnan Patwary*, Rafsan Mahin* and Ifana Mahbub. 2022. A Four Channel Impulse Radio Ultrawideband (IR-UWB) Front End Transmitter System for a 2 X 2 Quadrature Based Phased Array Antenna Designed in 180 nm CMOS Process. In *2022 IEEE Radio Frequency Integrated Circuit Conference (RFIC)*. Under Review.
 4. Sakib Reza*, Kieren Pae* and Ifana Mahbub. 2022. A 2.98 dB NF, 2.52 mW Ultra-Wideband Low Noise Amplifier for a Brain Neuromodulation Implant. In *2022 IEEE Radio Frequency Integrated Circuit Conference (RFIC)*. Under Review.
 5. Karthik Kakaraparty* and Ifana Mahbub. 2022. A 23.7 to 29.9 GHz Tunable Fully Differential Voltage Controlled Oscillator Designed in 180 nm CMOS process. In *2022 IEEE Radio Frequency Integrated Circuit Conference (RFIC)*. Under Review.
 6. Karthik Kakaraparty* and Ifana Mahbub. 2022. The Design and SAR Analysis of Wearable UWB Antenna for Radiative Near-Field Wireless Power Transfer. In *2022 IEEE International Microwave Biomedical Conference (IMBioC 2022)*. Under Review.
 7. Deepa Kota* and Ifana Mahbub. 2022. Re-configurable Gain, Bandwidth, Chopper Stabilized, Biosignal Amplifier Design in 180 nm CMOS Process. In *2022 IEEE Dallas Circuits and System (DCAS 2022)*. Under Review.
 8. Kieren Pae* and Ifana Mahbub. 2022. Low-Power Asynchronous Level Crossing ADC designed in 180 nm CMOS process for Electrophysiological Signal Recording Applications. In *2022 IEEE Dallas Circuits and System (DCAS 2022)*. Under Review.
 9. Adnan Patwary*, Ifana Mahbub. 2022. Path Loss Characterization for a Pulse-based Wireless Power Transfer using Ultrawideband (UWB) Phased Array Antenna and Combiner. In *2022 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting (APS/URSI)*. Under Review.
 10. Rafsan Mahin*, Ifana Mahbub. 2022. Rectifier Performance with and without Matching Networks in the Ultra-Wideband Frequency Range. In *2022 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting (APS/URSI)*. Under Review.
 11. Sunanda Roy*, Karthik Kakaraparty* and Ifana Mahbub. 2022. Design of a 2x2 Phased Array Antenna for Wireless Power Transfer Application. In *2022 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting (APS/URSI)*. Under Review.
 12. Karthik Kakaraparty*, Sunanda Roy*, Hung Luyen, Ifana Mahbub. 2022. A V-band Phased-Array Antenna for MillimeterWave-Based 3D Beam Steering Applications. In *2022 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting (APS/URSI)*. Under Review.

Conference Papers (Published)

1. Karthik Kakaraparty*, Edward Muñoz-Coreas, Ifana Mahbub. 2021. The Future of mm-wave Wireless Communication Systems for Unmanned Aircraft Vehicles in the Era of Artificial Intelligence and Quantum Computing. In *2021 IEEE Metrocon Conference*.
2. Adnan Patwary*, Ifana Mahbub. 2021. Design, Simulation and Comparison of two 15 mm X 15 mm UWB Antennas with Modified Ground Patch for High Data-rate Wireless Electrophysiological Recording Application. In *2021 IEEE Texas Symposium on Wireless and Microwave Circuits and Systems*.
3. Deepa Kota* and Ifana Mahbub. 2021. A Low-Power ECG Readout Circuit Integrated with Machine Learning Based ECG Heartbeat Classifier. In *2021 IEEE 64th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS) Conference*,
4. Dipon K. Biswas* and Ifana Mahbub. 2021. A Low-Power Duty-Cycled Impulse-Radio Ultrawideband (IR-UWB) Transmitter with Bandwidth and Frequency Reconfigurability Scheme Designed in 180 nm CMOS Process. In *2021 IEEE Radio and Wireless Week (RWW) Symposium*.
5. Deepa Kota*, Nishat T. Tasneem*, Ifana Mahbub. 2021. Low Power Implementation of ECG R-wave Peak Detector in 180 nm CMOS Process. In *2020 IEEE 14th Dallas Circuits and Systems Conference*.
6. Dipon K. Biswas*, Jose Martinez*, Ishani Kaul, Arnav Kaul, and Ifana Mahbub. 2021. A Miniaturized

- Highly Efficient Headstage Based Wireless Power Transfer (WPT) System for Optogenetic Stimulation of Freely Moving Animals. In *2020 IEEE 14th Dallas Circuits and Systems Conference*).
7. Karthik Kakaraparty*, Nishat Tasneem*, Ifana Mahbub. 2021. A Low-Power Front-End with Compressive Sensing Circuit for Neural Signal Acquisition Designed in 180 nm CMOS Process. In *2020 IEEE 14th Dallas Circuits and Systems Conference*,
 8. Avinash Gunti*, Dipon K. Biswas*, Pashupati R. Adhikari*, Russell C. Reid, Ifana Mahbub. 2021. Highly Efficient Rectifier and DC-DC Converter Designed in 180 nm CMOS Process for Ultra-Low Frequency Energy Harvesting Applications. In *2020 IEEE 14th Dallas Circuits and Systems Conference*.
 9. Pashupati R. Adhikari*, Nishat T Tasneem*, Dipon K. Biswas*, Russell C. Reid, Ifana Mahbub. 2021. High surface area reverse electrowetting on dielectric energy harvesting with power conditioning circuitry for self-powered sensors in wearable and implantable electronics. In *Energy Harvesting and Storage: Materials, Devices, and Applications XI; 117220T (2021)*, 2021 SPIE Defense + Commercial Sensing Symposium, Volume 11722.
 10. Nishat T Tasneem*, Dipon K. Biswas*, Pashupati R. Adhikari*, Russell C. Reid, Ifana Mahbub. 2021. Self-powered Motion Tracking Sensor Integrated With Low-power CMOS Circuitry. In *2021 IEEE International Symposium on Circuits and Systems (ISCAS)*.
 11. Pashupati R. Adhikari*, Nishat T Tasneem*, Dipon K. Biswas*, Russell C. Reid, Ifana Mahbub. 2020. Reverse Electrowetting-on-Dielectric Energy Harvesting Integrated with Charge Amplifier and Rectifier for Self-powered Motion Sensors. In *International Mechanical Engineering Congress and Exposition (IMECE2020)*.
 12. Nishat T Tasneem* and Ifana Mahbub. 2020. A Low-power Reconfigurable Readout Circuit with Large DC Offset Reduction for Neural Signal Recording Applications. In *63rd IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, 2020.
 13. Nishat T Tasneem* and Ifana Mahbub. 2020. Dry Electrode Based Low-power ECG Acquisition System with Adaptive Motion Artifacts Cancellation. In *63rd IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, 2020.
 14. Nishat Tasneem*, Deepa Kota*, Ifana Mahbub, Gayatri Mehta, Kamesh Namuduri, Ari Cedars. 2020. A Dry Electrode-Based ECG Sensor with Motion Artifacts Cancellation and Signal Analysis for Heart Irregularity Detection. In *2020 IEEE Sensors Conference*, Glasgow, UK.
 15. Ting Xiao, Thahsina Tabashum, Gloria Olness, Ifana Mahbub, Diana Berman, Nishat T. Tasneem*, Mark V. Albert. 2020. Mobile Diarization Dashboard Application and Remote Vocalization Sensor Prototype for Evaluating Communication Rehabilitation Effectiveness. In *2020 American Congress of Rehabilitation Medicine Conference*.
 16. Dipon K. Biswas*, Bernabe Rangel*, Ifana Mahbub. 2020. Design of a Multi-layered On-chip Wireless Power Transfer (WPT) System Design for Brain Neuromodulation Applications. In *2020 IEEE Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS)*, pp. 1–5. Waco, TX, USA.
 17. Jackie Horn*, Pranathi Vasireddy, Ifana Mahbub, R. Hossain, Anupama B. Kaul. 2020. Simulation and Fabrication of Inkjet-Printed mm-Sized Capacitors for Wearable Temperature Sensing Applications. In *2020 IEEE Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS)*, pp 1–6. Waco, TX, USA.
 18. Dipon K. Biswas*, Jose A. Martinez*, Jacob Daniels*, Abhijeet Bendapudi*, Ifana Mahbub. 2020. A Novel 3-D Printed Headstage and Homeage based WPT System for Long-term Behavior Study of Freely Moving Animals. In *2020 Radio and Wireless Symposium (RWS)*, San Antonio, TX, USA.
 19. Salvatore A. Pullano, Martha Greco, Antonino S. Fiorillo, Ifana Mahbub, Nishat T. Tasneem*, Samira Shamsir, Syed K. Islam. 2020. Design and Fabrication of an EGFET Based Chemical Sensor Using Transistor Association Technique. In *2020 IEEE International Symposium on Medical Measurements and Applications (MeMeA)*, pp. 1–5. Bari, Italy.
 20. Nishat T. Tasneem*, Pashupati R. Adhikari*, Dipon K. Biswas*, Ifana Mahbub. 2020. Design of a Reverse-electrowetting Transducer Based Wireless Self-powered Motion Sensor. In *2020 IEEE International Symposium on Circuits and Systems (ISCAS)*, Seville, Spain.

21. Nishat T. Tasneem* and Ifana Mahbub. 2019. Design of a 52.5 dB Neural Amplifier with Noise-Power Trade-Off. In *2019 IEEE 62nd International Midwest Symposium on Circuits and Systems (MWSCAS) conference*, Dallas, TX, USA.
22. Dipon K. Biswas*, Nishat T. Tasneem*, Ifana Mahbub. 2019. Optimization of Miniaturized Wireless Power Transfer System to Maximize Efficiency for Implantable Biomedical Devices. In *2019 Texas Symposium on Wireless and Microwave Circuits and Systems*, Waco, TX, USA.
23. Ikechukwu W. Agbor*, Ifana Mahbub, Kamesh Namuduri. 2019. Impact of Extremely High Temperature on Performance of Wearable Electro-Textile Antennas. In *2019 Texas Symposium on Wireless and Microwave Circuits and Systems*, Waco, TX, USA.
24. Nishat T. Tasneem*, Dipon K. Biswas*, Ifana Mahbub. 2019. Closed-loop adaptive transcutaneous wireless power transfer system for implantable sensors. In *2019 Radio and Wireless Symposium (RWS)*, Orlando, FL, USA.
25. Melissa Sinclair*, Dipon K. Biswas*, Tien Le*, Joshua Hyde*, Ifana Mahbub, L. Chang, H. Yongcun. 2019. Design of a flexible receiver module for implantable wireless power transfer (WPT) applications. In *2019 USNC-URSI National Radio Science Meeting*, Boulder, CO, USA.
26. Ramaa S. Suri*, Nishat T. Tasneem*, Ifana Mahbub. 2019. Low-Power Highly Efficient Voltage-Boosting Rectifier for Wide-band Inductively-Coupled Power Telemetry. In *2019 USNC-URSI National Radio Science Meeting*, Boulder, CO, USA.
27. Nishat T. Tasneem* and Ifana Mahbub. 2019. A Low-power Low-noise Reconfigurable Bandwidth BiCMOS Neural Amplifier. In *2018 IEEE 13th Dallas Circuits and Systems Conference (DCAS)*, pp. 1–5. Dallas, TX, USA.
28. M. Sakib Hasan, Ifana Mahbub, Syed K. Islam, Garrett S. Rose. 2019. A MOS-JFET Macromodel of SOI Four-Gate Transistors (G4FET) to Aid Innovative Circuit Design. In *2018 IEEE 13th Dallas Circuits and Systems Conference (DCAS)*, pp. 1–4. Dallas, TX, USA.
29. Dipon K. Biswas*, Nishat T. Tasneem*, Joshua Hyde*, Melissa Sinclair*, Ifana Mahbub. 2018. Miniaturized Wireless Power Transfer Module Design for Brain Optoelectronic Implant. In *2018 IEEE International Microwave Biomedical Conference (IMBioC)*, pp. 163–165. Philadelphia, PA, USA.
30. Ikechukwu Agbor*, Dipon K Biswas*, Ifana Mahbub. 2018. A Comprehensive Analysis of Various Electro-Textile Materials for Wearable Antenna Applications. In *2018 Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS)*, pp. 1–4. Waco, TX, USA.
31. Nishat T. Tasneem*, Ramaa S. Suri*, Ifana Mahbub. 2018. A Low-power CMOS Voltage Boosting Rectifier for Wireless Power Transfer Applications. In *2018 Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS)*, pp. 1–4. Waco, TX, USA.
32. Dipon K. Biswas*, Melissa Sinclair*, Joshua Hyde*, Ifana Mahbub, 2018. An NFC (Near-field Communication) based Wireless Power Transfer System Design with Miniaturized Receiver Coil for Optogenetic Implants. In *2018 Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS)*, pp. 1–5. Waco, TX, USA.
33. Salvatore A. Pullano, Martha G. Bianco, F. Ursini, C. Bruno, Antonino S. Fiorillo, Ifana Mahbub, Nishat T. Tasneem*. Development of a Low-cost Nailfold Capillaroscopy Platform to Enhance Early Detection of Secondary Raynaud's Phenomenon. 2018. In *2018 IEEE International Symposium on Medical Measurements and Applications (MeMeA)*, pp. 1–5. Rome, Italy.
34. Samira Shamsir, S. H. Hesari, Syed K. Islam, Ifana Mahbub, Salvatore A. Pullano, Antonino S. Fiorillo. Instrumentation of a Pyroelectric Transducer Based Respiration Monitoring System with Wireless Telemetry. 2018. In *2018 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*, pp. 1–6. Houston, TX, USA.
35. Ifana Mahbub, Taeho Oh, Samira Shamsir, Syed K. Islam, Salvatore A. Pullano, Antonino S. Fiorillo. 2017. Design of a Pyroelectric Charge Amplifier and a Piezoelectric Energy Harvester for a Novel Non-Invasive Wearable and Self-Powered Respiratory Monitoring System. In *2017 IEEE Region 10 Humanitarian Technology Conference (R10-HTC)*, pp. 105–108. Dhaka, Bangladesh.
36. Ifana Mahbub, Samira Shamsir, Syed K. Islam, Salvatore A. Pullano, Antonino S. Fiorillo. 2017. A low

- noise front-end amplifier for pyroelectric transducer based respiration monitoring system. In *2017 IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, pp. 875–878. Boston, MA, USA.
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 38. Samira Shamsir, Ifana Mahbub, Syed K. Islam, Arifur Rahman. 2017. Applications of sensing technology for smart cities. In *2017 IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, pp. 1150–1153. Boston, MA, USA.
 39. Ifana Mahbub and Syed K. Islam. 2017. A low-power impulse radio ultra-wideband (IR-UWB) transmitter for biomedical sensor applications. In *2017 United States National Committee of URSI National Radio Science Meeting (USNC-URSI NRSM)*, pp. 1–2. Boulder, CO, USA.
 40. Ifana Mahbub, Syed K. Islam, Samira Shamsir, Salvatore A. Pullano, Antonino S. Fiorillo, Marc S. Gaylord, Vivian Lorch. 2017. A low power wearable respiration monitoring sensor using pyroelectric transducer. In *2017 United States National Committee of URSI National Radio Science Meeting (USNC-URSI NRSM)*, pp. 1–2. Boulder, CO, USA.
 41. Salvatore A. Pullano, Antonino S. Fiorillo, Ifana Mahbub, Syed K. Islam, Marc S. Gaylord, Vivian Lorch. 2016. Non-invasive integrated wireless breathing monitoring system based on a pyroelectric transducer. In *2016 IEEE SENSORS*, pp. 1–3. Orlando, FL, USA.
 42. Ifana Mahbub and Syed K. Islam. 2016. A low power pulse position modulation based ultra-wideband transmitter for implantable sensors. In *2016 IEEE International Symposium on Medical Measurements and Applications (MeMeA)*, pp. 1–5. Benevento, Italy.
 43. Ifana Mahbub, H. Wang, Syed K. Islam, Salvatore A. Pullano, Antonino S. Fiorillo. 2016. 2016 IEEE International Symposium on Medical Measurements and Applications (MeMeA). In *2016 IEEE International Symposium on Medical Measurements and Applications (MeMeA)*, pp. 1–5. Benevento, Italy.
 44. Ifana Mahbub and Syed K. Islam, Aly Fathy. 2016. Impulse radio ultra-wideband (IR-UWB) transmitter for low power low data rate biomedical sensor applications. In *2016 IEEE Topical Conference on Biomedical Wireless Technologies, Networks, and Sensing Systems (BioWireleSS)*, pp. 88–90. Austin, TX, USA.
 45. Ifana Mahbub, M. Sakib Hasan, Salvatore A. Pullano, Farhan Quaiyum, C. P. Stephens, Syed K. Islam, Antonino S. Fiorillo, Marc S. Gaylord, Vivian Lorch, Natalie Beitel. 2015. A low power wireless apnea detection system based on pyroelectric sensor. In *2015 IEEE Topical Conference on Biomedical Wireless Technologies, Networks, and Sensing Systems (BioWireleSS)*, pp. 1–3. San Diego, CA, USA.
 46. Terence C. Randall, Ifana Mahbub, Syed K. Islam. 2015. A low power wireless apnea detection system based on pyroelectric sensor. In *2015 IEEE Topical Conference on Biomedical Wireless Technologies, Networks, and Sensing Systems (BioWireleSS)*, pp. 1–3. San Diego, CA, USA.
 47. Terence C. Randall, Ifana Mahbub, Syed K. Islam. 2013. A low power auto-reconfigurable pipelined ADC for implantable biomedical applications. In *2013 IEEE SENSORS*, pp. 1–4. Baltimore, MD, USA.
 48. S. Biswas, Ifana Mahbub, M. S. Islam and S. Biswas. 2013. Peak emission wavelength tuning for Light Emitting Diodes and lasers for Quantum Well by varying the composition of the well. In *2013 Spanish Conference on Electron Devices*, pp. 207–210. Valladolid, Mexico.
 49. S. Biswas, Ifana Mahbub and M. S. Islam. 2013. Conduction band-valence band coupling effects on the band structure of In_{0.28}Ga_{0.72}N/GaN Quantum Well. In *2013 Spanish Conference on Electron Devices*, pp. 211–214. Valladolid, Mexico.

Patents and invention Disclosure

1. Ifana Mahbub, Pashupati Adhikari, Nishat T. Tasneem, Dipon K. Biswas, Russell C. Reid. 2020. High surface area reverse electrowetting for a self-powered wireless wearable motion sensor. *Submitted as a provisional patent through the University of North Texas technology transfer office.*
1. Ifana Mahbub, Nishat T. Tasneem, Dipon K. Biswas. 2021. Headstage-based Wirelessly Powered Optogenetic Neuromodulation and multi-channel wireless neural recording system with integrated unsupervised spike sorting and classification. *Submitted as an intention disclosure to the University of*

North Texas technology transfer office.

Teaching

At University of North Texas

Spring 2022	EENG 3411 Engineering Electromagnetics Lab	Avg. course evaluation: N/A
Spring 2022	EENG 4010/5530 Analog Integrated Circuit Design	Avg. course evaluation: N/A
Fall 2021	EENG 3411 Engineering Electromagnetics Lab	Avg. course evaluation: 4.8/5
Fall 2021	EENG 4010/5410 RF and Microwave Engineering	Avg. course evaluation: 4.8/5
Spring 2021	EENG 3411 Engineering Electromagnetics Lab	Avg. course evaluation: 4.8/5
Spring 2021	EENG 4010/5530 Analog Integrated Circuit Design	Avg. course evaluation: 4.7/5
Fall 2020	EENG 3411 Engineering Electromagnetics Lab	Avg. course evaluation: 4.4/5
Fall 2020	EENG 4010/5410 RF and Microwave Engineering	Avg. course evaluation: 4.5/5
Spring 2020	EENG 3411 Engineering Electromagnetics Lab	Avg. course evaluation: 4.0/5
Spring 2020	EENG 4010/5530 Analog Integrated Circuit Design	Avg. course evaluation: 4.7/5
Fall 2019	EENG 3411 Engineering Electromagnetics Lab	Avg. course evaluation: 4.7/5
Fall 2019	EENG 4010/5410 RF and Microwave Engineering	Avg. course evaluation: 4.7/5
Spring 2019	EENG 3411 Engineering Electromagnetics Lab	Avg. course evaluation: 3.3/5
Fall 2018	EENG 3410 Engineering Electromagnetics	Avg. course evaluation: 4.5/5
Spring 2018	EENG 4010/5530 Analog Integrated Circuit Design	Avg. course evaluation: 4.7/5
Fall 2017	EENG 3410 Engineering Electromagnetics	Avg. course evaluation: 4.3/5

Advising and Mentoring

Current

Post-doc:

1. Dr. Sunanda Roy (November 2021–present)

Ph.D. students:

1. Nishat T. Tasneem (Spring 2018–Spring 2022 (Expected)) (Going to join Enable IC after graduation)
2. Pashupati R. Adhikari (Spring 2018–Spring 2022 (Expected)), (Co-advisor: Dr. Wonbong Choi)
3. Deepa Kota (Fall 2019–Summer 2022 (Expected)), (Co-advisor: Dr. Kamesh Namuduri)
4. Adnan Basir Patwary (Spring 2021–present)
5. Karthikeya Kakaraparty (Fall 2021–present)
6. Rafsan Mahin (Fall 2021–present)
7. Nabanita Saha (Spring 2022–present)
8. Sakib Reza (Spring 2022–present)

Master's students (pursuing a Master's Thesis):

1. Pallav Sah (Fall 2021–present)

Undergraduate students (conducting research):

1. Keaton McGill (Fall 2021–present)
2. Erik Pineda-Alvarez (Fall 2021–present)
3. Omar Madera (Spring 2021–present)

Past

Ph.D. students:

1. Dipon K. Biswas, Fall 2021
 - o Current employer: Intel
1. Ikechukwu Agbor (Co-advisor: Dr. Kamesh Namuduri), Summer 2020
 - o Current employer: L3Harris

Master's students (graduated with a Master's Thesis):

1. Kieren Pae, Summer 2021
 - o Current employer: Nokia
1. Divyasri Kasidi, Fall 2021
 - o Current employer: Enable IC
1. Ramya Sudhakar, Fall 2021
 - o Current employer: Catterpillar
1. Karthikeya Anil Kumar Kakaraparty, Spring 2021
 - o Currently a Ph.D. student at UNT (Fall 2021–present)
1. Avinash Gunti, Spring 2021
 - o Current employer: Spacee.Inc
1. Scott Weber, Spring 2020
 - o Current Employer: EnginIC Inc.
1. Jackie Horn (Co-advisor: Dr. Anupama Kaul), Spring 2020.
 - o Current Employer: Texas Instruments
1. Melissa Sinclair, Summer 2019
 - o Current Employer: Boeing
1. Ramaa Saket Suri, Spring 2019
 - o Currently a Ph.D. student at Purdue University

Undergraduate students:

1. Travis Roberts (Fall 2020–Spring 2021)
2. Jose Marcelino (Fall 2020–Spring 2021)
3. Jose A. Martinez (Fall 2018–Spring 2020)
 - o Joined the UNT MS program in Fall 2020
4. Martin Cruz Vazquez (Fall 2019–Spring 2020)
5. Bernabe Rangel (Fall 2019–Spring 2020)
6. Ho Thuy Tien Le (Fall 2019–Spring 2020)
7. Georgio Di Salvo (UNT Department of Biomedical Engineering), Spring 2019
8. Maham Saleem (UNT Department of Biomedical Engineering), Spring 2019
9. Sriya Sadhu, UNT TAMS, May 2020
10. Abhijeet Bendapudi, UNT TAMS, May 2019
11. Preeth Kanamangala, UNT TAMS, May 2018
12. Chloe Field, UNT TAMS, May 2018

Invited Talks

Invited Presentations and Professional Seminars	
UNT ONR-PACCAR STEM Virtual Event: Navy JROTC (Hebron High school), Norwest STEM Academy	Virtual
<i>From neural implants to drones: How wireless power and data telemetry can make the system truly autonomous</i>	November 4, 2021
IEEE MetroCon 2021	Virtual
<i>The Future of mm-wave Wireless Communication Systems for Unmanned Aircraft Vehicles (UAVs) in the Era of Artificial Intelligence and Quantum Computing</i>	November 3, 2021
UNT EE Graduate Seminar	Denton, TX
<i>Path to Professorship: How to navigate the academic job interview process</i>	October, 2021
Neural Interfaces 2021 The NANS-NIC Joint Meeting, The brain initiative investigators' meeting	Virtual
<i>Multichannel Electrophysiological Recording with Unsupervised Spike Detection and Spike Sorting in a Duty-cycled Wireless Optogenetic Headstage</i>	May, 2021

STEM Academy at Northwest ISD, Women in STEM Event <i>My Journey Towards STEM and Academia</i>	Justin, TX February 2020
University of North Texas, Department of Mechanical Engineering <i>Wirelessly-powered/Self-powered Implantable and Wearable Sensors for Advanced Healthcare Monitoring</i>	Denton, TX September 2019, March 2020
IEEE MTT-S Dallas Chapter Monthly Seminar Invited Speaker <i>Low-Power Wireless Wearable Sensors: Past Trends and Future Directions</i>	Dallas, TX June 2018
University of North Texas, Department of Biomedical Engineering <i>Low-power wireless sensors for advanced healthcare monitoring</i>	Denton, TX September 2017

Professional Service

Outside University of North Texas.....

U.S. National Committee (USNC) for the International Union of Radio Science (URSI):

- Secretary, Commission K, Spring 2022–Present

IEEE Regional Chapter:

- Publicity Chair, IEEE Circuits and Systems Society, Dallas Chapter (CAS Dallas), Fall 2020–Fall 2021
- Vice-Chair, IEEE Circuits and Systems Society, Dallas Chapter (CAS Dallas), Spring 2020–Fall 2020

Guest Editorships:

- Guest Editor, *IEEE Open Journal of Antennas and Propagation* (Special Issue: Ultra-Wideband and Millimeter-Wave Phased-Array Antennas for Wireless Power and Data Telemetry towards Next-Generation Autonomous Systems).
- Guest Editor, *Journal of Low-Power Electronics and Applications* (MDPI Sensors Special Issue: Low-Power Electronic Circuits for Monolithic Smart Wireless Sensors), (MDPI Sensors Special Issue: Emerging Smart and Intelligent Wearable/Implantable Sensors for IoT and Biomedical Applications).

Conference organization:

- Special session Chair of the 2022 IEEE APS/URSI conference titled "Ultra-Wideband and Millimeter-Wave Phased-Array Antennas for Wireless Power and Data Telemetry towards Next-Generation Autonomous Systems"
- Special session co-chair of the 2022 IEEE IMBioC conference titled "Wireless Power Transfer (WPT) schemes for implantable and wearable sensors"
- Session co-chair of the 2022 URSI NRSN Conference
- Session Chair and co-chair of the 2022 IEEE Radio and Wireless Week (RWW) Symposium
- Publications Chair and Session Chair of the 2018, 2019, 2020, 2021, and 2022 IEEE Texas Symposium on Wireless and Microwave Circuits and Systems Conferences
- Publications Chair and Session Chair of the 2018, 2020, and 2022 IEEE Dallas Circuits and Systems Conference
- Student Poster Competition committee and Session chair for the IEEE MTT-S International Microwave Biomedical Conference, 2018

Reviewer, Proposals:

- Panelist, National Science Foundation, 2018, 2021 (2 panels)
- Panelist, NIH study section, 2021

Reviewer, Journals:

- Regular reviewer for *IEEE Journal of Electromagnetics, RF, and Microwaves in Medicine and Biology*, *IEEE Sensors Journal*, *IEEE Transactions on Microwave Theory and Technique*, *IET Electronics Letter*, *IEEE Transactions on Biomedical Circuits and System*, *IEEE Transactions on Instrumentation and Measurement*, *IEEE Transactions on Computer Aided Design*, etc.

Reviewer, Conferences:

- Regular reviewer for *IEEE MTT-S International Microwave Biomedical Conference, IEEE MTT Texas Symposium on Wireless and Microwave Circuits and Systems, IEEE International Symposium on Circuits and Systems conference, IEEE Dallas Circuits and Systems Conference, etc.*

To the Department of Electrical Engineering at University of North Texas.....

Graduate Curriculum Committee Chair	September 2019–Present
Faculty Advisor, SMTA student chapter	Fall 2019–Summer 2021
Undergraduate Curriculum Committee Member	Fall 2017 – present
Laboratories Management Committee Member	Fall 2017 – present

Memberships

- Senior Member, IEEE CAS, MTT-S, APS, and Sensors Council
- Commission K, USNC-URSI, Early Career Member