Curriculum Vitae

Bashir I. Morshed, Ph.D.

Associate Professor

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HIGHLIGHTS

✧ **Academic:**
- Associate Professor (tenured), Computer Science (CS) dept., Texas Tech University (2020 – now)
- Associate Professor (tenured), Electrical & Computer Engineering (EECE) dept., University of Memphis (2017 – 2020); Assistant Professor (tenure-track), EECE, U. of Memphis (2011 – 2017)
- Ph.D., Department of Electronics, Carleton University, Ottawa, Ontario, Canada (2004 - 2010)
- M.A.Sc., Electrical and Computer Engineering, University of Windsor, Canada (2002 - 2004)
- B.Sc., Bangladesh University of Engineering & Technology (BUET), Dhaka, Bangladesh (2001)

✧ **Research Area:** Cyber-physical system (CPS), inkjet-printed flexible electronics, wearables, real-time AI for signal processing and disease monitoring, edge-computing, smart-health, embedded systems, hardware-software co-design, mHealth, smart and connected community.

✧ **Research Project Funding:** *Multiple internal and external research grants, total: ~$1M ($650k from NSF) as PI and ~$4.5M ($3.5M from NSF/NIH) as a collaborator. Recent projects are:*
- *"CPS: Small: Inkjet Printed Flexible Electronic CPS with Context-aware Events of Interest Detection",* Role: PI, Agency: CISE CPS, National Sci. Foundation (**NSF**), 2020-2022 (3 yrs), $500k.
- *"EAGER: Events-of-interest Capture Using Novel Body-worn Fully-passive Wireless sensors for Smart and Connected Community",* Role: PI, Agency: CISE S&CC, **NSF**, 2016-2020, $150k.
- *"Direct Inkjet Printable Low-voltage Active Flexible Electronic Component Fabrication",* Role: PI, Agency: University of Memphis Research Investment Fund (UMRIF), 2017-2019, $40k.
- *"Hybrid nanoparticles for capture and detection of circulating tumor cells",* Role: Co-I, PI: Dr. Huang (Chemistry, U. of Memphis), R15, National Institute of Health (**NIH**), 2015-2018, $400k.

✧ **Teaching Strengths:** Embedded Systems, Computer Organization, Computer Architecture & Interfacing, Microprocessor, MIPS and Intel Assembly, Bioelectronics, Cyber Physical Systems.

✧ **Publications:** 1.4k+ citations, 3 issued USPTO patents, 40+ journal articles, 5+ invited conference papers, 80+ refereed conference proceedings, 50+ posters/presentations, and 25+ invited talks.

✧ **Awards and Distinctions:** Faculty Research Award (2020), Faudree Professorship (2019-2020), IEEE Senior Member (2019), MHTI Scholar by NIH (2018), 2 best paper awards (2018, 2021), Ontario Graduate Scholarship (2007-08), OGS Science and Technology (2008), Indira Gandhi Memorial Fellowship (2004, 2006), Canadian Commonwealth Fellowship (2002-2004), Dean's list (1994-98).

1. EDUCATION

Degree	Passing Year	Major/Department	University/Institute
B.Sc.	2001	Electrical and Electronics Engineering (EEE)	Bangladesh University of Engineering and Technology (BUET), Bangladesh
M.A.Sc.	2004	Electrical and Computer Engineering (ECE)	The University of Windsor, Windsor, ON Canada
Ph.D.	2010	Electrical and Computer Engineering	Carleton University, Ottawa, ON Canada
Postdoc	2010-2011	Medical Devices Innovation Institute (MDI2)	The University of Ottawa Heart Institute, Ottawa, ON Canada

2. CAREER

Employment:

Duration	Position	Department / Institute	Organization
2020 – now	Associate Professor	Computer Science (CS)	Texas Tech University, Lubbock TX USA
2022 - now	Founder & CEO	-	AuroraX LLC, Lubbock TX USA
2021 – now	Founder	-	MiotSys LLC, Lubbock TX USA
2017 – 2020	Associate Professor	Electrical and Computer Engineering (EECE)	The University of Memphis, Memphis TN USA
2011 – 2017	Assistant Professor	Electrical and Computer Engineering (EECE)	The University of Memphis, Memphis TN USA
2011 - 2011	Project Lead (part-time)	Applied Research and Innovation (ARI)	Algonquin College, Ottawa ON Canada
2009 - 2011	Instructor (part-time)	School of Advanced Technology (SAT)	Algonquin College, Ottawa ON Canada
2009 – 2010	Research Scientist	Cardiovascular Devices Division (CDD)	The University of Ottawa, Ottawa ON Canada
2004 - 2009	Teaching Assistant	Department of Electronics (DoE)	Carleton University, Ottawa ON Canada
2004 - 2009	Research Assistant	Department of Electronics (DoE)	Carleton University, Ottawa ON Canada
2003 - 2004	Graduate Assistant	Electrical and Computer Engineering (ECE)	The University of Windsor, Windsor ON Canada
2002 - 2004	Research Assistant	Electrical and Computer Engineering (ECE)	The University of Windsor, Windsor ON Canada

| 2001 - 2001 | Instructor (part-time) | Institute of Information and Communication Technology (IICT) | Bangladesh University of Engineering and Technology (BUET), Bangladesh |
| 2001 - 2002 | Lecturer, Faculty (full-time) | Electrical and Electronic Engineering (EEE) | Bangladesh University of Engineering and Technology (BUET), Bangladesh |

Other Appointments and Affiliations:

Duration	Title	Department/Institute	Organization
2013 – 2017	Asst. Professor (Secondary appoint.)	Biomedical Engineering (BME)	The University of Memphis, Memphis TN
2013 – 2016	Adjunct Assistant Professor	Electrical Engineering and Computer Science (EECS)	The University of Tennessee at Knoxville (UTK), Knoxville TN
2013 – 2014	Adjunct Assistant Professor	College of Dentistry (CoD)	University of Tennessee Health Science Center (UTHSC), Memphis TN
2011 – 2020	Affiliate Faculty Member	Institute for Intelligent Systems (IIS)	The University of Memphis, Memphis TN
2013 – 2016	Affiliate Member	Institute of Biomedical Engineering (iBME)	The University of Tennessee at Knoxville, Knoxville, TN

3.   R E S E A R C H

Research Grant Proposal Awarded:

PI: Principal Investigator, Co-PI: Co-Principal Investigator, Co-I: Co-Investigator, SP: Senior Personal, SC: Shared Credit

Proposal Title	Role	Collaborators	Agency	Amount	Start	End
AuroraX LLC	TL	Mst Moriom Momota (EL)	I-Corps, TTU	$5,000	2/23	3/23
Flexible Super-Capacitor Fabrication with Inkjet Printing for Novel Energy Storage Solution	PI	(SC: 100%) None	Alt Energy Res, TTU	$14,500	7/22	8/22
MiotSys LLC	TL	Mahfuzur Rahman (EL)	I-Corps, TTU	$3,000	2/22	3/22
Inkjet Printed Multilayer Flexible Super-Capacitors for Low-cost Energy Storage Battery	PI	(SC: 100%) None	Alt Energy Res, TTU	$13,000	7/21	8/21

Proposal Title	Role (SC)	Collaborator(s)	Funding	Amount		
CPS: Small: Inkjet Printed Flexible Electronic CPS with Context-aware Events of Interest Detection	PI	(SC: 60%) CoPI: Fujiwara, Hewitt, Andrasik, Kabra	NSF CPS	$499,841	1/20	12/22
Learners' Data Institute: Harnessing the Data Revolution to Improve the Effectiveness, Efficiency, and Engagement of the Learning Ecosystem	SP (1 mo)	PI: Russ (IIS, UM); CoPIs: Grassier, Pavlik, etc.	NSF DIRSE	$2,586,708	1/20	12/21
Inkjet printed flexible and stretchable dry impedimetric electrodes	PI	CoPI: Sohye Lee, College of Nursing.	FIT Tech Dev	$10,000	12/19	6/20

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Proposal Title	Role (SC)	Collaborator(s)	Funding	Amount	Period
Fully Passive Wireless ECG and SpO2 Monitoring System on Smartphone Using Low-Cost Disposable Body-Worn Inkjet Printed Sensors	PI (SC:100%)	-	FIT Technology Development Grant	$20,000	2017-2018
Direct Inkjet Printable Low-voltage Active Flexible Electronic Component Fabrication	PI (SC: 25%)	Co-PI: Fujiwara (Chemistry, U Memphis); *et al*	UM/Research Investment Fund	$40,000	2017-2019
EAGER: Events-of-interest Capture Using Novel Body-worn Fully-passive Wireless sensors for S&CC	PI (SC: 85%)	Co-PI: Harmon (Public Health, U Memphis); *et al*	**NSF** CISE CNS	$150,000	2016-2020
Building a Scalable Infrastructure for Data-Driven Discovery and Innovation in Education	Co-PI (added: 2016-2019)	PI: Pavlik, U Memphis sub-award (IIS, U Memphis); *etc.*	NSF ACI, Lead: Carnegie Mellon University	$750,000 (UoM) $ 5,288,819 (total)	2015-2019
Fully-passive wireless continuous temperature sensing system using low-cost inkjet printed disposable body-worn sensors	PI (SC:100%)	-	FIT Technology Development Grant	$20,000	2016-2017
Hybrid nanoparticles for capture and detection of circulating tumor cells	Co-I (SC:30%)	PI: Huang (Chemistry, U Memphis); *etc.*	**NIH** R15	$405,435	2015-2018

Feasibility of integrating a flexible wearable neuro-sensing micro device for continuous cognitive neurological tracking in dementia	Co-PI	PI: Tak, (School of Nursing, U Memphis); *etc.*	FedEx Institute of Technology Foundation Grant	$290,000	2014-2016
Capture and Detection of CTC in Whole Blood Using Hybrid Nanoparticles and Microfluidic Devices	Co-PI (SC:30%)	PI: Huang, (Chemistry, U Memphis); *etc.*	FedEx Institute of Technology Innovation Fund	$122,919	2014
Dry Electrodes on Flexible Electronics (Phase 1)	PI (SC:100%)	-	FedEx Institute of Technology Innovation Fund	$43,920	2013-2014
Dry Electrodes on Flexible Electronics (Phase 2)	PI (SC:100%)	-	FedEx Institute of Technology Innovation Fund	$75,081	2014-2016
Dry Electrodes on Flexible Electronics (Equipment)	PI (SC:100%)	-	FedEx Institute of Technology Innovation Fund	$70,000	2015
Smart Multiple Stimuli-Responsive Biomaterials for Local Drug Delivery	Co-PI	PI: Haggard (Biomedical Engineering, U Memphis); *et al*	FedEx Institute of Technology Innovation Fund	$525,000	2012-2016
To Improve Teaching Strategies for Children with Developmental Delays Utilizing Wireless EEG	PI (SC:100%)	Special Kids and Families (SKF), Memphis, TN (NPO)	Strengthening Communities Initiative (SCI) Capacity Building	$18,000	2012-2014

Research Grant Proposal Pending:

Proposal Title	Role	Collaborators	Agency	Amount	Period	Submit
Collaborative Research: CPS: Medium: Multimodal Attachable Passive Patch Sensor (MAPPS) System for Epileptic Seizure Detection and Prediction for CPS Health	PI	Mahbub (UTD), Pati (UTHSCH), Fujiwara, Hewitt, Andrasik (UM)	NSF CPS	$629,000	8/23 – 7/26	Dec. 22, 2022
Inkjet-Printed Flexible Lightweight Supercapacitor for High Density Energy Storage	PI	CoPI: Li, Sub: Fujiwara (UM)	NSF EPCN	$500,000	1/23 - 12/25	July 12, 2022

4. PUBLICATION

Publication Pertaining Data

- *Google Scholar:* Total citations: 1,454. h-index: 18. i10-index: 37. Accessed on Apr. 11, 2023. Web-link: https://scholar.google.com/citations?hl=en&user=cffXbcgAAAAJ

Issued Patents

1. **B. I. Morshed** and R. Mahajan, "Fully Reconfigurable Modular Body-worn Sensors", USPTO Patent. United States Patent No. US 10,973,430 B2. Issue date: Apr. 13, 2021. (Patent Application: "Fully Reconfigurable Modular Body-Worn Sensors", USPTO Patent Application US 2016/0128596 A1, 12 May 2016. *International Patent Application,* PCT/US15/60293, filed Nov 12, 2015. Provisional patent application, No. 62/078,822, filed on 12 Nov. 2014).

2. **B. I. Morshed**, and S. Consul-Pacareu, "Wireless Analog Passive Sensors", USPTO Patent. United States Patent No. US 10,405,746 B2. Issue date: Sept. 10, 2019. (Patent Application: "Wireless Analog Passive Sensors". *USPTO Patent Application*, US 2015/029763 A1, 15 Oct. 2015. Patent application filed 14 Apr. 2015, Application # 14/686,275. Provisional app. no. 61/979,223, filed on 14 Apr. 2014.)

3. **B. I. Morshed**, "Multilayer Additive Printed Circuit", USPTO Patent. United States Patent No. US 10,182,499. Issue date: Jan 15, 2019. (Patent Application Pub. No. US 2017/0135215A1, May 11, 2017, filing date: Nov. 9, 2016; *USPTO Provisional Patent Application*, No. 62/252,706, filing date Nov. 9, 2015.)

Patent Applications

1. **B. I. Morshed** and Mahfuzur Rahman, "Intermediate Passive Wireless Loop Coil and Methods of Use Thereof", *USPTO PCT Patent Application*, Number: PCT/US2023/060019, filed on Jan. 03, 2023. (Older record: **B. I. Morshed** and Mahfuzur Rahman, "Intermediate Passive Wireless Loop Coil and Methods of Use Thereof", *USPTO Provisional Patent Application*, Number: 63296065, Filed Jan. 03, 2022.)

2. **B. I. Morshed** and M. Abu-Saude, "Apparatus and Method to Capture Body Signals with Conjugate Coils and Paired Coils", USPTO App. No. 16/396,701, Filed on May 7, 2019. (Updated

from Provisional patent application: **B. I. Morshed** and M. Abu-Saude, "Apparatus and Method to Capture Body Signals with Conjugate Coils and Paired Coils", USPTO Provisional Patent Application, No. 62/664,329, Filed on Apr. 30, 2018.)

3. A. Mohapatra, J. A. Jennings, W. O. Haggard, J. Bumgardner, **B. I. Morshed**, S. R. Misra, T. Fujiwara, G. McGraw, and J. M. Berretta, "Microbead Compositions and Methods for Delivering an Agent", *USPTO Provisional Patent Application*, No. USSN 52/401,751, filed on Sept. 29, 2016.

Provisional Patent Application

1. **B. I. Morshed** and Mst Moriom R. Momota, "Fabrication of Supercapacitors with Inkjet Printed Manufacturing", USPTO Provisional Patent Application, Number: 63439906, Filed Jan. 19, 2023.

Book

1. **B. I. Morshed**, "Embedded Systems - A Hardware-Software Co-Design Approach", by Springer, published in Apr. 2021. DOI https://doi.org/10.1007/978-3-030-66808-2. Hardcover ISBN 978-3-030-66807-5. eBook ISBN 978-3-030-66808-2.

Book Chapter

1. **B. I. Morshed**, "Electrical Cell Lysis on Microfluidic Devices", in "Microfluidics and BioMEMS: Devices and Applications", Ed. T. S. Santra, *Jenny Stanford Publishing: Singapore*, published: 31 Aug. 2020. [ISBN 978-981-4800-85-3 (Hardcover), 978-1-003-01493-5 (eBook), Online: https://www.routledge.com/Microfluidics-and-BioMEMS-Devices-and-Applications/Santra/p/book/9789814800853]

Refereed Journal Articles

1. Md Nayeem H. Kashem, Karl Gardner, Moriom R. Momota, **Bashir I. Morshed**, and Wei Li, "Deciphering the Correlation between Color Response, Temperature, and Relative Humidity in a Photo-patternable Polymeric Nanofilm for Tunable Multimodal Display", *Chemical Engineering Journal*, vol. 463, article 142333, 1 May 2023. DOI: 10.1016/j.cej.2023.142333

2. Mst. M. R. Momota, **Bashir I. Morshed**, Tamanna Ferdous, and Tomoko Fujiwara, "Fabrication and Characterization of Inkjet Printed Flexible Dry ECG Electrodes", *IEEE Sensors Journal*, vol. 23, no. 7, pp. 7917-7928, 1 Apr. 2023. DOI: 10.1109/JSEN.2023.3250103

3. Md. M. H. Shuvo, S. K. Islam, J. Cheng, and **Bashir I. Morshed**, "Efficient Acceleration of Deep Learning Inference on Resource-Constrained Edge Devices: A Review", *Proceedings of the IEEE*, vol. 111, no. 1, pp. 42-91, 14 Dec. 2022.

4. Mst M. R. Momota, and **Bashir I. Morshed**, "ML Algorithms to Estimate Data Reliability Metric of ECG from Inter-Patient Data for Trustable AI-based Cardiac Monitors", *Smart Health Journal*, Elsevier, vol. 26, 100350, Dec. 2022. https://doi.org/10.1016/j.smhl.2022.100350

5. Md Juber Rahman and **B. I. Morshed**, "A Minimalist Method Toward Severity Assessment and Progression Monitoring of Obstructive Sleep Apnea on the Edge", *ACM Trans on Computing for Healthcare,* vol. 3, no. 2, article 16, pp. 1-16, Apr. 2022.

6. Md Juber Rahman, **B. I. Morshed**, and C. Preza, "A Smart Health (sHealth) Centric Method Toward Estimation of Sleep Deficiency Severity from Wearable Sensor Data Fusion", *MDPI BioMedInformatics Journal*, vol. 1, no. 3, pp. 106-126, 26 Oct. 2021.

7. Md Juber Rahman, **B. I. Morshed**, Brook Harmon, and Mamunur Rahman, "A pilot study toward a smart-health framework to collect and analyze biomarkers with low-cost and flexible wearables in a smart and connected community", *Elsevier Smart Health Journal*, vol. 23, article 100249, Mar. 2022. https://doi.org/10.1016/j.smhl.2021.100249

8. Md Sabbir Zaman and **B. I. Morshed**, "A Low-power Portable Scanner Device for Body-worn Wireless Resistive Analog Passive (WRAP) Sensors for mHealth Applications", *Elsevier Measurement Journal*, vol. 177, article 109214, Jun. 2021. https://doi.org/10.1016/j.measurement.2021.109214

9. B. Noroozi and **B. I. Morshed**, "Design and Optimization of Printed Spiral Coils for Wireless Passive Sensors", *IET Wireless Sensor Systems*, vol. 11, no. 4, pp. 16-178, 10 Mar. 2021. https://doi.org/10.1049/wss2.12019

10. R. E. Wilson Jr, R. O'Connor, C. E. Gallops, E. A. Kwizera, B. Noroozi, **B. I. Morshed**, Y. Wang, and X. Huang, "Immunomagnetic Capture and Multiplexed Surface Marker Detection of Circulating Tumor Cells with Magnetic Multicolor Surface Enhanced Raman Scattering Nanotags", *ACS Applied Materials and Interfaces*, Sept. 2020.

11. J. T. Ramshur, **B. I. Morshed**, A. L. J. Curry, and R. S. Waters, "Telemetry-Controlled Simultaneous Stimulation-and-recording Device (SRD) to Study Interhemispheric Cortical Circuits in Rat Primary Somatosensory (SI) Cortex", *BMC Biomedical Engineering J.*, vol. 1, no. 19, Dec. 2019.

12. S. Khatun, **B. I. Morshed**, and G. M. Bidelman, "A Single-Channel EEG-Based Approach to Detect Mild Cognitive Impairment via Speech-Evoked Brain Responses", *IEEE Trans. Neural Systems and Rehabilitation Engineering (TNSRE)*, vol. 27, no. 5, pp. 1063-1070, May 2019.

13. A. Mohapatra, C. Wells, J. Jennings, M. Ghimire, S. Mishra, and **B. Morshed**, "Electric Stimulus-Responsive Chitosan/MNP Composite Microbeads for a Smart Drug Delivery System", *IEEE Trans Biomedical Engineering (TBME)*, vol. 67, no. 1, pp. 226-233, Jan. 2020.

14. J. Hadley, J. Hirschman, **B. I. Morshed**, and F. Sabri, "RF Coupling of Interdigitated Electrode Array on Aerogels for in vivo Nerve Guidance Applications", MRS Advances, vol. 3, no. 21, pp. 1237-1244, 7 Mar. 2019.

15. R. Mahajan, **B. I. Morshed**, and G. M. Bidelman, "BRAINsens: Body-worn Reconfigurable Architecture of Integrated Network Sensors", *Journal of Medical Systems*, vol. 42, no. 185, pp. 1-14, Oct. 2018.

16. A. Mohapatra, M. A. Harris, D. LeVine, M. Ghimire, J. A. Jennings, **B. I. Morshed**, W. O. Haggard, J. D. Bumgardner, S. R. Mishra, and T. Fujiwara, "Magnetic Stimulus Responsive Vancomycin DDS Based on Chitosan Microbeads Embedded with Magnetic Nanoparticles", *J Biomedical Materials Research B: Applied Biomaterials*, vol. 106B, no. 6, pp. 2169-2176, Aug. 2018.

17. M. Abu-Saude and **B. I. Morshed**, "Characterization of a Novel Polypyrrole (PPy) Conductive Polymer Coated Patterned Vertical CNT (pvCNT) Dry ECG Electrode", *MDPI Chemosensors J.*, vol. 6, no. 3, article 27, 12 pages, 13 June 2018.

18. S. Consul-Pacareu, and **B. I. Morshed**, "Design and analysis of a novel wireless resistive analog passive sensor technique", *IET Wireless Sensor Systems*, vol. 8, no. 2, pp. 45-51, 2018.

19. **B. I. Morshed**, B. Harmon, M. S. Zaman, M. J. Rahman, S. Afroz, and M. Rahman, "Inkjet Printed Fully-passive Body-worn Wireless Sensors for Smart and Connected Community (SCC)", *J. Low Power Electron. Appl.*, vol. 7, no. 4, article 26, pp. 1-21, Nov. 2017. doi:10.3390/jlpea7040026.

20. A. C. Graesser, X. Hu, B. D. Nye, K. VanLehn, R. Kumar, C. Heffernan, N. Heffernan B. Woolf, A. M. Olney, V. Rus, F. Andrasik, P. Pavlik, Z. Cai, J. Wetzel, B. Morgan, A. J. Hampton, A. M. Lippert, L. Wang, Q. Chen, J. E. Vinson IV, C. N. Kelly, C. McGlown, C. A. Majmudar, **B. Morshed**, and W. Baer, "ElectronixTutor: an intelligent tutoring system with multiple learning resources for electronics", *International Journal of STEM Education*, vol. 5, number 1, pages 15, Jan 2017.

21. M. Harris, H. Ahmed, B. Barr, D. LeVine, L. Pace, A. Mohapatra, **B. Morshed**, J. D. Bumgardner, and J. A. Jennings, "Magnetic Stimuli-Responsive Chitosan-based Drug Delivery Biocomposite for Multiple Triggered Release," *International Journal of Biological Macromolecules,* vol. 104, Part B, pp. 1407-1414*,* Nov. 2017. doi: 10.1016/j.ijbiomac.2017.03.141

22. S. Consul-Pacareu, R. Mahajan, M. J. AbuSaude, and **B. I. Morshed**, "NeuroMonitor: A Low-power, Wireless, Wearable EEG Device with DRL-less AFE", *IET Circuits, Devices & Systems Journal*, vol. 11, no. 5, pp. 471-477, Sept. 2017.

23. B. Noroozi and **B. I. Morshed**, "PSC Optimization of 13.56-MHz Resistive Wireless Analog Passive Sensors", *IEEE Trans. Microwave Theory and Techniques*, vol. 65, no. 9, pp. 3548-3555, Sept. 2017.

24. C. A. Majmudar and **B. I. Morshed**, "Autonomous OA Removal in Real-Time from Single Channel EEG Data on a Wearable Device Using a Hybrid Algebraic-Wavelet Algorithm", *ACM Transactions on Embedded Computing Systems*, vol. 16, no. 1, pp, 20:1-20:16, Oct. 2016.

25. R. Mahajan and **B. I. Morshed**, "Performance Analysis of a DRL-less AFE for Battery-Powered Wearable EEG Measurement", *Measurement Journal Elsevier*, vol. 90, pp. 583-591, 2016.

26. S. Khatun, R. Mahajan, and **B. I. Morshed**, "Comparative Study of Wavelet Based Unsupervised Ocular Artifact Removal Techniques for Single Channel EEG Data", *IEEE Journal of Translational Engineering in Health and Medicine (JTEHM)*, vol. 4, no. 1, pp. 1-8, Dec. 2016.

27. A. Mohapatra, **B. I. Morshed**, W. O. Haggard, and R. A. Smith, "Stealth Engineering for in vivo Drug Delivery Systems", *Critical Reviews in Biomedical Engineering*, vol. 43, no. 5-6, pp. 347-369, 2015.

28. M. J. Abu-Saude and **B. I. Morshed**, "Patterned Vertical Carbon Nanotube (pvCNT) Dry Electrodes for Impedimetric Sensing and Stimulation", *IEEE Sensors J.*, vol. 15, no. 10, pp. 5851-5858, 2015.

29. P. Boyer, **B. I. Morshed**, and T. Mussivand, "Medical Device Market in China", *Artificial Organs J.,* vol. 39, no. 6, pages 520–525, June 2015. DOI: 10.1111/aor.12427.

30. R. Mahajan and **B. I. Morshed**, "Unsupervised Eye Blink Artifact Denoising of EEG Data with Modified Multiscale Sample Entropy, Kurtosis, and Wavelet-ICA", *IEEE J. Biomedical and Health Informatics,* vol. 19, no. 1, pp. 158-165, 2015.

31. **B. I. Morshed** and A. Khan, "A Brief Review of Technologies and Challenges to Monitor Brain Activities", *J. Bioengineering & Biomedical Sciences,* vol. 4, no. 1, pp. 1-10, 2014.

32. M. J. I. A. Saude, and **B. I. Morshed**, "Electrostatics of Single-Stranded DNA: A Prospective for Single Molecule Sequencing", *Biophysical Reviews and Letters,* vol. 9, no. 1, pp. 105-114, 2014. DOI: 10.1142/S1793048013500100.

33. **B. I. Morshed**, M. Shams, and T. Mussivand, "Investigation of Low-voltage Pulse Parameters on Electroporation and Electrical Lysis Using a Microfluidic Device with Interdigitated Electrodes", *IEEE Trans Biomedical Engineering,* vol. 61, no. 3, pp. 871-882, 2014. DOI: 10.1109/ TBME.2013.2291794.

34. S. Li, Q. Yuan, **B. I. Morshed**, C. Ke, J. Wu, and H. Jiang, "Dielectrophoretic Responses of DNA and Fluorophore in Physiological Solution by Impedimetric Characterization", *J. Biosensors and Bioelectronics (Elsevier)*, vol. 41, pp. 649–655, 2013.

35. **B. I. Morshed**, M. Shams, and T. Mussivand, "Electrical Lysis: Dynamics Revisited and Advances in On-chip Operation", *Critical Reviews in Biomedical Engineering,* vol. 41, no. 1, pp. 37-50, 2013.

36. C. S. Ivanoff, **B. I. Morshed**, T. L. Hottel, and F. Garcia-Godoy, "Fluoride Uptake by Human Tooth Enamel: Topical Application Versus Combined Dielectrophoresis and AC Electroosmosis", *American Journal of Dentistry*, vol. 26, no. 4, June 2013.

37. **B. I. Morshed**, M. Shams, and T. Mussivand, "Analysis of Electric Fields Inside Microchannels and Single Cell Electrical Lysis with a Microfluidic Device", *Micromachines, Special issue: Micro/Nanofluidic Device for Single Cells Analysis,* vol. 4, no. 2, pp. 243-256, 2013.

38. **B. I. Morshed**, M. Shams, and T. Mussivand, "Deriving an Electric Circuit Equivalent Model of Cell Membrane Pores in Electroporation", *Biophysical Reviews and Letters,* vol. 7, no. 4, pp. 1 – 12, 2012.

39. **B. I. Morshed**, M. Shams, and T. Mussivand, "A Simple and Effective Fluidic Encapsulation Protocol for BioMEMS Devices", *IEICE Electronics Express*, vol. 8, no. 19, pp. 1549-1555, Oct. 2011.

40. **B. I. Morshed**, M. Shams, and T. Mussivand, "Identifying Severity of Electroporation Through Quantitative Image Analysis," *Applied Physics Letters*, vol. 98, no. 14, pp. 143704 – (1-3), April 2011.

41. **B. I. Morshed** and B. Shahrrava, "A Low Complex Decoding Method for Space-Time Block Codes with Partial CSI", *GESTS Intl. Trans. on Computer Science and Engineering*, vol. 27, no. 1, pp. 53-64, Jan. 2006.

Other Articles

1. D. Arellano and **B. I. Morshed**, "Wireless Analog Passive Sensors for Small Bioelectric Signal Measurement Through Load Modulation", *QuaesitUM UG Research J.*, Spring 2015 Issue, pp. 31-41, 2015.

2. **B. I. Morshed** and A. Massa, "Cutting-Edge Technology for a Cognitive Load Performance Assessment System," *MEDS Magazine* (Cover article), pp. 16-18, Nov. 2013.

3. **B. I. Morshed**, "Relationship Between Fleming's Rules", *BUET Tech Journal 97-98*, pp. 18-22, 1998.

4. P. Krishnan, V. Rajagopalan, and **B. I. Morshed**, "ECG Beat based Cardiac Disease Progression Monitoring for Wearables", *Pre-publication available at TechRxiv*, Dec. 2020. (https://www.techrxiv.org/articles/preprint/ECG_Beat_based_Cardiac_Disease_Progression_Monitoring_for_Wearables/13298864)

Refereed Conference Proceedings

1. **Bashir I. Morshed**, Mst Moriom R. Momota, and Tomoko Fujiwara, "Characterization of Inkjet-Printed Stacked MIM Thin-film Solid-State Flexible Super-Capacitor", *IEEE Intl Conf on Electro/Information Technology (EIT)*, Romeoville, IL, May 18-20 2023. (submitted)

2. Nabonita Mitra and **Bashir I. Morshed**, "Detection of Situational Context From Minimal Sensor Modality of A Smartphone Using Machine Learning Algorithm", *IEEE Intl Conf on Electro/Information Technology (EIT)*, Romeoville, IL, May 18-20 2023. (submitted)

3. Ucchwas T. Uthas and **Bashir I. Morshed**, "A Smartphone App for Real-time Heart Rate Computation from Streaming ECG/EKG data", *IEEE Intl Conf on Electro/Information Technology (EIT)*, Romeoville, IL, May 18-20 2023. (submitted)

4. Mst. Moriom R. Momota, Tamanna Ferdous, Tomoko Fujiwara, and **Bashir I. Morshed**, "Fabrication and Characterization of Flexible Solid-State MIM Supercapacitor with Inkjet-Printing of Stacked Ag NP and Polymer Dielectric Layers", *IEEE Dallas Circuits and Systems (DCAS)*, 14-16 Apr. 2023. *(invited)*

5. **B. I. Morshed**, Mst Moriom R. Momota, and Mahfuzur Rahman, "Extended Range Wireless Power Transfer with Inkjet Printed Thin-film Flexible Loop Coils", Invited Paper, (Special session: Wireless Power Transfer Techniques for Biomedical Applications), *National Radio Science Meeting*, Boulder, CO, Jan. 10-14, 2023. *(invited)*

6. Mahfuzur Rahman and **B. I. Morshed**, "Implementation of Intermediate Passive Loop Coil to extend the range of Qi Charging", IEEE MTT-S International Microwave Biomedical Conference (IMBioC), Suzhou, China, May 16-18, 2022. *(invited)*

7. **B. I. Morshed** and Mahfuzur Rahman, "Extending Range of Wireless Power Transfer Using a Novel Intermediate Passive Loop with Coils", Invited Paper, (Special session: Dosimetry and Exposure Assessment), *National Radio Science Meeting*, Boulder, CO, Jan. 4-8, 2022. *(invited)*

8. P. Krishnan, V. Rajagopalan, and **B. I. Morshed**, "A Novel Severity Index of Heart Disease from Beat-wise Analysis of ECG Using Fuzzy Logic for Smart-Health", Invited Paper, *IEEE International Conf on Consumer Electronics (ICCE),* Las Vegas, NV, 4-6 Jan. 2020. *(invited)*

9. **B. I. Morshed**, "Inkjet Printed Thin Film Technology for Wireless Biosensors", Invited Paper, Session D4, *Intl. Conf. on Metallurgical Coating and Thin Films*, San Diego, CA, April 25-29, 2016. *(invited)*

10. **B. I. Morshed**, "Dual Coil for Remote Probing of Signals using Resistive Wireless Analog Passive Sensors (rWAPS)", Invited Paper, Commission B (Special session: Wearable Antennas and Electronics), *National Radio Science Meeting*, Boulder, CO, Jan. 6-9, 2016. *(invited)*

11. Mahfuzur Rahman, Robert Hewitt, and **Bashir I. Morshed**, "Design and Packaging of a Custom Single-lead Electrocardiogram (ECG) Sensor Embedded with Wireless Transmission", *IEEE Dallas Circuits and Systems (DCAS)*, 14-16 Apr. 2023.

12. Nabonita Mitra and **Bashir I. Morshed**, "Analyzing Clinical 12-Lead ECG Images Using Deep Learning Algorithms for Objective Detection of Cardiac Diseases", *IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON),* New York, NY, 26-29 Oct. 2022.

13. I Hua Tsai and **Bashir I. Morshed**, "Detecting PVC Beats by Beat-by-beat Analysis of ECG Signals Using Machine Learning Classifiers for Real-time Predictive Cardiac Health Monitoring", *IEEE Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON),* New York, NY, 26-29 Oct. 2022.

14. I Hua Tsai and **Bashir I. Morshed**, "Beat-by-Beat Classification of ECG Signals Using Machine Learning Algorithms to Detect PVC Beats for Real-time Predictive Cardiac Health Monitoring", *Intl. Conf. on Bioinformatics and Biomedicine (BIBM)*, Las Vegas, NV, 6-8 Dec. 2022.

15. Mst M. R. Momota, and **Bashir I. Morshed**, "ML Algorithms to Estimate Data Reliability Metric of ECG from Inter-Patient Data for Trustable AI-based Cardiac Monitors", *IEEE/ACM Intl. Conf. on Connected Health: Applications, Systems, and Engineering Technologies (CHASE) Conf.*, Washington DC, USA, Nov. 17-19, 2022.

16. Madison Davis and **Bashir I. Morshed**, "Classification of COVID-19 Disease Severity using CT Scans via Deep Convolutional Neural Networks", *IEEE Intl. Conf. On Electro/Information Technology (EIT)*, Minnesota State University, MN, USA, May 15-19, 2022.

17. I Hua Tsai and **Bashir I. Morshed**, "Beat-by-beat Classification of ECG Signals with Machine Learning Algorithm for Cardiac Episodes", *IEEE Intl. Conf. On Electro/Information Technology (EIT)*, Minnesota State University, MN, USA, May 15-19, 2022.

18. Nabonita Mitra and **Bashir I. Morshed**, "Automatic Detection of Situational Contexts Using AI from Minimal Sensor Modality", *IEEE Intl. Conf. On Electro/Information Technology (EIT)*, Minnesota State University, MN, USA, May 15-19, 2022.

19. Mahfuzur Rahman and **Bashir I. Morshed**, "Extraction of Respiration Rate from Wrist ECG Signals'", *IEEE Ubiquitous Computing, Electronics, and Mobile Communication Conf.* (UEMCON), (in press), Dec. 1-4, 2021. *(Best presentation award in embedded system track)*

20. **B. I. Morshed**, "Smart Health Integrated Framework and Topology (SHIFT) for Smart and Connected Community", *IEEE International Conf on Electro-Information Technology*, Mount Pleasant, MI, May 13-15, 2021.

21. Md S. Zaman and **B. I. Morshed**, "Generalization of Data Reliability Metric (DReM) Mechanism for Pulsatile Bio-signals", *IEEE International Conf on Electro-Information Technology*, Mount Pleasant, MI, May 13-15, 2021.

22. Mst M. R. Momota, A. Mohapatra, and **B. I. Morshed**, "Finite Element Simulation of Inkjet Printed Flexible Parallel Plate MIM Capacitors on Polyimide Film", *IEEE International Conf on Electro-Information Technology*, Mount Pleasant, MI, May 13-15, 2021. *(Best paper award)*

23. Mahfuzur Rahman and **B. I. Morshed**, "Estimation of Respiration Rate using an Inertial Measurement Unit Placed on Thorax-Abdomen", *IEEE International Conf on Electro-Information Technology*, Mount Pleasant, MI, May 13-15, 2021.

24. Md. J. Rahman and **Bashir I. Morshed**, "A Novel Method for Sleep Score Estimation Using Wearable Sensors with a Deep Sequential Neural Network", *IEEE International Conf on Electro-Information Technology*, Mount Pleasant, MI, May 13-15, 2021.

25. B. Noroozi and **B. I. Morshed**, "Study the Effects of Misalignments in the Printed Spiral Inductive Coils for the Passive Wearable Sensors", *14TH IEEE Dallas Circuits and Systems Conf. (DCAS)*, Nov. 15-16, 2020.

26. M. M. R. Momota, and **B. I. Morshed**, "Inkjet Printed Flexible Electronic Dry ECG Electrodes on Polyimide Substrates Using Silver Ink", *IEEE Electro Information Tech (EIT) Conf*, Oakland, MI, Jul. 31 – Aug. 1, 2020.

27. M. J. Rahman, **B. Morshed**, and B. Harmon, "A Field Study to Capture Events of Interest from Living Labs Using Everyday Wearables for Spatiotemporal Monitoring Towards Smart Health", *IEEE Engineering in Medicine and Biology Conf. (EMBC)*, Montreal, QC, July 2020.

28. M. S. Zaman, and **B. Morshed**, "Estimating Reliability of Signal Quality of Physiological Data from Data Statistics Itself for Real-time Wearables", *IEEE Engineering in Medicine and Biology Conf. (EMBC)*, Montreal, QC, July 2020.

29. H. Gollakota and **B. I. Morshed**, "A Novel Severity Ranking Approach for Continuous Monitoring of Heart Disease Progression Using Beat-wise Classification of ECG", *IEEE Electro-Information Technology (EIT) Conf.*, Brookings, SD, May 20-22, 2019.

30. M. J. Rahman and **B. I. Morshed**, "SCC Health: A Framework for Online Estimation of Disease Severity for the Smart and Connected Community", *IEEE Electro-Information Technology (EIT) Conf.*, Brookings, SD, May 20-22, 2019.

31. B. Noroozi and **B. I. Morshed**, "The effect of Resonator Configurations on the optimized sensitivity in the Wireless Resistive Analog Passive (WRAP) sensors", *IEEE Electro-Information Technology (EIT) Conf.*, Brookings, SD, May 20-22, 2019.

32. A. Mohapatra, M. A. Harris, D. A. LeVine, M. Grimire, **B. I. Morshed**, J. A. Jennings, J. Bumgardner, W. O. Haggard, S. R. Mishra, and T. Fujiwara, "Magnetic Stimulus Responsive DDS Based on Chitosan Microbeads Embedded with Magnetic Nanoparticles", *IEEE Engineering in Medicine and Biology Conf. (EMBC)*, Berlin, Germany, July 23-27, 2019.

33. M. J. Rahman, R. Mahajan, and **B. I. Morshed**, "Exacerbation in Obstructive Sleep Apnea: Early Detection and Monitoring Using a Single Channel EEG with Quadratic Discriminant Analysis", *IEEE EMBS Conference on Neural Engineering (NER)*, San Francisco, CA, 20-23 Ma. 2019.

34. **B. I. Morshed**, "Ultra Low-power Inductively Coupled Wearable ECG Sensor Design with Inkjet Printed Dry Electrodes", Special session: Wearable, Implants, and Body-Area Networks (BK), *National Radio Science Meeting*, Boulder, CO, Jan. 9-12, 2019.

35. M. J. Rahman and **B. I. Morshed**, "Improving Accuracy of Inkjet Printed Core Body WRAP Temperature Sensor Using Random Forest Regression Implemented with an Android App", Special session: Wearable, Implants, and Body-Area Networks (BK), *National Radio Science Meeting*, Boulder, CO, Jan. 9-12, 2019.

36. S. Afroz and **B. I. Morshed**, "Web Visualization of Temporal and Spatial Health Data from Smartphone App in Smart and Connected Community (SCC)", *IEEE International Smart Cities Conference (ISC2),* Kansas City, MO, Sept. 16-19, 2018.

37. A. Mohapatra, S. K. Tuli, K. Liu, T. Fujiwara, R. W. Hewitt Jr., F. Andrasik, and **B. I. Morshed**, "Inkjet Printed Parallel Plate Capacitors Using PVP Polymer Dielectric Ink on Flexible Polyimide Substrates", *IEEE Engineering in Medicine and Biology Conference (EMBC)*, Honolulu, HI, July 17-21, 2018.

38. B. Noroozi and **B. I. Morshed**, "Sensitivity Optimization of Printed Spiral Coil for Wireless Resistive Analog Passive (WRAP) Sensors using Genetic Algorithm", *IEEE Engineering in Medicine and Biology Conference (EMBC)*, Honolulu, HI, July 17-21, 2018.

39. T. Siddiqui and **B. I. Morshed**, "Severity Classification of Chronic Obstructive Pulmonary Disease and Asthma with Heart Rate and SpO2 Sensors", *IEEE Engineering in Medicine and Biology Conference (EMBC)*, Honolulu, HI, July 17-21, 2018.

40. M. Abu-Saude and **B. I. Morshed**, "Accessing Differential Measures with a Conjugate Coil-pair for Wireless Resistive Analog Passive (WRAP) ECG Sensors", *IEEE Electro-Information Technology (EIT) Conf.*, Oakland, MI, May 3-5, 2018. *(Best paper award)*

41. S. Khatun, **B. I. Morshed**, and G. M. Bidelman, "Single Channel EEG Based Score Generation to Monitor the Severity and Progression of Mild Cognitive Impairment", *IEEE Electro-Information Technology (EIT) Conf.*, Oakland, MI, May 3-5, 2018.

42. S. Khatun and **B. I. Morshed**, "Fully-Automated Human Activity Recognition with Transition Awareness from Wearable Sensor Data for mHealth", *IEEE Electro-Information Technology (EIT) Conf.*, Oakland, MI, May 3-5, 2018.

43. T. Siddiqui and **B. I. Morshed**, "Severity Exploratory Model Analysis of Chronic Obstructive Pulmonary Disease and Asthma with Heart Rate and SpO2", *IEEE Electro-Information Technology (EIT) Conf.*, Oakland, MI, May 3-5, 2018.

44. M. S. Zaman and **B. I. Morshed**, "Design and Verification of a Portable Scanner for Body-worn Wireless Resistive Analog Passive (WRAP) Sensors", *IEEE Electro-Information Technology (EIT) Conf.*, Oakland, MI, May 3-5, 2018.

45. Graesser, A. C., Hampton, A. J., Morgan, B. Wang, L., Majmudar, C. A., **Morshed, B. I.,** Hu, X., Nye, B. D., Cai, Z., Tackett, A. C., & Olney, A. "ElectronixTutor: An adaptive learning platform with multiple resources" *In Proceedings of the interservice/industry training, simulation, & education conference (I/ITSEC '18)*, Orlando, FL, Nov. 26–30, 2018.

46. M. J. Rahman, R. Mahajan, and **B. I. Morshed**, "Severity Classification of Obstructive Sleep Apnea Using Only Heart Rate Variability Measures with an Ensemble Classifier", *IEEE conf Biomedical and Health Informatics (BHI)*, Las Vegas, NV, pp. 33-36, 2018.

47. A. Mohapatra, **B. I. Morshed**, S. Shamsir, and S. K. Islam, "Inkjet Printed Thin Film Electronic Traces on Paper for Low-cost Body-worn Electronic Patch Sensors", *IEEE conf Body Sensor Networks (BSN)*, Las Vegas, NV, pp. 169-172, 2018.

48. **B. I. Morshed**, "Wireless Resistive Analog Passive Temperature Sensors for Smart & Connected Community", Commission B (Special session: Wearable Antennas and Electronics), *National Radio Science Meeting*, Boulder, CO, Jan. 4-6, 2018.

49. B. Noroozi and **B. I. Morshed**, "Coil Distance and Angle Misalignment Effects on the Mutual Inductance for 13.56 MHz WRAP Sensors", Commission B (Special session: Wearable Antennas and Electronics), *National Radio Science Meeting*, Boulder, CO, Jan. 4-6, 2018.

50. R. Mahajan, B. Noroozi, and **B. I. Morshed**, "Reconfigurable Architecture of Neuro-physiological Sensors for Mobile Health System", *The Second IEEE/ACM Conf on Connected Health: Applications, Systems, and Engineering Technologies (CHASE)*, Philadelphia, PA, pp. 402-409, July 17-19, 2017. DOI: 10.1109/CHASE.2017.124.

51. A. Mohapatra, M. A. Harris, M. Ghimire, **B. I. Morshed**, J. A. Jennings, W. O. Haggard, J. D. Bumgardner, S. R. Mishra, and T. Fujiwara, "Chitosan Microbeads with MNP on Printed Electrodes

for Electric Stimulus Responsive Drug Delivery," *IEEE Intl. Symp. Medical Measurements and Applications (MeMeA)*, Rochester, MN, pp. 464-469, May 7-10, 2017.

52. S. Khatun and **B. I. Morshed**, "Detection of Myocardial Infarction and Arrhythmia from Single-Lead ECG Data using Bagging Trees Classifier," *IEEE Electro-Information Technology (EIT)*, pp. 520-524, 2017.

53. S. Khatun, **B. I. Morshed**, and G. M. Bidelman, "Single Channel EEG Time-Frequency Features to Detect Mild Cognitive Impairment," *IEEE Intl. Symp. Medical Measurements and Applications (MeMeA)*, Rochester, MN, pp. 437-442, May 7-10, 2017.

54. **B. I. Morshed**, "Impedance Phlebography Based Pulse Sensing Using Inductively-Coupled Inkjet-Printed WRAP Sensor", Commission B (Special session: Wearable Antennas and Electronics), *National Radio Science Meeting*, Boulder, CO, Jan. 4-6, 2017.

55. B. Noroozi and **B. I. Morshed**, "Simulation of Coil Separation and Angle Effects on the Mutual Inductance for 13.56 MHz WRAP Sensors", Commission B (Special session: Wearable Antennas and Electronics), *National Radio Science Meeting*, Boulder, CO, Jan. 4-6, 2017.

56. A. L. Curry, V. Pellicer-Morata, **B. Morshed**, S. Narayana, and R. S. Waters, "Interhemispheric Pathway Modulation Between Homotopic Sites in Rat Primary Motor Cortex (MI) Leads to Expression of New Motor Output in Ipsilateral Forelimb", Society for Neuroscience meeting, San Diego, CA, Nov. 12-16, 2016.

57. R. Mahajan, **B. I. Morshed**, and G. M. Bidelman, "Design and validation of a wearable "DRL-less" EEG using a novel fully-reconfigurable architecture", *IEEE Engineering Medicine and Biology Society Conf.,* Orlando, FL, Aug. 16-20, pp. 4999-5002, 2016.

58. B. Noroozi and **B. I. Morshed**, "Formal Method for PSC Design Optimization of 13.56 MHz Resistive Wireless Analog Passive Sensors (rWAPS)", *IEEE Topical Conf. Biomedical Wireless Technologies, Networks, and Sensing Systems (BioWireleSS)*, Jan. 24-27, 2016. (DOI: 10.1109/BIOWIRELESS.2016.7445547)

59. M. Abu-Saude and **B. I. Morshed**, "Polypyrrole (PPy) Conductive Polymer Coating of Dry Patterned Vertical CNT (pvCNT) Electrode to Improve Mechanical Stability", *IEEE Topical Conf. Biomedical Wireless Technologies, Networks, and Sensing Systems (BioWireleSS)*, Jan. 24-27, 2016. (DOI: 10.1109/BIOWIRELESS.2016.7445569)

60. S. Khatun, R. Mahajan, and **B. I. Morshed**, "Comparative Analysis of Wavelet Based Approaches for Reliable Removal of Ocular Artifacts from Single Channel EEG," *IEEE Electro/Information Technology (EIT)*, Dekalb, IL, pp. 335-340, 21-23 May 2015. (doi: 978-1-4799-8802-0)

61. C. Majmudar, R. Mahajan, and **B. I. Morshed**, "Real-Time Hybrid Ocular Artifact Detection and Removal for Single Channel EEG", *IEEE Electro/Information Technology (EIT)*, Dekalb, IL, pp. 330-334, 21-23 May 2015.

62. M. Abu-Saude, S. Consul-Pacareu, and **B. I. Morshed**, "Feasibility of Patterned Vertical CNT for Dry Electrode Sensing of Physiological Parameters", *IEEE Biowireless Conf*, pp. 1-4, 2015. (doi: 10.1109/BIOWIRELESS.2015.7152124)

63. S. Consul-Pacareu, D. Arellano, and **B. I. Morshed**, "Body-worn Fully-Passive Wireless Analog Sensors for Biopotential Measurement Through Load Modulation", *IEEE Biowireless Conf*, pp. 1-3, 2015. (doi: 10.1109/BIOWIRELESS.2015.7152116)

64. S. Consul-Pacareu, D. Arellano, and **B. I. Morshed**, "Body-worn Fully-Passive Wireless Analog Sensors for Physiological Signal Capture Through Load Modulation using Resistive Transducers," *IEEE Healthcare Innovations and Point-of-Care Technologies Conf.*, Seattle, WA, pp. 67-70, Oct. 2014.

65. R. Mahajan, C. A. Majmudar, S. Khatun, **B. I. Morshed**, and G. M. Bidelman, "NeuroMonitor Ambulatory EEG Device: Comparative Analysis and Its Application for Cognitive Load Assessment", *IEEE Healthcare Innovations and Point-of-Care Technologies Conf.*, Seattle, WA, pp. 133-136, Oct. 2014.

66. *A. Mohapatra, G. McGraw, **B. I. Morshed**, J. A. Jennings, W. O. Haggard, J. D. Bumgardner, and S. R. Mishra, "Electric Stimulus Response of Chitosan Microbeads Embedded with Magnetic Nanoparticles for Controlled Drug Delivery", IEEE Healthcare Innovations and Point-of-Care Technologies Conf.*, Seattle, WA, pp. 284-287, Oct. 2014. *(Best paper nomination)*

67. M. N. Sahadat, E. L. Jacobs, and **B. I. Morshed**, "Hardware-Efficient Robust Biometric Identification from Amplitude and Interval Features of 0.58 Second Limb (Lead I) ECG Signal Using Logistic Regression Classifier", *IEEE Eng Med Biol Soc Conf. (EMBC), Chicago, IL, pp. 1440-1443*, Aug. 2014.

68. *M. N. Sahadat, A. P. Hoban, **B. I. Morshed**, and W. O. Haggard, "Investigation of Electrical Stimulus on Chitosan Film Based DDS", IEEE Eng Med Biol Soc Conf (EMBC), Chicago, IL,* pp. 1424-1427, 2014.

69. A. Mohapatra, M. N. Sahadat, G. McGraw, A. P. Hoban, **B. I. Morshed**, W. O. Haggard, J. D. Bumgardner, J. A. Jennings, and S. R. Misra, "Stimuli-Controlled Drug Delivery System Development with Implantable Biocompatible Chitosan Microbeads", 4th *IAJC/ISAM Joint International Conference,* Sept. 25-27, FL, Paper 77, 11 pages, 2014. *(ISBN 978-1-60643-379-9)*

70. S. Consul-Pacareu, R. Mahajan, M. N. Sahadat, and **B. I. Morshed**, "Wearable Ambulatory 2-Channel EEG NeuroMonitor Platform for Real-life Engagement Monitoring Based on Brain Activities at the Prefrontal Cortex," *4th IAJC/ISAM Joint Intl. Conf.,* Sept. 25-27, FL, Paper 78, 12 pages, 2014. *(ISBN 978-1-60643-379-9)*

71. R. Mahajan and **B. I. Morshed**, "Sample Entropy Enhanced Wavelet-ICA Denoising Technique for Eye Blink Artifact Removal from Scalp EEG Dataset", *6th Intl. IEEE/EMBS Conf. Neural Engineering*, pp. 1394-1397, Nov. 2013.

72. S. Consul-Pacareu and **B. I. Morshed**, "Power optimization of NeuroMonitor EEG device: Hardware/Software co-designed Interrupt Driven clocking", *6th Intl. IEEE/EMBS Conf. Neural Engineering*, pp. 25-28, Nov. 2013.

73. T. M. DeCosta-Fortune, **B. I. Morshed**, S. Consul-Pacareu, J. T. Ramshur, C. Li, A. L. de Jongh Curry, and R. S. Waters, "Telemetry Controlled Simultaneous Microstimulation and Recording Device for Studying Cortical Plasticity", *6th Intl. IEEE/EMBS Conf. Neural Engineering*, pp. 61-64, Nov. 2013.

74. M. N. Sahadat, S. Consul-Pacareu, and **B. I. Morshed**, "Wireless Ambulatory ECG Signal Capture for Cognitive Load Study Using the NeuroMonitor Platform", *6th Intl. IEEE/EMBS Conf. Neural Engineering*, pp. 497-500, Nov. 2013.

75. S. Consul-Pacareu, **B. I. Morshed**, and R. Kozma, "Hardware efficient seizure prediction algorithm", *SPIE Proc on Nanosensors, Biosensors, and Info-Tech Sensors and Systems*, vol. 8691, pp. 86911J (1 – 10), Mar. 2013.

76. R. Mahajan, S. Consul-Pacareu, M.J. AbuSaude, M.N. Sahadat, and **B. I. Morshed**, "Ambulatory EEG Neuromonitor Platform for Engagement Studies of Children with Development Delays", *SPIE Proc. Smart Biomedical & Physiological Sensor Tech X, vol. 8719, pp. 87190L(1-10),* May 2013.

77. **B. I. Morshed**, M. Shams, and T. Mussivand, "Effectiveness of multiple pulses on flow index of electroporation", *Proc. of SPIE*, Vol. 8344, pp. 834417 (1-8), CA, USA, Mar. 2012.

78. S. Al-Soyeb, **B. I. Morshed**, and F. Sabri, "Numerical Study of Electrical Stimulation for Neuronal Cell Growth on Silica Aerogel Substrate", *IEEE Biomedical Science and Engineering Conference (BSEC)*, pp. 1-4, May 2013.

79. J. Hossen and **B. I. Morshed**, "Design and Performance Evaluation of a Redundant Binary Full Adder for Uniform Timing Delay", *IEEE Intl. Conf. Electrical and Computer Engineering*, pp. 733-736, Dec. 2012.

80. S. Consul-Pacareu and **B. I. Morshed**, "Neuronal recorder implementation using envelope detector for low power and low area", *IEEE Northeast Bioengineering Conference*, pp. 371-372, USA, Mar. 2012.

81. **B. I. Morshed** and S. Consul-Pacareu, "Low-power Fuzzy logic VLSI implementation with asynchronous topology for neuronal sensors", *IEEE Northeast Bioengineering Conference*, pp. 241-242, USA, Mar. 2012.

82. **B. I. Morshed**, M. Shams, and T. Mussivand, "An Analysis of Electric Fields Developed Inside Microchannels of Microfluidic Devices", *IEEE Intl. Conf. Electrical and Computer Engineering*, pp. 261-265, Dec. 2008.

83. **B. I. Morshed** and B. Shahrrava, "A New Metric for Space-Time Block Codes with Imperfect Channel Estimates", *IEEE Intl. Conf. Wireless and Mobile Computing, Networking and Communications*, Vol. 1, pp. 174-181, Canada, Aug. 2005.

84. **B. I. Morshed** and B. Shahrrava, "A Novel Approach for Iterative Channel Estimation Using Data Symbols of Space-Time Block Codes", *IEEE Canadian Conf. Electrical and Computer Engineering*, pp. 1767-1772, Canada, May 2005.

85. **B. I. Morshed** and B. Shahrrava, "Frame-Based Iterative Channel Estimation Using Data Symbols of Space-Time Block Codes", *IEEE Electro/Information Technology (EIT)*, pp. 26-32, USA, 2004.

86. **B. I. Morshed**, K. M. Rahman, S. M. Khan, M. A. Hasan, and M. A. Rahman, "Excitation Control of Synchronous Generators using Fuzzy Technique", *Universities Power Engineering Conference*, UK, 2001.

87. **B. I. Morshed**, K. M. Rahman, S. M. Khan, and M. A. Hasan, "A PC Based Fuzzy Controller for DC Voltage Stabilization", *Intl Conf Comp Info Tech*, pp. 44-48, Jan. 2001.

Refereed Conference Posters

1. **Bashir Morshed**, Tomoko Fujiwara, Robert Hewitt, Frank Andrasik, Moriom Momota, Tamanna Ferdous, Rahman Mahfuzur, Rahman Mamunur, Rajesh Kabra, "Towards a Flexible Wearable

Cardiac Device with Inkjet Printed ECG Electrodes and Edge Computing AI to Detect Arrhythmia", *IEEE Engineering Medicine and Biology Conference (EMBC)*, Glasgow, Scotland, July 11-15, 2022.

2. **B. I. Morshed**, T. Fujiwara, R. W. Hewitt Jr., and F. Andrasik, "Monolithic Inkjet Printed Multilayer Thin-film Flexible Electronics Fabrication of Conductive, Resistive, and Dielectric Polymers", *Intl. Conf. on Advances in Functional Materials (AAAFM-UCLA)*, University of California, LA, 16-18 Jun. 2020.

3. S. Khatun, **B. Morshed**, G. M. Bidelman, "Regression based Automated Scoring Technique of Mild Cognitive Impairment (MCI) Severity using Single Channel EEG Measures with Auditory Stimulus", Research Poster, *IEEE Engineering in Medicine and Biology Conference (EMBC)*, Honolulu, HI, July 17-21, 2018.

4. **B. I. Morshed**, "Flexible and Disposable rWAPS Printed Sensors on Paper Substrate", *NIH-IEEE Conf Healthcare Innovations and Point-of-care Technologies (HIPoCT)*, Bethesda, MD, Nov. 9-10, 2015.

5. R. Mahajan and **B. I. Morshed**, "Reconfigurable architecture for wearable sensor network", *NIH-IEEE Conf Healthcare Innovations and Point-of-care Technologies (HIPoCT)*, Bethesda, MD, Nov. 9-10, 2015.

6. C. Mcglown and **B. I. Morshed**, "Virtual Reality Simulation for Concussion Investigation Through Interactive Testing", *IEEE SoutheastCon*, Ft. Lauderdale, FL, 2015.

7. **B. I. Morshed** and R. Mahajan, "Body-worn Reconfigurable Architecture of Integrated Network Sensors (BRAINsens) to Monitor Neuro-physiological Activities at Naturalistic Environment", *IEEE EMBS BRAIN Grand Challenges Conf.,* Washington, DC, 13-14 Nov. 2014.

8. A. Hoban, G. McGraw, A. Mohapatra, **B. Morshed**, J. A. Jennings, J. Bumgardner, S. Mishra, and W. Haggard, "Preliminary Results for the Addition of Fe3O4 Nanoparticle Impregnated Chitosan Microspheres to the Chitosan Sponge for Stimuli Responsive Antibiotic Delivery", *Society for Biomaterials Annual Meeting*, Denver, CO, Apr. 16-19, 2014.

9. **B. I. Morshed** and M. J. I. A. Saude, "Molecular Dynamic Simulation of Intrinsic Electrostatics of Single-Stranded DNA", *NHGRI Advanced Sequencing Technology Development Meeting*, San Diego, CA, May 2013.

10. T. DeCosta-Fortune, **B. Morshed**, C.-X. Li, J.T. Ramshur, S. Vemulapalli, A. Curry, and R.S. Waters, "Interactive Neuronal Embedded System for The Controlled Delivery of Telemetry-Based Stimulation And Real-Time Response Recordings", *Society for Neuroscience Annual Meeting*, New Orleans, LA, Oct. 2012.

11. **B. I. Morshed** and M. Shams, "Optimizing electroporation for intracellular drug delivery", *NanoSmat-USA*, Tampa, FL, USA, Mar. 2012.

12. S. Li, **B. I. Morshed**, J. Wu, and C. Ke, "Dielectrophoretic response of DNA in physiological solution using impedimetric measurements", *World Congress on Biosensors*, p. 1.74, MX, 2012.

13. **B. I. Morshed**, M. Shams, and T. Mussivand, "An electric circuit equivalent model to describe membrane pores in electroporation", *World Congress on Biosensors*, p. 1.4, MX, 2012.

14. **B. I. Morshed**, M. Shams, and T. Mussivand, "A microfluidic device to lyse cell membrane using electric field", *Canadian Workshop on MEMS and Microfluidics*, Montreal, Canada, Aug. 2007.

15. **B. I. Morshed**, M. Shams, and T. Mussivand, "Development of a rapid cell membrane lysing device using electrical pulses", *16th World Congress of the World Society of Cardio-Thoracic Surgeons*, p. 172, Ottawa, Canada, Aug. 2006.

Non-refereed Workshops, Competitions, and Symposiums

1. Mahfuzur Rahman and **Bashir I. Morshed**, "Wireless Charging Mat – Extending the range of Qi based Power Transfer", Poster, TechConnect World Workshop, Washington, DC, June 13-15, 2022.

2. **B. I. Morshed**, T. Fujiwara, F. Andrasik, R. Hewitt, R. Kabra, and M. Rahman, "CPS: Small: Inkjet Printed Flexible Electronic CPS with Context-aware Events of Interest Detection", 10*th Annual Cyber-Physical Systems Principal Investigators' Meeting*, Alexandria, VA, Nov. 21 - 22, 2019.

3. **B. I. Morshed**, B. Harmon, and M. Rahman, "A Framework of Events of Interest (EoI) Capture Using Novel Body-worn Fully-passive Wireless Sensors for S&CC", 10*th Annual Cyber-Physical Systems Principal Investigators' Meeting*, Alexandria, VA, Nov. 21 - 22, 2019.

4. B. Noroozi and **B. I. Morshed**, "Design and Optimization of Printed Spiral Coils with Genetic Algorithm for Wireless Passive Sensors", *Institute of Intelligent System student poster presentation*, Nov. 2019.

5. M. J. Rahman and **B. I. Morshed**, "Investigating a Minimalistic Approach for Severity Estimation and Progression Monitoring of Obstructive Sleep Apnea at Home Using Wearables", *Institute of Intelligent System student poster presentation*, Nov. 2019.

6. M. S. B. Zaman and **B. I. Morshed**, "Detection of the Presence of Bio-signal in Wireless Resistive Analog Passive (WRAP) Sensors with Generalized Signal Quality Indices", *Institute of Intelligent System student poster presentation*, Nov. 2019.

7. M. M. R. Momota and **B. I. Morshed**, "A Novel Wearable Electrocardiogram (ECG) Device for Early Detection and Monitoring of Cardiac Patients", *Institute of Intelligent System student poster presentation*, Nov. 2019.

8. B. Noroozi and **B. I. Morshed**, "Wireless Resistive Analog Passive (WRAP) Sensor Spiral Antenna Optimization with Genetic Algorithm", *Department of EECE Poster Competition,* 22 Apr. 2019.

9. M. S. B. Zaman and **B. I. Morshed**, "Portable Scanner for Body-worn Wireless Resistive Analog Passive (WRAP) Sensors", *Department of EECE Poster Competition,* 22 Apr. 2019.

10. **B. I. Morshed**, B. Harmon, and M. Rahman, "EAGER: Events of Interest (EoI) Capture Using Novel Body-worn Fully-passive Wireless Sensors for S&CC", 9*th Annual Cyber-Physical Systems Principal Investigators' Meeting*, Alexandria, VA, Nov. 15 - 16, 2018.

11. S. Khatun, **B. I. Morshed**, and G. Bidelman, "Automated Scoring of Mild Cognitive Impairment (MCI) Severity Using Single Channel EEG Measures with Auditory Stimulus", *Department of EECE Poster Competition,* 24 Apr. 2018.

12. B. Noroozi and **B. I. Morshed**, "Using Genetic Algorithm to Maximize the Sensitivity of Inductive Wireless Resistive Analog Passive (WRAP) Sensors", *Department of EECE Poster Competition,* 24 Apr. 2018.

13. M. S. B. Zaman and **B. I. Morshed**, "Design and Verification of a Portable Scanner for Body-worn Wireless Resistive Analog Passive (WRAP) Sensors", *Department of EECE Poster Competition,* 24 April, 2018.

14. T. Siddiqui and **B. I. Morshed**, "Severity Assessment of Chronic Obstructive Pulmonary Disease and Asthma with Heart Rate and SpO2 Sensors", *Department of EECE Poster Competition,* 24 Apr. 2018.

15. S. Afroz and **B. I. Morshed**, "An Interactive Web-based Visualization Tool of Community Health Data for a Smart & Connected Community (SCC)", *Department of EECE Poster Competition,* 24 Apr. 2018.

16. **B. Morshed**, B. Harmon, and M. Rahman, "EAGER: Events of Interest (EoI) Capture Using Novel Body-worn Fully-passive Wireless Sensors for S&CC", 8*th Annual Cyber-Physical Systems Principal Investigators' Meeting*, Alexandria, VA, Nov. 13 - 14, 2017.

17. **B. Morshed**, B. Harmon, M. Rahman, Md. S. Zaman, Md. J. Rahman, S. Afroz, T. Siddiqui, B. Noroozi, and J. Coleman, "Events-of-interest Capture Using Novel Body-worn Fully-passive Wireless sensors for S&CC", *Smart Cities Connect Conference & Expo. (US ignite)*, Austin, TX, Jun. 25 – 28, 2017.

18. M. S. B. Zaman and **B. I. Morshed**, "Portable Scanner Prototyping for Physiological Signal Acquisition from Wireless Passive Sensors", *Department of EECE Poster Competition,* 24 Apr 2017.

19. S. Afroz and **B. I. Morshed**, "An Interactive Web-based Visualization Tool of Community Health Data for a Smart & Connected Community (SCC)", *Department of EECE Poster Competition,* 24 Apr. 2017.

20. M. J. Rahman and **B. I. Morshed**, "Smart Phone App Framework Development for Severity Ranking of Diseases", *Department of EECE Poster Competition,* 24 Apr. 2017.

21. T. Siddiqui and **B. I. Morshed**, "Autonomous Classification of Chronic Obstructive Pulmonary Disease Severity with Minimal Sensors", *Department of EECE Poster Competition,* 24 Apr. 2017.

22. B. Noroozi and **B. I. Morshed**, "PSC Optimization of 13.56-MHz Resistive Wireless Analog Passive Sensors", *Department of EECE Poster Competition,* 24 Apr. 2017.

23. A. Mohapatra, M. A. Harris, M. Ghimire, **B. I. Morshed**, J. A. Jennings, W. O. Haggard, J. D. Bumgardner, S. R. Mishra, and T. Fujiwara, "Chitosan Microbeads with MNP on Printed Electrodes for Electric Stimulus Responsive Antibiotic Delivery", *Department of EECE Poster Competition,* 24 Apr. 2017.

24. R. Alexander, S. Khatun, and **B. I. Morshed**, "EEG-Based Detection of Student Engagement in Various Classroom Activities for Children with Special Needs", Society of Women Engineers Professional Chapter, Memphis, TN, 2017.

25. A. Robinson and **B. I. Morshed**, "Small devices to improve epileptic health care", Tennessee LSAMP, 2017.

26. J. Coleman and **B. I. Morshed**, "Events of Interest Capture Using Novel Body-worn Fully-passive Wireless Sensors," Tennessee LSAMP, 2017.

27. **B. Morshed**, B. Harmon, and M. Rahman, "EAGER: Events of Interest (EoI) Capture Using Novel Body-worn Fully-passive Wireless Sensors for S&CC", *7th Annual Cyber-Physical Systems Principal Investigators' Meeting*, Arlington, VA, Oct. 31 - Nov. 1, 2016.

28. R. Mahajan and **B. I. Morshed**, "BRAINsens: Body-worn Reconfigurable Architecture of Integrated Network Sensors", *Department of EECE Poster Competition,* 25 Apr. 2016.

29. B. Noroozi and **B. I. Morshed**, "Planar Printed Spiral Coil Design Optimization for Resistive Wireless Analog Passive Sensors," *Department of EECE Poster Competition*, 25 Apr. 2016.

30. A. Mohapatra, M. Harris, **B. I. Morshed**, J. A. Jennings, W. O. Haggard, J. D. Bumgardner, and S. R. Mishra, "Chitosan-Based Magnetic Stimulus Responsive Vancomycin Drug Delivery System," *Department of EECE Poster Competition*, 25 Apr. 2016.

31. M. S. B. Zaman and **B. I. Morshed**, "Algorithm Development for Automated Insulation Layer Generation from PCB Gerber For Complex Multilayer Additive Printing Circuits," *Department of EECE Poster Competition*, 25 Apr. 2016.

32. B. Noroozi, M. Abu-Saude, and **B. I. Morshed**, "Resistive Wireless Analog Passive Sensors (rWAPS)", *IEEE Radio & Wireless Week (RWW)*, Austin, TX, 24-27 Jan. 2016.

33. M. J. Abu-Saude and **B. I. Morshed**, "Patterned Vertical Carbon Nanotube (pvCNT) Dry Electrodes for Impedimetric Sensing and Stimulation", *Department of EECE Poster Competition,* 24 Apr 2015.

34. A. Mohapatra, G. McGraw, **B. I. Morshed**, J. A. Jennings, W. O. Haggard, J. D. Bumgardner, and S. R. Misra, "Magnetic Stimulus Responsive Tetracycline Delivery System Based on Chitosan Microbeads with Embedded Magnetic Nanoparticles", *Department of EECE Poster Competition,* 24 Apr. 2015.

35. R. Mahajan and **B. I. Morshed**, "BRAINsens: Body-worn Reconfigurable Architecture of Integrated Network Sensors", *Department of EECE Poster Competition,* 24 Apr. 2015.

36. S. Khatun, R. Mahajan, and **B. I. Morshed**, "Comparative Analysis of Wavelet Based Approach for Reliable Removal of Ocular Artifacts from Single Channel EEG", *Department of EECE Poster Competition,* 24 Apr. 2015.

37. C. Majmudar and **B. I. Morshed**, "Hardware Implementation of Real-time Hybrid OA Detection and Removal for Single Channel EEG Signals", *Department of EECE Poster Competition,* 24 Apr. 2015.

38. B. Noroozi and **B. I. Morshed**, "PSC Design Optimization for Resistive Wireless Analog Passive Sensor", *Department of EECE Poster Competition,* 24 Apr. 2015.

39. S. Consul-Pacareu and **B. I. Morshed**, "Wireless Analog Passive Biosignal Sensors Based on Frequency Selective Backscattering", *Department of EECE Poster Competition*, 25 Apr. 2014.

40. M. N. Sahadat, E. Jacobs, and **B. I. Morshed**, "Hardware-Efficient Robust Biometric Identification from Amplitude and Interval Features of 0.58 Second Limb (Lead I) ECG Signal Using Logistic Regression Classifier", *Department of EECE Poster Competition*, 25 Apr. 2014.

41. R. Mahajan, C. A. Majumdar, S. Khatun, and **B. I. Morshed**, "NeuroMonitor Ambulatory EEG Device: Comparative Analysis and Its Application for Cognitive Load Assessment", *Department of EECE Poster Competition*, 25 Apr. 2014.

42. A. Mohapatra, G. McGraw, L. Wang, **B. I. Morshed**, J. A. Jennings, W. O. Haggard, J. D. Bumgardner, and S. R. Mishra, "Electric Stimulus Responsive Drug Delivery System Based on Chitosan Microbeads with Embedded Magnetic Nanoparticles", *Department of EECE Poster Competition*, 25 Apr. 2014.

43. R. Mahajan, S. Consul-Pacareu, M. N. Sahadat, and **B. I. Morshed**, "SenseBrain: Sensing brain activities unobtrusively in real-life settings for clinical applications", Memphis Research and Innovation Expo, FedEx Institute of Technology, Memphis TN, Oct. 2013.

44. Zach Tate, Zac Arnold, Josh Smith, Sergi Consul-Pacareu, and **B. I. Morshed**, "Forgery-proof identification using sweat gland distribution", *DRS Student Infrared Imaging Competition*, June 2013.

45. R. Mahajan, S. Consul, M. AbuSaude, M. N. Sahadat, and **B. I. Morshed**, "SenseBrain: A hardware platform for continuous monitoring of prefrontal cortex activities with scalp electroencephalogram", *Department of EECE Poster Competition*, 26 Apr. 2013.

46. S. Consul, **B. I. Morshed**, and R. Kozma, "Hardware efficient seizure prediction algorithm", *Department of EECE Poster Competition*, 26 Apr. 2013.

47. **B. I. Morshed**, "Development of a minimalistic embedded wireless EEG system for cyber-physical interfacing towards wearable body sensors", *Cognitive Sensing, Computing & Networking Workshop*, AL, USA, 15 Aug. 2012.

48. L. Sherman, F. Sabri, **B. I. Morshed**, and O. Skalli, "Effect of Electrical Stimulation on Culture Environment of Astrocytoma Cells on Cross-linked Silica Aerogels", *MemphisCRESH Poster Competition*, July 2012.

49. M. A. Saude, D. Carpenter, S. Consul-Pacareu, S. Al-Soyeb, **B. I. Morshed**, and F. Sabri, "Augmented Thermal Imaging to Investigate Emissivity of Polyuria-crosslinked Silica Aerogel for Biosensing Applications", *DRS Student Infrared Imaging Competition*, June 2012.

50. J. Carrasco, X. Benavides, S. Pacareu, and **B. I. Morshed**, "Cyber-physical system approach to embedded personal assistive device for persons with severe visual impairments", *Cognitive Sensing, Computing & Networking Workshop*, AL, USA, 15 Aug. 2012.

51. K. Solvason-Brown, J. P. Hawkins, D. Perez, and **B. I. Morshed**, "SmartPark: A RFID-based smart parking system", *Applied Research Day*, Algonquin College, Canada, 15 Apr. 2011.

52. R. Eady, B. Brinsmead, J. Corvari, and **B. I. Morshed**, "Adjustable Smart Antenna", *Applied Research Day*, Algonquin College, Canada, Apr. 15, 2011.

53. **B. I. Morshed**, K. M. Rahman, S. M. Khan, and M. A. Hasan, "Fuzzy logic based real-time EPROM controller for DC voltage stabilization of a 3-phase synchronous generator connected to a PC through a data accusation card", *TechTransfer, BUET*, Dhaka, Bangladesh, Dec. 23-24, 2000.

5. TEACHING

2020 – now   **Faculty**, Computer Science Department, Texas Tech University.

CS5375: Computer Systems Organization and Architecture (Spring 2023)

Introduction to the architecture, organization, and design of computer systems. Topics include processor, control and memory design, computer arithmetic, I/O, and a brief introduction to multiprocessors.

CS 4380/CS5331 – Embedded Systems/Special Problems in CS: Cyber Physical Systems (Spring 2023)

This course focuses on cyber physical systems (CPS) implementation with embedded systems (ES). These systems include wearables, Internet-of-Things (IoT), drones, robots, self-driving cars, and other autonomous devices. These systems need to be co-designed with knowledge and skills of both hardware and software. This course introduces the fundamental concepts including discussion on system modeling, hardware considerations, software considerations, and critical concepts including interrupts and real-time algorithms.

CS3375: Computer Architecture (Fall 2022)

Introduction to computer architecture concepts and recent developments. Computer abstractions and technology trends, performance models, computer arithmetic, organization and architecture of pipelined processor systems, instruction level parallelism, memory organization, and fundamentals on multiprocessor systems and parallelism.

CS4331/5331 – Special Topics in CS: CPS with Embedded Systems (Spring 2022)

This course focuses on cyber physical systems (CPS) implementation with embedded systems. CPS includes wearables, Internet-of-Things (IoT), drones, robots, self-driving cars, and other autonomous devices. These systems need to be co-designed with knowledge and skills of both hardware and software. This course introduces the fundamental concepts including discussion on CPS system modeling, hardware considerations and design, software considerations and critical concepts including interrupts and real-time algorithms, prototyping, testing, optimization, and regulation.

CS3350: Computer Organization and Assembly Language Programming (Spring 2022)

Introduction to the organization of single-processor computer systems via Assembly Language. Topics addressed include basic concepts of computer architecture and organization, assembly programming, interfacing assembly with High Level Languages, sub-procedures and macros, I/O devices, interrupts, and multitasking issues.

CS4366: Senior Capstone Project (Fall 2021)

A project-oriented course intended not only to consolidate most theoretical aspects of software engineering, but also to emphasize teamwork and foster communication skills. Projects are formulated, formally proposed, designed, implemented, tested, documented, and demonstrated.

CS 4331/5331 – Special Topics in CS: Cyber Physical Systems (Spring 2021)

This course focuses on cyber physical systems (CPS), which combines the cyber domain of computation with the physical domain of real-world in a close-loop configuration. The topics will include the cyber and physical domain modeling, cyber-physical interfacing hardware, microcontrollers, artificially intelligent algorithms such as machine learning and deep learning, real-time feedbacks, and cloud-, fog-, and edge-computing.

CS 4331/5331 – Special Topics in CS: Embedded Systems (Fall 2020)

Introduction to hardware/software co-designed embedded systems for wearables, Internet-of-Things (IoT), robotics, and other smart devices. Course content includes discussion on system modeling, hardware consideration, design, and simulation, software programming, real-time

constraints, adaptive and intelligent algorithms, prototyping, testing, optimization, and regulation.

2011 – 2020   **Faculty**, Electrical and Computer Engineering Department, University of Memphis.

EECE/BIOM 7901/8901 – Bioelectronics/Biosensors & Bioelectronics (Fall 2015, Fall 2017, Fall 2019)

> This course teaches bioelectronic sensors, amplifiers and signal conditioning techniques. Specific topics include microfabricated sensors and actuators, hard and soft fabrication techniques, bulk and surface micromachining, self-assembled monolayer, bioMEMS, microfluids, lab-on-a-chip, microarrays, carbon nanotubes, grapheme, neural implants, flexible and epidermal electronics, wireless telemetry, bio-robotics and drug delivery systems. Topics will cover invasive, minimally invasive, body-worn, wearable, and remote electronic systems.

EECE 3270 – Intro to Microprocessor (Fall 2013, Fall 2014, Fall 2015, Fall 2016, Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020)
LSI circuitry, microprocessor architecture, hardware and software integration, application and system design. Three lecture hours, three laboratory hours per week.

> Link to project demonstrated in this course:
> https://youtu.be/bA09yZgeABY

EECE 4278/6278 – Computer Organization (Spring 2013, Spring 2014, Spring 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2018)
This is an advanced level course for undergraduate/introductory course for graduate students. The primary objective of the course is to integrate the knowledge learned in some of the other courses such as digital design, and assembly language programming and be able to put together a working model of a computer.

EECE 4712/6712 – Embedded Systems (Fall 2011, Fall 2012, Spring 2014, Spring 2015, Spring 2016, Spring 2017, Spring 2018, Spring 2019, Spring 2020)
Introduction to hardware and software co-design of computing systems embedded in electronic devices; programmable processor design; peripherals, memories, interfacing, and hardware/software tradeoffs. Laboratory involves of use of synthesis tools, programmable logic, microcontrollers, and development of working embedded systems.

> Link to some projects demonstrated in this course:
> 2018: https://youtu.be/8ws_shjltqI
> 2016: https://youtu.be/N1MWtuNH0OQ
> 2015: https://youtu.be/nA4CHRk1qfo

EECE 7234/8234 – VLSI Design (Spring 2012, Fall 2013, Fall 2014)
This course teaches advanced digital chip design techniques for VLSI systems. Topics include manufacturing process, fundamental structures, design methodology, design tools and techniques. Various analysis techniques including leakage capacitances, load balance, noise, parametric analysis, design rule checking (DRC), extraction of parasitic resistance and capacitance, and layout versus schematic (LVS), implementation strategies for digital ICs, advanced high-speed and low-power CMOS design, asynchronous and adiabatic circuit design.

EECE 7255/8255 – Digital Communications (Fall 2012)

This course aims to teach modern digital communication systems with a focus to wireless communications. Topics includes modeling of communication channels, digital modulation and coding schemes like Linear Block Codes, Maximum-Length Codes, Cyclic codes, Trellis codes, BCH Codes, Convolution codes, LDPC, STBC and Turbo codes, optimal receiver design for AWGN channels, and detectors such as MLS, ML, and RAKE, Viterbi, BCJR, and Sum-product, and decoding schemes such as MAP, MLSE and MSE.

2009 – 2011 **Faculty**, School of Advanced Technology (SAT), Algonquin College, Ottawa ON Canada.

Courses Taught:
- **Project Implementation** (Winter 2011)
- **Advanced Wireless Technologies** (Winter 2011)
- **Microprocessor Interfacing** (Winter 2011)
- **Project Management** (Fall 2010)
- **Digital Electronics III and Signal Processing** (Fall 2010)
- **Applied Programming I** (Winter 2010)
- **Control Systems** (Winter 2010)
- **Advanced Micro Applications** (Fall 2009)

2001 – 2001 **Instructor** (Part-time)**,** Department of Institute of Information & Communication Technology, Bangladesh University of Engineering & Technology, Bangladesh

Course: Application Development using Visual Basic and ORACLE (2001-2002)

2001 – 2002 **Faculty**, Department of Electrical and Electronic Engineering, Bangladesh University of Engineering and Technology, Bangladesh

Course: Electric Circuit Analysis (2001-2002)

6.   S E R V I C E

Editor:

- Guest editor, Special issue: "Signal Processing for Smart Sensors, Wearables, and IoTs", in *Journal of Signal Processing Systems (JSPS)*, Springer Nature, May 2021.
- Co-Guest editor, Special Issue: "Emerging Smart and Intelligent Wearable/Implantable Sensors for IoT and Biomedical Applications", Guest editors: S. K. Islam, B. I. Morshed, I. Mahbub, and K. A. Hoque, *MDPI Sensors Journal (Section: "Intelligent Sensors")*, February 2020.

Editorial Board:

- Review Editor, Editorial Board, "Wearable Electronics", Frontiers of Electronics, 2020 - now.

Professional Services:

- Technical Program Committee (TPC), IEEE EMBS Intl. Conf. on Biomedical and Health Informatics (BHI), Sept. 27-30, 2022.

- Session Chair, EMBC, Glasgow, UK, July 2022
- Technical Program Committee (TPC), IEEE/ACM Intl. Conf. on Connected Health: Applications, Systems, and Engineering Technologies (CHASE), Nov. 17-19, 2022.
- Session Chair, "IEEE Intl Conf on Electro/Information Technology" (EIT), Sessions 4B and 5A, May 21, 2022.
- Session Chair, "IEEE Intl Conf on Electro/Information Technology" (EIT), Session 3F, May 15, 2021.
- Co-organizer of a special session on "Wearable, Implants, and Body Area Network (BK)", URSI National Radio Science Meeting, Boulder, CO, Jan. 9-12, 2019.
- Session chair, Track T5d, Transportation and Mobility, IEEE ISC2 conference, Kansas City, Sept. 18, 2018.
- Session chair, Track T19, Health Informatics - Mobile health (Theme 10), IEEE EMBC, Hawaii, July 20, 2018.
- Technical Program Committee (TPC), 4th IEEE Intl Smart Cities Conference (ISC2), Sept. 16-19, 2018.
- Co-organizer of a special session on "Wearable Antennas and Electronics", URSI National Radio Science Meeting, Boulder, CO, Jan. 4-7, 2018.
- Technical Program Committee (TPC), IEEE Intl workshop on Communication, Computing, and Networking in Cyber Physical Systems (CCNCPS), Kansas City, MO, 20-24 May 2018.
- Co-organizer of a special session on "Wearable Antennas and Electronics", URSI National Radio Science Meeting, Boulder, Colorado, Jan. 4-7, 2017.
- Technical Program Committee (TPC), IEEE International workshop on Communication, Computing, and Networking in Cyber Physical Systems (CCNCPS), Atlanta, GA, 5-8 Jun. 2017.
- Organized Talk for IEEE EMBS Memphis Chapter (Speaker: Cameron Brackett, Vice President, Memphis Bioworks Foundation, Memphis, TN), on 29th Nov., 2016.
- Organized Talk for IEEE EMBS Memphis Chapter (Speaker: Dr. Islam, EECS, UTK), 6th May, 2016.
- IEEE EMBS Chair, IEEE Memphis Section, 2016.
- Technical Program Committee (TPC), IEEE Topical Conf. on Biomedical Wireless Technologies (IEEE BioWireleSS), Austin, TX, 24-27 Jan. 2016.
- Technical Designated Reviewer, International Symposium on Health and Medical Sciences (ISHAMS), 1-3 Dec. 2015.
- Technical Program Committee (TPC), IEEE Topical Conf. on Biomedical Wireless Technologies (IEEE BioWireleSS), San Diego, CA, 25-28 Jan. 2015.
- Session Co-chair, BioWireleSS Session: TU3D, IEEE BioWireleSS Conf., 1:30pm – 2:50pm, Jan 27, 2015.
- Scientific Co-chair, 4th IAJC/ISAM Joint Intl Conf., Orlando, FL, Sept 25-27, 2014.
- Session Chair, EDU 303: Topics in Education I, IAJC/ISAM Joint Intl Conf., Sept. 26, 2014.
- Advisor, IEEE Student Branch, The University of Memphis, 2013 – now.

Grant Proposal Reviewer:

- Served as a panelist reviewer for National Institute of Health (NIH), Mar 2023.
- Served as a panelist reviewer for National Institute of Health (NIH), June 2022.
- Served as a panelist reviewer for National Institute of Health (NIH), Mar. 2022.
- Served as a panelist reviewer for National Institute of Health (NIH), June 2021.

- Served as a Committee Member of Convergence Review Panel of New Frontiers in Research Fund (NFRF) Exploration Program, Research Council of Canada, Feb. 2021.
- Served as a panelist reviewer for National Institute of Health (NIH), Nov 2020.
- Served as a panelist reviewer for National Institute of Health (NIH), July 2020.
- Reviewer of a proposal for National Science Foundation (NSF), Apr. 2020.
- Served as a panelist reviewer for National Institute of Health (NIH), Mar 2020.
- Served as a panelist reviewer for National Institute of Health (NIH), Nov. 2019.
- Served as a panelist reviewer for National Institute of Health (NIH), Mar. 2019.
- Served as a panelist reviewer for National Institute of Health (NIH), Jun. 2018.
- Served as a panelist reviewer for CISE Directorate, National Science Foundation (NSF), Jun. 2017.
- Served as a panelist reviewer for National Institute of Health (NIH), Jun. 2017.
- Served as a panelist reviewer for CISE Directorate, National Science Foundation (NSF), Feb. 2017.
- Served as an external referee on Discovery Grant Review Process for Natural Sciences and Engineering Research Council (NSERC), Canada, 2016.
- Served as a panelist reviewer for CISE Directorate, National Science Foundation (NSF), Jun. 2016.
- Served as a panelist reviewer for CISE Directorate, National Science Foundation (NSF), Dec 2015.
- Served as a panelist reviewer for CISE Directorate, National Science Foundation (NSF), Jun. 2015.
- Served as a panelist reviewer for CISE Directorate, National Science Foundation (NSF), Jul. 2013.
- Served as an external referee on Discovery Grant Review Process for Natural Sciences and Engineering Research Council (NSERC), Canada, 2013.

External Examiner of T&P Dossier:

1. External Reviewer of a T&P application, Electrical and Computer Engineering Department, University of Alabama, Sept. 2019.

External Examiner of Dissertation:

1. External Examiner of Dissertation titled "Development of Efficient Algorithms for Artifact Removal from Single Channel EEG" by Chinmayee Dora, International Institute of Information Technology, Bhubanesar, Orissa, India, Mar. 2020.

Article Reviewer (until 2020, not being updated anymore):

1. Ad hoc J. Reviewer, IET Signal Processing, 2020
2. Ad hoc J. Reviewer, Tran Neural Systems & Rehabilitation Engineering, 2020
3. Ad hoc J. Reviewer, J. of Neurocomputing, 2020
4. Ad hoc J. Reviewer, IEEE Transactions of Biomedical Engineering (TBME), 2020
5. Ad hoc J. Reviewer, IEEE Transactions of Neural Systems and Rehabilitation Engineering, 2020
6. Ad hoc J. Reviewer, IEEE Journal of Biomedical and Health Informatics (JBHI), 2020
7. Ad hoc J. Reviewer, IEEE Access, 2020
8. Ad hoc J. Reviewer, Plos1, 2020
9. Ad hoc J. Reviewer, IEEE Trans VLSI, 2019
10. Ad hoc J. Reviewer, Elsivier Neucom, 2019
11. Ad hoc J. Reviewer, Biomedical Signal Processing and Control, 2019
12. Technical Program Committee, IEEE ISC2, 2019
13. Ad hoc J. Reviewer, IEEE TNSRE, 2019

14. Conference paper reviewer, IEEE BHI, 2019
15. Ad hoc J. Reviewer, Measurements, 2019
16. Ad hoc J. Reviewer, Eurasip Adv Sig Processing, 2019
17. Ad hoc J. Reviewer, IEEE Access, 2019
18. Ad hoc J. Reviewer, MDPI Sensors, 2019
19. Ad hoc J. Reviewer, Biomedical Signal Processing and Control, 2019
20. Ad hoc J. Reviewer, PlosOne, 2019
21. Ad hoc J. Reviewer, Measurements, 2019
22. Ad hoc J. Reviewer, Eurasip Adv Sig Processing, 2019
23. Ad hoc J. Reviewer, IEEE TBioCAS, 2019
24. Ad hoc J. Reviewer, IEEE Access, 2019
25. Ad hoc J. Reviewer, Hindawi, 2019
26. Ad hoc J. Reviewer, IEEE Access, 2018
27. Ad hoc J. Reviewer, IEEE Consumer Electronics Magazine, 2018
28. Ad hoc J. Reviewer, J. of the Intl. Measurement Confederation, 2018
29. Ad hoc J. Reviewer, J. of Comp. Methods, 2018
30. Ad hoc J. Reviewer, PlosOne, 2018
31. Ad hoc J. Reviewer, MDPI Sensors J., 2018
32. Ad hoc J. Reviewer, Electronics Letter, 2018
33. Conf. Paper Reviewer, IEEE Smart Cities, 2018
34. Conf. Paper Reviewer, CCN CPS, 2018
35. Ad hoc J. Reviewer, IEEE Signal Processing Letter, 2018.
36. Ad hoc J. Reviewer, PlosOne Journal, 2017.
37. Conf. Paper reviewer, CCNCPS, 2017
38. Ad hoc J. Reviewer, Electronics Letters, 2017.
39. Ad hoc J. Reviewer, Electronics Letters, 2017.
40. Ad hoc J. Reviewer, IEEE Sensors Journal, 2017.
41. Ad hoc J. Reviewer, Trans Learning Technologies, 2017.
42. Ad hoc J. Reviewer, EIT Electronic Letters, 2017.
43. Ad hoc J. Reviewer, Journal of Biomedical Health Informatics, 2017.
44. Conf. Paper reviewer, National Conf. on Undergraduate Research (NCUR), 2017.
45. Ad hoc J. Reviewer, PlosOne Journal, 2017.
46. Ad hoc J. Reviewer, Trans Instrumentation and Measurement, 2017.
47. Ad hoc J. Reviewer, Intl J Distributed Sensor Networks, 2017.
48. Conf. paper reviewer, IEEE International Conference on Medical Engineering, Health Informatics and Technology (MediTech), 2016. (Reviewed 6 papers).
49. Conf. paper reviewer, IEEE 9th International Conference on Electrical and computer Engineering (ICECE), 2016. (Reviewed 3 papers).
50. Conf. Review Committee, IEEE-EMBS Conf. on Biomedical Engineering and Sciences, 2016. (Reviewed 4 papers).
51. Ad hoc J. Reviewer, Sensors & Actuators: B. Chemical, Elsevier Journal, 2016.
52. Ad hoc J. Reviewer, ACS Environmental Science & Technology J, 2016.
53. Ad hoc J. Reviewer, IEEE Tran Measurement & Instrumentation, 2016.
54. Ad hoc J. Reviewer, MDPI Sensors J, 2016.

55. Ad hoc J. Reviewer, Technology Interface International J, 2016.
56. Conf. Review Committee, IEEE Topical Conf. on Biomedical Wireless Technologies (BioWireleSS), 2016. (Reviewed 3 papers).
57. Ad hoc J. Reviewer, Micromachines Journal, 2015.
58. Conf. paper Reviewer, ISHAMS Conference, 2015. (Reviewed 2 papers).
59. Ad hoc J. Reviewer, Intl. J. of Modern Engineering, 2015.
60. Ad hoc J. Reviewer, IEEE Sensors Journal, 2015.
61. Conf. Review Committee, IEEE Topical Conf. on Biomedical Wireless Technologies (BioWireleSS), 2015.
62. Ad hoc J. Reviewer, J. Laboratory Automation, 2014-2015.
63. Ad hoc J. Reviewer, Intl. J. Intelligent Systems Technologies and Applications, 2014.
64. Ad hoc J. Reviewer, IETE Technical Review, 2014.
65. Ad hoc J. Reviewer, Intl. Journal of Engineering Research & Innovation, 2014.
66. Ad hoc J. Reviewer, Journal of Zhejiang Univ. Science C, 2014.
67. Conf. Review Committee, IEEE Conf. Biomedical Engineering and Sciences (IECBES), 2014.
68. Ad hoc J. Reviewer, IEEE Trans on Power Electronics, 2014.
69. Conf. Review Committee, 4th IAJC/ISAM Joint Intl Conf., 2014. (Reviewed 3 papers)
70. Ad hoc J. Reviewer, Elsevier J: Sensors and Actuators B, 2014.
71. Ad hoc J. Reviewer, IEEE Transactions of Biomedical Circuits and Systems (TBCAS), 2013.
72. Ad hoc J. Reviewer, Elsevier J: Sensors and Actuators B, 2013.
73. Conf. Review Committee, IEEE Intl Conf. on Electrical and Computer Engineering (ICECE), 2012.
74. Conf. Review Committee, IEEE Engineering in Medicine and Biology Society (IEMBS), 2008.

Invited Talks:

1. "Microprocessor Design and Verification - Industry Trends and Career Opportunity", Presented at Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, on Dec. 11, 2021.
2. "Opportunities for Career in Processor Design and Verification", Presented at Chittagong University of Engineering and Technology (CUET), Chittagong, Bangladesh, on Dec. 21, 2021.
3. "Building a Career in Computer Science and Engineering", Presented at International Standard University (ISU), Dhaka, Bangladesh, on Dec. 26, 2021.
4. "Fabrication of Thin-film Flexible MIM Capacitor using Inkjet Printing Additive Manufacturing", Presented at Chittagong University (CU), Chittagong, Bangladesh, on Dec. 22, 2021.
5. "Inkjet Printed Flexible Electronic CPS with Context-aware Events of Interest Detection", External Advisory Board (EAB) Meeting, Computer Science, Texas Tech University, Lubbock, TX, USA, on May 6, 2021. (Webinar)
6. "Challenges and Prospects of Computer Science and Engineering Career", Presented at International Standard University (ISU), Dhaka, Bangladesh, on Jan. 24, 2021. (Webinar)
7. "Wearables with AI - Research Trends and Preparing for Higher Studies", Presented at Chittagong University of Engineering and Technology (CUET), Chittagong, Bangladesh, Jan. 7, 2020.
8. "Multilayer Additive Printed Circuits", Presented to University of Memphis Research Foundation (UMRF), Memphis, TN, USA, on Oct. 24, 2019.
9. "Inkjet Printed, Disposable Biosensors", Presented to Visiting Chief Executive, Association of British Healthcare Industries, at University of Memphis, Memphis, TN, USA, on July 12, 2018.

10. "Flexible Electronics Fabrication Using Inkjet-printing Technology for Fully-passive Wireless Body-worn Patch Sensors", Department of Electronics, Carleton University, Ottawa, Canada, on July 6, 2018.
11. "Inkjet Printed Sensors for Smart Health", Presented to Czech Academy of Sciences, at University of Memphis, Memphis, TN, USA, on May 10, 2018.
12. "Body-worn Physiological Sensors for Smart and Connected Community", Institute for Intelligent Systems (IIS) Speed Talks, University of Memphis, Memphis, TN, USA, on Apr. 20, 2018.
13. "Inkjet-printed Fully-passive Wireless Body-worn Disposable Sensors", Biomedical Engineering Seminar, University of Memphis, Memphis, TN, USA, on Feb. 23, 2018.
14. "Inkjet Printed Electronics", Materials Day, University of Memphis, Memphis, TN, USA, on Oct. 6, 2017.
15. "Inkjet Printed Wearable Fully-passive Sensors for Physiological Data", Southeast Symposium on Contemporary Engineering Topics (SSCET), Jackson, MS, USA, on Aug. 26, 2016.
16. "Real-Time Ocular Artifact Removal from EEG Signals on a Wearable Embedded Device", IIS Speed Date, University of Memphis, Memphis, TN, USA, on April 22, 2016.
17. "Body-worn Bioelectronic Embedded Devices for physiological measurement", FIT Memphis Research Foundation, Memphis, TN, USA, on 31 Mar. 2015.
18. "Wearable Body Sensors for Neuro-Physiological Signal Monitoring in Natural Environments", IEEE AP-MTT Columbus Chapter, Ohio State University, Columbus, OH, USA, on 5 Dec. 2014.
19. "Wearable and body-worn embedded systems for in-situ patient monitoring", Semmes Murphey Neurologic & Spine Institute, Semmes Murphey Clinic Educational Seminar Series, 14 Aug. 2014.
20. "Wearable and Implantable Embedded Devices for Biomedical Applications", Department of Electrical and Computer Engineering Advisory Board Meeting, Memphis, TN, USa, on 2 May 2014.
21. "Monitoring of Cognitive States in Practical Settings: A Novel Reconfigurable Wearable Sensor Architecture – BRAiNsense", IIS Speed Date, University of Memphis, Memphis, TN, USA, on April 25, 2014.
22. "Wearable Body Sensors for Real-Life Real-Time Patient Monitoring", 1st iBME Symposium, UTK, Knoxville, TN, USA, on April 20-21, 2014. (Webinar)
23. "Towards Patient-Centric Healthcare Solution: Ambulatory Electroencephalography Embedded System and Algorithms for Long Duration Continuous Monitoring of Neurological Disorders", University of Tennessee at Knoxville (UTK), Knoxville TN, USA, on Aug. 16, 2013.
24. "Embedded Systems for Biomedical Applications", Department of Physics, the University of Memphis, Memphis TN, USA, on Nov. 28, 2012.
25. "Biomedical Microdevices and Sensors for Embedded Systems", Department of Electrical and Computer Engineering, the University of Memphis, Memphis TN, USA, on Apr. 2012.

Service at Departmental Committees:

Committee Name	Department	Group	Status	Duration
Undergraduate Scholarship Committee	CS		**Chair**	Apr. 2023 - now
Undergraduate Program Coordinator	CS			Jan. 2022 - now

Committee Name			Responsibility	Duration
Undergraduate Curriculum Committee	CS		**Chair**	Sep. 2022 - now
CS Department Business Manager search	CS		Member	Sep. 2022 – Oct. 2022
Student Affairs & Recruitment	CS		Member	Sep. 2022 - now
Faculty Search Committee	CS		Member	Sep. 2020 – now
Graduate Committee	CS		Member	Sep. 2020 – Aug. 2022
Intelligent System Engineering conc.	EECE		Member	Apr. 2018 – Aug. 2018
Computer Engineering Program Committee	EECE		Member	Oct. 2018 – Dec. 2019
EECE Lab Committee	EECE		**Chair**	Sep. 2017 – Aug. 2020
EECE Lab Committee	EECE		Member	Dec. 2016 – Aug. 2017
Undergraduate Curriculum	EECE	-	Member	2013 – 2020
Technical Area Group (TAG)	EECE	CpE	Member	Sep. 2011 – Aug. 2020
Technical Area Group (TAG)	EECE	MDE	Member	Sep. 2011 – Aug. 2020

University Service Activities:

Committee Name	Responsibility	Duration
Committee for the first-year program, WCOE	Committee Member	Mar. 2023 – now
Material Characterization Center (MCC) Committee, WCOE	Committee Member	Oct. 2022 – Jan. 2023
Interim Associate Dean for UG Studies Search Committee, WCOE	Committee Member	Aug. 2022 – Oct. 2022
COVID Lessons Learned, WCOE, TTU	Committee Member	Mar. 2021 – Dec. 2021
Computer Engineering Program Committee	Committee Member	Oct. 2018 - Mar. 2019
T&P committee, EECE, Applicant: Dr. Balasubra	Committee Member	Sept. 2018 – Oct. 2018
Intelligent Systems Program Committee	Committee Member	May 2018 – Aug. 2018
T&P committee, IIS, of Applicant: Dr. Gavin Bidelman	Committee Member	Sept. 2017 - Oct. 2017
Engaged Scholarship Research Grant Committee	Committee Member	2014 - 2018
eRA Software Assessment Team	Committee Member	2014 – 2016
Interdisciplinary Grad. Prog. Task Force (IGPTF)	Committee Member	Oct. 2014 – Sep.2015
Faculty Liaison Committee, Center for Res. & Innov. in STEM Teaching & Learning (CRISTAL)	Committee Member	2013 – 2016
College of Engineering Dean Search Committee	Committee Member	Apr. 2012 – Dec. 2012

Graduate Students Under Supervision (Major supervisor/Co-supervisor, current):

Student Name	Department	Starting Semester	Ending Semester	Degree
Mst M. R. Momota	CS, TTU	Fall 2019	Enrolled	Ph.D.
Mahfuzur Rahman	CS, TTU	Spring 2020	Enrolled	Ph.D.
I Hua Tsai	CS, TTU	Spring 2021	Enrolled	Ph.D.
Nabonita Mitra	CS, TTU	Fall 2021	Enrolled	Ph.D.
Ucchwas Talukder Utsha	CS, TTU	Fall 2022	Enrolled	Ph.D.

Graduate Student Supervised (Major supervisor, completed): *(7 MS thesis & 7 PhD dissertation)*

Student Name	Dept	Start Semester	End Semester	Degree	Defense
Md Juber Rahman	EECE	Fall 2016	Summer 2021	Ph.D.	Jul. 23, 2021
		Dissertation title: Artificial Intelligence-Enabled Edge-Centric Solution for Automated Assessment of Sleep Health Using Wearables in Smart Health			
Md Sabbir Bin Zaman	EECE	Spring 2016	Summer 2021	Ph.D.	Jul. 23, 2021
		Dissertation title: A Hardware-Software Co-designed Wearable for Real-Time Physiological Data Collection and Signal Quality Assessment			
Babak Noroozi	EECE	Spring 2015	Summer 2020	Ph.D.	Jun 30, 2020
		Dissertation title: Printed Spiral Coil Design, Implementation, and Optimization for 13.56 MHz Near-Field Wireless Resistive Analog Passive (WRAP) Sensors			
Sharmin Afroz	EECE	Spring 2017	Summer 2019	Masters	May 29, '19
		Thesis title: Framework for Spatiotemporal Visualization of Community Health in a Smart and Connected Community (SCC)			
Haritha Gollakota	EECE	Spring 2017	Spring 2019	Masters	Apr 11, '19
		Thesis title: Early Detection and Continuous Monitoring of Atrial Fibrillation from ECG Signals with a Novel Beat-wise Severity Ranking Approach			
Saleha Khatun	EECE	Spring 2014	Fall 2018	Ph.D.	Nov. 1, 2018
		Dissertation title: Automated Artifact Removal and Detection of Mild Cognitive Impairment from Single Channel Electroencephalography Signals for Real-Time Implementations on Wearables			
M. J. Abu Saude	EECE	Spring 2014	Fall 2018	Ph.D.	Oct.17,2018
		Dissertation title: Polypyrrole (PPy) Coated Patterned Vertical Carbon Nanotube (pvCNT) Dry ECG Electrode Integrated with a Novel Wireless Resistive Analog Passive (WRAP) ECG Sensor			
Tasnuba Siddiqui	EECE	Fall 2016	Summer 2018	Masters	Jun 27, 2018

Thesis title: *Retrospective Analysis for Severity Classification of Chronic Obstructive Pulmonary Disease and Asthma with Heart Rate and SpO2*

Ankita Mohapatra   EECE   Fall 2015   Spring 2018   Ph.D.   Apr. 2, 2018

Dissertation title: *Multiple Stimuli Responsive Drug Delivery System Based on Magnetic Nanoparticle Embedded Chitosan Microbeads*

Ruhi Mahajan   EECE   Fall 2012   Spring 2016   Ph.D.   Apr. 5, 2016

Dissertation title: *BRAINsens: Body-worn Reconfigurable Architecture of Integrated network Sensors*

Charvi Majmudar   EECE   Spring 2013   Spring 2015   Masters   May 7, 2015

Thesis title: *Real-time, hardware efficient ocular artifact removal from single channel EEG data using a hybrid algebraic and wavelet algorithm*

Ankita Mohapatra   EECE   Spring 2013   Spring 2015   Masters   Apr. 7, 2015

Thesis title: *Magnetic stimulus responsive tetracycline delivery system based on chitosan microbeads with embedded magnetic nanoparticles*

Md. Nazmus Sahadat   EECE   Fall 2012   Spring 2014   Masters   Apr. 3, 2014

Thesis title: *Investigation of Electrical Stimuli for Controlled Drug Release From Chitosan DDS*

Sakib Al Soyeb   EECE   Fall 2011   Summer 2013   Masters   May 6, 2013

Thesis title: *Numerical Study of Electrical Stimulation for Neuronal Cell Growth on Silica Aerogel Substrate*

M. J. Abu Saude   EECE   Fall 2011   Spring 2013   Masters   Apr. 5, 2013

Thesis title: *Molecular Dynamic Analysis of Electrostatics of Single-Stranded DNA With a Prospective Towards Single Molecule Sequencing*

Service as a Member in Thesis/Dissertation Committees:

Student Name	Department	Supervisor	Degree	Defense Date
Shamsul Arefeen	ECE	Dr. Dallas, ECE	PhD	Jun. 24, 2022
Prerit Datta	CS	Dr. Namin, CS	PhD	Jun. 21, 2022
Faranak Abri	CS	Dr. Namin, CS	PhD	Jun. 10, 2022
Sraddhanjali Acharya	CS	Dr. Serwadda, CS	PhD	Oct 14, 2021
Thomas Shannon	BME	Dr. Curry, BME	Masters	May 17, 2016
Kyle Lynch	Physics	Dr. Sabri, Physics	Masters	Aug. 11, 2016
John Ramshur	BME	Dr. Curry, BME	Ph.D.	Feb. 4, 2015
Alex P. Hoban	BME	Dr. Haggard, BME	Masters	June 27, 2014

Gahangir Hossain	EECE	Dr. Yeasin, EECE	Ph.D.	Apr. 18, 2014
A.K.M.M. Rahman	EECE	Dr. Yeasin, EECE	Ph.D.	Nov. 1, 2013
Karththikka Muthukuri	EECE	Dr. Yeasin, EECE	Masters	Jul. 29, 2013
Tina M. D. Fortune	BME	Dr. Curry, BME	Ph.D.	Apr. 02, 2013
Pratiksha Subedi	EECE	Dr. Yeasin, EECE	Masters	Nov. 14, 2012
Akbar Sharief Shaik	EECE	Dr. Yeasin, EECE	Masters	Oct. 19, 2012
Avhijit Nag	EECE	Dr. Yeasin, EECE	Masters	June 29, 2012
Kristopher Langston	EECE	Dr. Robinson, EECE	Masters	May 10, 2012

MS Project Advisor:

Student Name	Department	Semester	Degree	Date
Vandana Muppala	CS	Summer 2022	Masters	-
Alekhya Koppaka	CS	Summer 2022	Masters	-
Malathi Kadipikonda	CS	Fall 2021	Masters	-
Rohith Reddy Anugu	CS	Spring 2021	Masters	Apr. 27, 2021
Adarshreddy Dodla	CS	Spring 2021	Masters	Apr. 27, 2021
Cruz Segura-Ramirez	EECE	Fall 2019	Masters	Dec. 2, 2019
Adit Joshi	EECE	Fall 2016	Masters	Dec. 8, 2016
Kavya Koganti	EECE	Spring 2015	Masters	Apr. 25, 2015

MS Project Student's Committee:

Student Name	Degree	Department	Date
Sankaet Pathak	Masters	EECE	May 6, 2014
Siva J. Bandhakavi	Masters	EECE	Apr. 7, 2014

Supervision of Undergraduate Student Research at my lab:

Student Name	Program	Department	Duration
Rohan Mittal	Hourly	CS	May 2022 – Aug. 2022
Aaron Alexander	Hourly	EECE	Sum. 2018 – Spr. 2019
Rachel Alexander	Hourly	EECE	Fall 2017 – Spr. 2018
James Coleman	Volunteer	EECE	Fall 2016 – Spr. 2018
James E. Palmer	Hourly	EECE	Fall 2015 – Sum. 2017
Cadarrius McGlown	Volunteer	EECE	Fall 2014 – Spr. 2015
David Arellano	MemphiSTEP/Hourly	EECE	Jan. 2014 – Aug. 2015
Zachary Tate	MemphiSTEP	EECE	Jan. 2013 – June 2013

Supervision of Undergraduate (Individual) Project Student:

Student Name	Department	Duration	Project Title
Sankaet Pathak	EECE	Fall 2015	Database as a Service for IoT & peripheral devices
Angela M. Mooney	EECE	Fall 2014	GPS locator
Jaron A. Crocker	EECE	Fall 2013	Epilepsy Alert on Android Phone
Sankaet Pathak	EECE	Fall 2012	EEG signal analysis on Android phone

Supervision of Undergraduate Internship Students:

Student Name	Home Institute	UG Program	Duration
Gabriel Teodoro	Instituto Millitar de Engenharia, Brazil	Computer Science	Oct. 2020 – Dec. 2020
Chang Long Zhu Jin	La Salle – Ramon Llull University, Barcelona, Spain	Electronic System Engineering	July 2013 – Aug. 2013
Rafael Morais	Universidade Federal do Paraná, Brazil	Mathematics	Jan. 2013 – May 2013
Jordi Martinez-Carrasco Palomino	La Salle – Ramon Llull University, Barcelona, Spain	Electronic System Engineering	May 2012 - Aug. 2012
Xavier Benavides Palos	La Salle – Ramon Llull University, Barcelona, Spain	Electronic System Engineering	May 2012 - Aug. 2012

Mentoring of High-school Students (K12 activity):

Student Name	Origin Institute	HS Grade	Duration
Rahel Raj Joshi	Claudia Taylor LBJ High School	Grade 12	July 2022 – Dec. 2022
Madison Davis	St. Ignatius College Preparatory	Grade 12	July 2021 – Dec. 2021
Osman Celikok	Pleasant View School	Grade 12	Aug. 2016 – Aug. 2017
Jack Hirschman	University of Memphis School	Grade 11	Jun. 2013 – Jul. 2013
Leah Sherman	Lausanne Collegiate School	Grade 12	Jun. 2012 – Jul. 2012

7.   A W A R D S / S C H O L A R S H I P S / H O N O R S

✧ **NSF student travel award:** Mst Moriom R. Momota for the paper: Mst M. R. Momota, and Bashir I. Morshed, "ML Algorithms to Estimate Data Reliability Metric of ECG from Inter-Patient Data for Trustable AI-based Cardiac Monitors", IEEE/ACM CHASE Conf., Washington DC, USA, Nov. 17-19, 2022.

✧ **Best presentation award in embedded system track:** Mahfuzur Rahman and Bashir I. Morshed, "Extraction of Respiration Rate from Wrist ECG Signals'", IEEE Ubiquitous Computing, Electronics, and Mobile Communication Conf. (UEMCON), Dec. 1-4, 2021.

✧ The conference paper titled "Finite Element Simulation of Inkjet Printed Flexible Parallel Plate MIM Capacitors on Polyimide Film" by ***Mst Moriom R. Momota, Ankita Mohapatra, and Bashir I. Morshed*** has received the **Best Paper award** at the 21st Annual IEEE Intl. Conf. on Electro/Information Technology (EIT2021), May 13-15, 2021 at Mt Pleasant, Michigan, USA.

✧ Dr. Morshed is the recipient of the **Faculty Research Award** from Herff College of Engineering, University of Memphis, May 2020.

✧ Dr. Morshed has received **Faudree Professorship** (2019-2022) award at the University of Memphis for his outstanding contribution to the University's educational, research, outreach and service missions.

✧ Dr. Morshed has been recognized as an **IEEE Senior Member**, April 2019.

✧ Dr. Morshed has received **2018 MHTI Scholar award** by NIH mHealth Summer Training Institute at UCLA, July 29 - Aug. 3, 2018. (https://mhealth.md2k.org/scholars/2018-scholars)

✧ The conference paper titled "Accessing Differential Measures with a Conjugate Coil-pair for Wireless Resistive Analog Passive (WRAP) ECG Sensors" by ***Mohammad Abu-Saude and Bashir I. Morshed*** has received the **Best Paper award** at the 18th Annual IEEE Intl. Conf. on Electro Information Technology (EIT2018), May 3-5, 2018 at Rochester, Michigan, USA.

✧ The presentation by Rachel Alexander has received **1st prize award** in Engineering category at TLSAMP (Tennessee Louis Stokes Alliance for Minority Participation) Research Conference in Chattanooga, TN on Feb. 22-23, 2018.

✧ The conference paper titled "Single Channel EEG Time-Frequency Features to Detect Mild Cognitive Impairment" by S. Khatun, B. I. Morshed, and G. M. Bidelman has been awarded **Student Travel Grant** at MeMeA 2017, Rochester, MN, May 7-10, 2017.

✧ Awarded **the best poster** in the Department of EECE Poster Competition held at the University of Memphis on 24 April 2017. (Poster title: "PSC Optimization of 13.56-MHz Resistive Wireless Analog Passive Sensors")

✧ Awarded **the 3rd best poster** in the Department of EECE Poster Competition held at the University of Memphis on 24 April 2017. (Poster title: "An Interactive Web-based Visualization Tool of Community Health Data for a Smart & Connected Community (SCC)")

✧ The IP "**Dry Electrodes for Vital Sign Monitoring**", (Inventors: B. I. Morshed, Md. N. Sahadat, and S. Consul-Pacareu), presented by Team 4 (F. Phillips, P. Devaraju, A. Rathi, P. Chen, and S. Hudson, Mentors: J. Bell & B. I. Morshed), has been judged **runner-up** (joint) at the Inaugural Memphis Scipreneur Challenge (MSC), 2017.

✧ Awarded **the best poster** in the Department of EECE Poster Competition held at the University of Memphis on 25 April 2016. (Poster title: "BRAINsens: Body-worn Reconfigurable Architecture of Integrated Network Sensors")

✧ Awarded **3rd best poster** in the Department of EECE Poster Competition held at the University of Memphis on 25 April 2016. (Poster title: "Chitosan-Based Magnetic Stimulus Responsive Vancomycin Drug Delivery System")

- ❖ **"Excellent Demo Track Presentation"** Award for an exemplary demonstration of "Resistive Wireless Analog Passive Sensors (rWAPS)", presented by B. I. Morshed and demonstrated by Babak Noroozi and Mohammad Abu-Saude, at the IEEE Radio & Wireless Week (RWW), Austin, TX, 24-27 Jan. 2016.

- ❖ Awarded **3rd best poster** in the Department of EECE Poster Competition held at the University of Memphis on 24 April 2015. (Poster title: "Patterned Vertical Carbon Nanotube (pvCNT) Dry Electrodes for Impedimetric Sensing and Stimulation")

- ❖ Awarded **3rd best poster** in the Department of EECE Poster Competition held at the University of Memphis on 24 April 2015. (Poster title: "Magnetic Stimulus Responsive Tetracycline Delivery System Based on Chitosan Microbeads with Embedded Magnetic Nanoparticles")

- ❖ **Best paper nomination** at the IEEE Healthcare Innovations and Point-of-Care Technologies Conference (HIPoCT) held at Seattle, WA, on October 8-10, 2014. (Paper title: "Electric Stimulus Response of Chitosan Microbeads Embedded with Magnetic Nanoparticles for Controlled Drug Delivery")

- ❖ The **4th most downloaded paper** awards at the IEEE Healthcare Innovations and Point-of-Care Technologies Conference (HIPoCT) held at Seattle, WA, on October 8-10, 2014. (Paper title: "NeuroMonitor Ambulatory EEG Device: Comparative Analysis and Its Application for Cognitive Load Assessment")

- ❖ Awarded **the best poster** in the Department of EECE Poster Competition held at the University of Memphis on 25 April 2014. (Poster title: "Wireless Analog Passive Biosignal Sensors Based on Frequency Selective Backscattering")

- ❖ Awarded **2nd prize at the national level competition** of 2013 DRS Student Infrared Imaging Competition. (Project title: "Forgery-proof identification using sweat gland distribution")

- ❖ The paper titled "Identifying Severity of Electroporation Through Quantitative Image Analysis" was selected as frontiers of research in Virtual J. of Biological Physics Research, April 15, 2011

- ❖ Ontario Graduate Scholarship for Science and Technology (OGSST), 2008
- ❖ Academic Excellence for Domestic Students, Carleton University, 2008
- ❖ Graduate Scholarship, Carleton University, 2008
- ❖ Departmental Scholarship, Carleton University, 2008
- ❖ Ontario Graduate Scholarship (OGS), Ontario Ministry of Training, 2007
- ❖ Academic Excellence for Domestic Students, Carleton University, 2007
- ❖ Graduate Scholarship, Carleton University, 2007
- ❖ Departmental Scholarship, Carleton University, 2007
- ❖ Indira Gandhi Memorial Fellowship, Carleton University, 2006
- ❖ Academic Excellence for International Students, Carleton University, 2006
- ❖ Graduate Scholarship, Carleton University, 2006
- ❖ Departmental Scholarship, Carleton University, 2006
- ❖ Academic Excellence for International Students, Carleton University, 2005

- ✧ Graduate Scholarship, Carleton University, 2005
- ✧ Departmental Scholarship, Carleton University, 2005
- ✧ Indira Gandhi Memorial Fellowship, Carleton University, 2004
- ✧ Departmental Scholarship, Carleton University, 2004
- ✧ International Student Tuition Scholarship, University of Windsor, 2003 and 2004 (declined)
- ✧ **Canadian Commonwealth Scholarship and Fellowship**, Government of Canada, 2003-2004
- ✧ **Canadian Commonwealth Scholarship and Fellowship**, Government of Canada, 2002-2003
- ✧ Dean List Award, Bangladesh Univ. of Engineering and Technology, 1994 to 1998
- ✧ Merit List Award, Bangladesh Univ. of Engineering and Technology, 1994 to 1998

8. FEATURED/NEWS

- ✧ "The tech of tomorrow: researchers printing wearable sensors", University of Memphis Herff Magazine, Spring 2020 issue, page 3. ([Link](#))
- ✧ "Teched Out", shared opinions on a short YouTube documentary on the impacts of newer technologies and cyborg on human society, Dec. 2019. ([Link](#))
- ✧ "Engineering Day", a YouTube video (at 0:50s) published by Shelby County School (SCS) where Dr. Morshed demonstrates ECG data capture systems to High School students, Aug. 2018. ([Link](#))
- ✧ "Ontario, Canada: Taking Medical Device Manufacturing to a Higher Level", Dr. Morshed's research outcomes of doctoral and post-doctoral level covered in the media by his supervisor Dr. Mussivand, MedTech Pulse, April 27, 2012. ([Link](#))

9. PROFESSIONAL DEVELOPMENT

- ✧ **Faculty Search Committee Workshop**, Texas Tech University, Apr. 21, 2021
- ✧ **COMPASS Science Communication Training**, University of Memphis, May 16, 2018
- ✧ **Team Science Workshop**, University of Memphis, Mar. 14, 2018
- ✧ **NSF Day at Tennessee State University**, Nashville TN, Feb. 22, 2018
- ✧ **NSF CISE CAREER Proposal Writing Workshop**, Arlington, VA, 17 March 2015
- ✧ **NSF/NIH Proposal Requirements Workshop**, University of Memphis, 13 Jan. 2015
- ✧ **NSF CISE CAREER Proposal Writing Workshop**, Arlington, TX, 17 May 2013
- ✧ **SBIR Workshop**, BioWorks, Memphis, TN, 11 Feb. 2013
- ✧ **Teaching Adult Lifelong Learners (TALL) program**, Algonquin College, 2010 – 2011
  Courses completed: TTA5501: Teaching adults, TTA5507: Strategies for effective e-learning, TTA5504: Assessment and evaluation of adult learning
- ✧ **Graduate University Teaching Skills (GUTS) certificate program**, Educational Development Center (EDC), Carleton University, Summer 2009

- ✧ **Communication Workshop for Graduate Engineering Students**, Communication Courses for Disciplines and Professions, Carleton University, Fall 2007

10. SHORT COURSES/TRAININGS/WORKSHOPS

- ✧ COMSOL Training Course, offered through CMC, on Jan. 21-22, 2009
- ✧ MEMSPro Training Course, offered through CMC, on Nov. 24-25, 2008
- ✧ Laboratory Safety Training (Level I), Ottawa Heart Institute, 2007 and 2010
- ✧ High performance computing through parallel programming (Level I), 2006
- ✧ NI LabVIEW Hands-On Campus Workshop, Carleton University, 2006
- ✧ Teacher's Appreciation Workshop, Directorate of Continuing Education, BUET, Bangladesh, 2001

11. PROFESSIONAL MEMBERSHIPS

- ✧ Senior Member, IEEE (Institute of Electrical and Electronics Engineers), 2019 – now
- ✧ Member, IEEE (Institute of Electrical and Electronics Engineers), 2012 – 2019
- ✧ Member, IEEE EMBS (IEEE Engineering in Medicine and Biology Society), 2008 - 2020
- ✧ Member, SPIE – The international society for optical engineering, 2012 – 2013
- ✧ Student Member, IEEE (Institute of Electrical and Electronics Engineers), 2004 - 2011
- ✧ Registered Member, CMC (Canadian Microelectronics Corporation), 2002 – 2011

12. OUTREACH/SYNERGISTIC ACTIVITIES

- ✧ Faculty Affiliate, STEM Center for Outreach, Research & Education (STEM CORE), Texas Tech University, 2021 - now.
- ✧ Demonstration of technologies at Herff Scholars Day to high school graduates for potential STEM UG freshman recruits, 2019.
- ✧ Engineering Day (eDay) demonstration of research projects to high school students at Shelby county area for STEM careers, conducted each year from 2016 - 2019.
- ✧ Science Fair Judge, Tennessee Academy of Science (TAS), Health and Medical Sciences (oral presentation), Rhodes College, Memphis, TN, April 2, 2016
- ✧ Science Fair Judge, Shelby County Schools Science Fair, April 15, 2014
- ✧ Faculty Mentor, MemphisCRESH program, the University of Memphis, 2013
- ✧ Judge, West Tennessee Regional Collegiate Meeting of the Tennessee Academy of Science (TAS), Christian Brothers University, April 6, 2013
- ✧ Science Fair Judge, Shelby County Schools Science Fair, March 6, 2013
- ✧ Faculty Mentor, MemphisCRESH program, the University of Memphis, 2012
- ✧ Poster Judge, Helen Hardin Honors Program, the University of Memphis, Jan. 2012
- ✧ Science Fair Judge, Battle of the Brains, Germantown High School, Germantown, TN, Nov. 2011
- ✧ Science Fair Judge, Ottawa Regional Science Fair, Ottawa, ON Canada, April 2011

- ✧ Internal member, Program Committee, Wireless/Mobility Program, Algonquin College, Ottawa ON Canada, 2010 - 2011
- ✧ Member, Teacher In-Service Program (TISP), IEEE - Ottawa section, 2011
- ✧ Volunteer, IEEE Humanitarian Technology Challenge (HTC), Ottawa section, 2010 – 2011
- ✧ Volunteer, Teacher-in-service program (TISP) in Ottawa, Canada, 2010 - 2011
- ✧ Editor, souvenir publication, "BUET Reunion at Windsor", Windsor, Canada, January 2004