

Md Ariful Islam

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- G Google Scholar Profile (Citations: 986)
- R^e ResearchGate Profile
- GitHub Profile
- ORCID Profile
- in LinkedIn Profile
- Academia Profile
- Faculty Profile- University of Dhaka, Bangladesh



Employment History

August 18, 2025 –	Graduate Research Associate School of Electrical, Computer and Energy Engineering Arizona State University, Tempe, AZ 85287, USA.
June 15, 2026 –	Research Affiliate 59000 - ARZ-Research RTP Mayo Clinic in Arizona, USA.
April 30, 2023 –	Assistant Professor (Study Leave) Department of Robotics and Mechatronics Engineering University of Dhaka, Dhaka-1000, Bangladesh.
September 22, 2024 – July 30, 2025	Adjunct Faculty Department of Computer Science and Engineering University of Dhaka.
November 1, 2022 – May 5, 2025	Adjunct Faculty Intitute of Leather Engineering and Technology University of Dhaka.
January 1, 2023 – June 30, 2024	Adjunct Faculty Department of Islamic Studies University of Dhaka.
August 15, 2023 – February 15, 2024	Adjunct Faculty Department of Computer Science and Engineering Bangabandhu Sheikh Mujibur Rahman Digital University, Kaliakair, Gazipur-1750, Bangladesh.
September 1, 2023 – March 14, 2024	Adjunct Faculty Department of Computer Science and Engineering Sheikh Hasina University, Netrokona, Bangladesh.
May 28, 2023 – September 5, 2023	Adjunct Faculty Department of Computer Science and Engineering University of Liberal Arts Bangladesh.
February 2, 2022 – May 24, 2022	Adjunct Faculty Department of Computer Science and Engineering East West University.
October 2, 2019 – April 29, 2023	Lecturer Department of Robotics and Mechatronics Engineering University of Dhaka, Dhaka-1000, Bangladesh.

Employment History (continued)

- July, 2019 – September, 2019  **Adjunct Faculty**
Department of Archaeology
Comilla University, Cumilla-3506, Bangladesh.
- February 27, 2019 – September 30, 2019  **Lecturer**
Department of Information and Communication Technology
Comilla University, Cumilla-3506, Bangladesh.

Presentation/ Guest Lecture

- July 28, 2026  **Poster Presentation**
Associations Between Maternal Sleep-Disordered Breathing and Fetal Heart Rate Variability in Late Pregnancy
International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2026)
Location: Metropolitan Toronto Convention Centre, Toronto, Canada.
- May 5, 2026  **Poster Presentation**
Sleep Physiology: From Wearable Obstructive Sleep Apnea Screening to Multidomain Risk Stratification and Maternal-Fetal Autonomic Coupling
2nd Annual Arizona Digital Health Symposium: From Roadmap to Reality
Location: Health Futures Center, 6161 E. Mayo Blvd.
Phoenix, Arizona, USA.
- April 2, 2026  **Poster Presentation**
Sleep Physiology: From Wearable Obstructive Sleep Apnea Screening to Multidomain Risk Stratification and Maternal-Fetal Autonomic Coupling
Fusion 2026 | A Biodesign Scientific Retreat
Location: Memorial Union 2nd Floor, Arizona Ballroom
Arizona State University, Tempe, AZ 85287, USA.
- March 31, 2026  **Guest Lecture**
EEE 203: Signal and Systems I (Fourier Transform)
School of Electrical, Computer and Energy Engineering
Arizona State University, Tempe, AZ 85287, USA.
- November 12, 2025  **Poster Presentation**
A Systematic Review of Digital Health Technologies for Detecting and Monitoring Cancer Treatment-Related Cardiotoxicity
2025 Mayo Clinic and ASU Giants Among Us
ASU Health Futures Center (HFC) Conference Center, 6161 East Mayo Blvd, Phoenix, AZ 85054, USA.

Education

- August 21, 2025 – onwards  **Ph.D in Electrical Engineering**
School of Electrical, Computer and Energy Engineering
Arizona State University, Tempe, AZ 85287, USA.
CGPA: 4 (Out of 4) upto 2nd semester

Education (continued)

November 2016 – September 2018

■ **M.Sc in Electrical and Electronic Engineering**
Department of Electrical and Electronic Engineering
Faculty of Engineering and Technology, University of Dhaka.
CGPA : 3.98 out of 4.00
Merit Position: First
Thesis title: *Modeling and Simulation of the effect of dropped calls on cell traffic to improve the quality of service in 3G based cellular network.*

January, 2012 – October 2016

■ **B.Sc in Electrical and Electronic Engineering**
Department of Electrical and Electronic Engineering
Faculty of Engineering and Technology, University of Dhaka.
CGPA : 3.77 out of 4.00
Merit Position: Fourth
Thesis title: *Estimation of the base station coverage area in GSM mobile communication system.*

August 2008 – April 2010

■ **Higher Secondary Certificate (HSC)**
Subject: Science
Ispahani Public School and College, Cumilla Cantonment, Cumilla, Bangladesh.
GPA : 5 out of 5

January 2006 – February 2008

■ **Secondary School Certificate (SSC)**
Subject: Science
Ispahani Public School and College, Cumilla Cantonment, Cumilla, Bangladesh.
GPA : 5 out of 5

Research Interests

Sleep Health, Digital Health Technologies, Data Science, Machine Learning, Deep Learning, Biomedical Signal Processing

Research Publications

Journal Articles

- 1 M. A. Islam, P. C. Kar, and S. A. Deowan, "Solar-based hybrid electric vehicles for low co₂ emission," *International Journal of Sustainable Engineering*, Q1, impact factor: 4.1, vol. 18, no. 1, p. 2 474 001, 2025.  URL: <https://www.tandfonline.com/doi/full/10.1080/19397038.2025.2474001#abstract>.
- 2 M. A. Islam, S. H. Sadi, and M. T. A. Shampa, "Smart ocean: A comprehensive review of artificial intelligence-driven ocean monitoring, forecasting, exploration and conservation," *BIMRAD Journal*, vol. 6, no. 1, pp. 83–122, 2025.  URL: <https://banglajol.info/index.php/BIMRADJ/article/view/87345>.
- 3 M. A. Islam, M. Z. H. Majumder, M. A. Hussein, K. M. Hossain, and M. S. Miah, "A review of machine learning and deep learning algorithms for parkinson's disease detection using handwriting and voice datasets," *Heliyon*, Q1, IF: 3.4, 2024.  URL: <https://www.sciencedirect.com/science/article/pii/S2405844024015007>.
- 4 M. A. Islam, M. Z. H. Majumder, M. S. Miah, and S. Jannaty, "Precision healthcare: A deep dive into machine learning algorithms and feature selection strategies for accurate heart disease prediction," *Computers in Biology and Medicine*, Q1, IF: 7.7, p. 108 432, 2024.  URL: <https://www.sciencedirect.com/science/article/abs/pii/S001048252400516X>.

- 5 M. A. Islam and M. T. A. Shampa, "Precipitation prediction in bangladesh using machine learning approaches," *International Journal of Hydrology Science and Technology*, Q1, impact factor: 1.86, vol. 18, no. 1, pp. 23–56, 2024.  URL: <https://www.inderscienceonline.com/doi/abs/10.1504/IJHST.2024.139395>.
- 6 M. A. Islam, M. T. A. Shampa, and N. J. Shimu, "Machine learning-based prediction of sonic layer depth in the bay of bengal," *Regional Studies in Marine Science*, Q2, impact factor: 2.1, p. 103 750, 2024.  URL: <https://www.sciencedirect.com/science/article/abs/pii/S2352485524003839>.
- 7 M. Z. H. Majumder, M. T. A. Shampa, M. A. Islam, S. A. Deowan, and F. Hafiz, "Marine renewable energy harnessing for sustainable development in bangladesh: A technological review," *Energy Reports*, Q2, IF: 5.2, vol. 11, pp. 1342–1362, 2024.  URL: <https://www.sciencedirect.com/science/article/pii/S2352484724000015>.
- 8 M. M. Uttsha, A. N. Haque, T. T. Banna, S. A. Deowan, M. A. Islam, and H. M. H. Babu, "Enhancing agricultural automation through weather invariant soil parameter prediction using machine learning," *Heliyon*, Q1, IF: 3.4, vol. 10, no. 7, 2024.  URL: <https://www.sciencedirect.com/science/article/pii/S2405844024046577>.
- 9 S. E. Arman et al., "Intracranial hemorrhage classification from ct scan using deep learning and bayesian optimization," *IEEE Access*, Q1, IF: 3.476, 2023.  URL: <https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=10198438>.
- 10 M. A. Islam, M. M. Hasan, and S. A. Deowan, "Robot-assisted training for children with autism spectrum disorder: A review," *Journal of Intelligent & Robotic Systems*, Q1, IF: 3.3, vol. 108, no. 3, p. 41, 2023.  URL: <https://link.springer.com/article/10.1007/s10846-023-01872-9>.
- 11 M. A. Islam, M. Z. H. Majumder, and M. A. Hussein, "Chronic kidney disease prediction based on machine learning algorithms," *Journal of Pathology Informatics*, Q2, IF: 3.23, p. 100 189, 2023.  URL: <https://www.sciencedirect.com/science/article/pii/S2153353923000032>.
- 12 M. Islam M.A. Shampa, "Precipitation prediction in bangladesh using machine learning approach," *Int. J. of Hydrology Science and Technology*, Q3, IF: 1.34, 2023.  URL: <https://www.inderscienceonline.com/doi/abs/10.1504/IJHST.2024.139395>.
- 13 P. C. Kar and M. A. Islam, "Design and performance analysis of a rectenna system for charging a mobile phone from ambient em waves," *Heliyon*, Q1, IF: 3.4, vol. 9, no. 3, 2023.  URL: <https://www.sciencedirect.com/science/article/pii/S2405844023011714>.
- 14 M. M. Hasan, M. A. Islam, S. Rahman, M. R. Frater, and J. F. Arnold, "No-reference quality assessment of transmitted stereoscopic videos based on human visual system," *Applied Sciences*, Q2, IF: 2.838, vol. 12, no. 19, p. 10 090, 2022.  URL: <https://www.mdpi.com/2076-3417/12/19/10090>.
- 15 K. M. Hossain, M. A. Islam, S. Hossain, A. Nijholt, and M. A. R. Ahad, "Status of deep learning for eeg-based brain–computer interface applications," *Frontiers in computational neuroscience*, Q2, IF: 3.38, vol. 16, 2022.  URL: <https://www.frontiersin.org/journals/computational-neuroscience/articles/10.3389/fncom.2022.1006763/full>.
- 16 M. A. Islam, M. R. Hasan, and A. Begum, "Improvement of the handover performance and channel allocation scheme using fuzzy logic, artificial neural network and neuro-fuzzy system to reduce call drop in cellular network," *Journal of Engineering Advancements*, vol. 1, no. 04, pp. 130–138, 2020.  URL: <https://scienpg.com/jea/index.php/jea/article/view/jea.2020.04.004/30>.

Conference Proceedings

- 1 V. Sharma, M. A. Islam, U. Goswami, C. M. Ruoff, and M. M. H. Shandhi, "Comparative analysis of machine learning models for obstructive sleep apnea and hypopnea detection using pulse oximetry and heart rate variability," in *2025 IEEE EMBS International Conference on Biomedical and Health Informatics (BHI)*, IEEE, 2025, pp. 1–7.  URL: <https://ieeexplore.ieee.org/abstract/document/11269514>.

- 2 M. M. Uttsha, A. N. H. Haque, T. T. Banna, S. A. Deowan, M. A. Islam, and H. M. H. Babu, "Predicting soil parameters using weather data in an uncontrolled agricultural bed with regression neural network.," in *International Conference on Roboethics AI Ecosystem, Industry and Global Trades* Dhaka, 2023.

Research Activities

Summer, 2026	Team Research Work: Using Real-World Data to Address Prevalence and Treatment of Cardiovascular, Kidney and Metabolic Disease in Cancer Patients and Survivors. Conference-oriented work: Longitudinal Biochemical Characterization and Prediction of Obstructive Sleep Apnea Severity Progression Using Explainable Machine Learning.
Spring, 2026- Present	Second PhD Work: Multi-modal Fusion Model to Detect Obstructive Sleep Apnea using Deep Learning Approach.
Fall, 2025- Present	First PhD Work: Multidimensional Polysomnography-derived Sleep Indices and Their Associations with Cardiometabolic and Respiratory Health Risks
Fall, 2025	Conference-oriented work: Associations Between Maternal Sleep-Disordered Breathing and Fetal Heart Rate Variability in Late Pregnancy
2025-Present	Founder and Director, " <i>Sustainable Intelligent Systems (SIS) Lab</i> ", The Sustainable Intelligent Systems (SIS) Lab pioneers cutting-edge research at the intersection of machine learning, environmental science, biomedical engineering, and renewable energy. We develop adaptive intelligent systems to address pressing global challenges-from climate resilience and marine conservation to precision healthcare and sustainable energy.
2023-Present	Research Associate, " <i>Data and Design Lab</i> ", "Improving Quality of Power Supply to the Industrial Clusters around Dhaka City" Funded by BEPRC (Bangladesh Energy and power Research Council).
2023-2024	Project Director, "Unraveling Bacterial Resistance Patterns: Deep Learning Approaches for High-Resolution Drug Target Profiling" funded by University Grant Commission, Bangladesh, <i>List of UGC Approved Projects</i> .
2022-2023	Principal Investigator, "Modeling of Hybrid Electric Vehicle for Low Emission" funded by Centennial Research Grant (Phase 2, 2021-2022) of University of Dhaka.
2021-2022	Co-principal Investigator, "Diagnosis of Intracranial Hemorrhage from CT Scan of Head based Using Deep Learning and Bayesian Optimization" funded by Centennial Research Grant (Phase 1, 2021-2022) of University of Dhaka.
2020-2021	Co-principal Investigator, "Artificial Intelligence based Smart Agriculture System" funded by Ministry of Science and Technology (2020-2021) of the government of Bangladesh

Skills

Coding	Python, R Programming, C, C++, JAVA, SQL, HTML, CSS, $\text{\LaTeX}$, ...
Software	MATLAB Simulink, SolidWorks, AutoCAD, Proteus, Photoshop, CISCO packet tracer, Microsoft Office, $\text{\LaTeX}$...

Awards and Experiences

Awards and Achievements

- 2026–2027 **Qualcomm Fellowship**, I received the Qualcomm Fellowship from Arizona State University in recognition of my research excellence and academic achievement.
- Barrett Electronic Materials Fellowship**, This fellowship is awarded in recognition of my academic achievements and is intended to support graduate students at Arizona State University, Arizona, USA in the field of electronic materials research.
- 2026 **Spring 2026 GSG Outstanding Research Award**, I was selected for this award in recognition of my research excellence, as well as the impact and significance of my research contributions during Spring 2026 at Arizona State University, USA.
- 2025–2026 **Fulton Fellowship**, In recognition of my excellent academic accomplishments, the Ira A. Fulton Schools of Engineering and the School of Electrical, Computer and Energy Engineering at Arizona State University, Arizona, USA offered me an award through the Fulton Fellows program. This award is highly competitive and is only offered to their top Ph.D. student prospects upon recommendation of the faculty in their programs.
- Barrett Electronic Materials Fellowship**, This fellowship is awarded in recognition of my academic achievements and is intended to support incoming graduate students at Arizona State University, Arizona, USA in the field of electronic materials research.
- 2025 **DU Research Excellence Recognition, University of Dhaka, Bangladesh**, In recognition of my exemplary contribution to scholarly excellence through high quality research publications..
- 2023 **Dean's Award, University of Dhaka, Bangladesh** , This recognition is for my contributions to research publications, student guidance, and academic excellency.
- 2017–2018 **National Science and Technology Fellowship** , funded for Master's Thesis by Govt. Peoples Republic of Bangladesh.
- 2017 **Book Prize, University of Dhaka, Bangladesh** , I received the Book Prize from the University of Dhaka for securing the first merit position in my Master's program.
- 2012–2015 **Merit Scholarship, University of Dhaka, Bangladesh**, funded by University of Dhaka for academic excellency.
- 2003–2007 **Bangladesh Army Welfare Scholarship**, for academic excellency.
- 2008 **General Grade Scholarship** , for academic excellency of school certificate examination.
- 2005 **Talent Pool**, Junior Scholarship.

Social Skills and Competences

- 2022–2025 **House Tutor**, Mastar Da Surja Sen Hall, University of Dhaka.
- 2017–2018 **Dhaka University Press Reporter**, bdmorning.com.
- General Secretary**, University Student's Association of Comilla.
- 2012–2017 **Football Player**, Department of Electrical and Electronic Engineering, University of Dhaka.
- 2012–present **Donor and Member**, BADHAN (Voluntary Blood Donating Club).
- 2019–2022 **Moderator**, Robotics and Mechatronics Club, University of Dhaka.
- 2022–present **Moderator**, Shahidullah Hall EEE Student Association, University of Dhaka.

Subject Taught

Dept. of Robotics and Mechatronics Engineering, University of Dhaka

2 October, 2019–2025

Fundamentals of Electrical and Electronic Engineering (Theory+Lab), Digital Signal Processing (Theory+Lab), Instrumentation and Measurements (Theory+Lab), Engineering Mechanics, Mechanics of Solids and Fluids (Theory+Lab), Power Electronics and Drives (Theory+Lab), Electrical Machines, Fundamentals of Mechanical Engineering, Digital Logic Circuit and Microprocessor (Theory+Lab).

Dept. of Computer Science and Engineering, University of Liberal Arts Bangladesh

May 28, 2023–September 5, 2023

Digital Logic Design (Theory+Lab)

Dept. of Internet of Things and Robotics Engineering, Bangabandhu Digital University

August 15, 2023–February 15, 2023

Network Protocols of IoT

Dept. of Computer Science and Engineering, Sheikh Hasina University, Netrokona

September 1, 2023–March 14, 2024

Introduction to Mechatronics

Dept. of Information and Communication Technology, Comilla University

27 February, 2019– 30 September, 2019

Object-Oriented Programming with C++ (Theory+Lab), Digital Signal Processing (Theory+Lab), Image Processing (Theory+Lab), Analog Communication (Theory+Lab), Network Design and Optimization (Theory+Lab).

Dept. of Archaeology, Comilla University

July 2019–September, 2019

Computer in Archaeology.

Institute of Leather Engineering and Technology, University of Dhaka

1 November, 2021–2025

Computer Graphics Design (Lab), Fundamentals of Computer and Information Engineering (Theory+Lab).

Dept. of Computer Science and Engineering, East West University, Bangladesh

1 February, 2022– 30 May, 2022

Electronic Circuit (Theory+Lab)

Dept. of Islamic Studies, University of Dhaka

1 January, 2023–2025

Computer Literacy (Theory+Lab)

Relevant Coursework

Ph.D

August, 2025–Present

Biomedical Signal Processing and Machine Learning, Deep Learning: Foundations and Applications, Generative AI: Theory and Practice, Advanced Biostatistics for Biomedical Research and Health Care, Causal Inference (Fall, 2026).

Graduate

November, 2016–September, 2018

Power Plant Engineering, Fuzzy Neural Control System, Information and Network Security, Solid State Physics, Biomedical Signal & Telemedicine, Digital Image Processing, High Speed Computer Network.

Relevant Coursework (continued)

Undergraduate

January, 2012– September, 2016

Computer Fundamentals and Programming in C, Analog Electronics, Nuclear Physics, Electrical Machines, Digital Electronics, Quantum Mechanics and Physical Electronics, Electrical Circuit Analysis, Electromagnetic Theory and Antenna, Radio and Television Engineering, Telecommunication Networks, Material Science, Advanced Electronic Circuits, Electronic Devices, Industrial and Power Electronics, Microprocessors and Assembly Language, Computer Organization and Architecture, Renewable Energy Technology, Optical Fibre Communication, Microwave and Satellite Communication, Data Communication and Computer Network, Digital Signal Processing, Industrial and Biomedical Instrumentation, Semiconductor Technology and VLSI Technology, Control Engineering, Communication Theory, Computer Peripherals and Interfacing, Mobile Cellular Communication.

Basic Courses

January, 2012–September, 2016

Basic Statistics, Calculus, Linear Algebra and ODE, Mathematical Methods.

Self Study

September, 2018– Desember, 2020

Introduction to Machine Learning and Deep Learning, Image Processing and Robotic Vision, Data Analytics and Visualization, MATLAB Deep Learning, Deep Learning for time series forecasting, Image Processing and Acquisition using Python, EEG-based Brain Computer Interface, Power Systems.