

## Dr. Md. Sarwar Hosain

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## Profile

Highly accomplished academic and researcher with a Ph.D. in Information and Computer Sciences over 12 years of experience in teaching, research, and administrative roles. Specialized in Digital Signal Processing, Bone Conducted Speech, AI, and Wireless Communication, with a focus on Speech Emotion Recognition using machine learning and deep learning. Successfully supervised over 45 Master's and undergraduate students in Information and Communication Engineering. Demonstrated a proven track record of publications in reputable journals and presentations at international conferences. Consistently taught in English, ensuring professional proficiency and effective communication in an academic setting.

## Education

### I. Doctor of Philosophy (PhD) in Information and Computer Sciences

*Saitama University, Japan, 2024*

Degree Award Date: September 20, 2024

CGPA: 4.00 out of 4.00 (Course work)

Thesis: Enhancing Speech Emotion Recognition through Bone-Conducted Speech: Development, Dataset Creation, and Cross-Cultural Analysis

### II. Master of Philosophy (MPhil) in Information and Communication Engineering

*Pabna University of Science and Technology, Pabna, Bangladesh, 2019*

Degree Award Date: December 23, 2019

Degree: Conferred

Thesis: Performance Assessment of Layered Space Time Encoded SC-FDMA Wireless Communication System

### **III. Master of Science (MSc) in Information and Communication Engineering**

*University of Rajshahi, Rajshahi, Bangladesh, 2010*

Result Date: October 12, 2012

CGPA: 3.86 out of 4.00

Thesis: Performance Analysis of Channel Equalization Techniques for MC-CDMA

Wireless Communication System with Various Modulation Schemes

### **IV. Bachelor of Science (BSc) in Information and Communication Engineering**

*University of Rajshahi, Rajshahi, Bangladesh, 2009*

Result Date: August 24, 2011

CGPA: 3.79 out of 4.00

Thesis: Performance Evaluation of a Multi-user Orthogonal Frequency Division

Multiplexing Access based 3GPP LTE wireless communication system

## **Professional Experience**

### **I. Associate Professor, Information and Communication Engineering**

*Pabna University of Science and Technology, Pabna, Bangladesh*

Oct 2021 – to Present

- Delivered high-quality instruction to undergraduate and graduate students.
- Led innovative research and published in esteemed journals and conferences.
- Mentored students in research projects, career development, and academic pursuits.
- Contributed to curriculum development and departmental activities.

### **II. Assistant Professor, Information and Communication Engineering**

*Pabna University of Science and Technology, Pabna, Bangladesh*

Sep 2015 – Oct 2021

- Conducted lectures, seminars, and practical sessions in computer science.
- Led research projects and published findings in respected journals.
- Provided guidance and mentorship to students.
- Actively contributed to curriculum development and collaborated on research initiatives.

### **III. Lecturer, Information and Communication Engineering**

*Pabna University of Science and Technology, Pabna, Bangladesh*

Sep 2013 – Aug 2015

### **IV. Lecturer, Electrical and Electronic Engineering**

*Hamdard University Bangladesh, Munshiganj, Bangladesh*

Mar 2013 – Aug 2013

### **V. Lecturer, Electrical and Electronic Engineering**

*European University of Bangladesh, Dhaka, Bangladesh*

Jan 2013 – Mar 2013

- Responsibilities include preparing hardware and software resources for PC setups, managing Packet Tracer software installations, assisting in practical networking setups, configuring routing protocols, designing network architectures, and maintaining lab equipment. Support students and faculty in troubleshooting network issues, conducting demonstrations, and ensuring the smooth functioning of the networking lab environment.

### **Awards and Group Memberships**

- MEXT scholarship from Oct. 2021 to Sep. 2024
- Hossain Shaheed Suhrawardy Hall Gold Medal for Outstanding result in B.Sc. Examination-2009 from the University of Rajshahi, Bangladesh.
- Merit Scholarship for outstanding results in the B.Sc. Examination 2009 from the University of Rajshahi, Bangladesh.
- IEEE member

### **Courses Taught**

- Advanced Cryptography
- Wireless Communication
- Satellite and Radar Communication
- Telecommunication
- Web Programming
- Digital Signal Processing
- Management Information System
- E-Commerce and E-Governance
- Computer Architecture and Organization
- Cryptography and Network Security
- Structure Programming
- Digital Image and Speech Processing

## **Skills**

- Speech Emotion Recognition
- Bone Conducted Speech
- Deep learning
- Wireless Communication
- Image processing using machine learning
- Channel capacity and secrecy capacity analysis for wireless fading channels
- IoT-based applications for transportation and farming
- OBE-based Course Development

## **Contribution as a Reviewer**

- ✓ International Conference on Computing Advancements (ICCA 2022, 2024), ACM Digital Library
- ✓ International Conference on Electrical, Computer and Communication Engineering (ECCE 2023), IEEE
- ✓ International Conference on Recent progress in Science, Engineering and Technology (ICRPSET 2024), IEEE
- ✓ More than 20 different reputed journals

## **Travel History**

- Japan (November 2019, November 2021), USA (February 2024), Malaysia (2023), China (2019, 2024), Singapore (2021)

## List of Publications

### Journal

- ✓ M. S. Hosain, Y. Sugiura, M. S. Rahman and T. Shimamura, "EmoBone: A Multinational Audio Dataset of Emotional Bone Conducted Speech", IEEJ Trans. Electrical and Electronic Engineering, Publisher: IEEJ and Wiley, Vol. 19, No. 9, 2024.
- ✓ M. S. Hosain, Y. Sugiura, N. Yasui and T. Shimamura. Deep-Learning-Based Speech Emotion Recognition Using Synthetic Bone-Conducted Speech, Journal of Signal Processing, Vol. 27, No. 6, pp. 151-163, November 2023
- ✓ Hasan MK, Hosain MS, Ahmed MK, et al. Encrypted images in a V-BLAST assisted SC-FDMA wireless communication system. Trans Emerging Tel Tech. 2023;e4882. doi: 10.1002/ett.4882 21613915
- ✓ M. K. Hasan, M.S. Hosain, T. Saha, S. Islam, L.C. Paul, S. Khatak, H.M. Alkhasawneh, E. Kariri, E. Ahmed, R. Hassan, Energy efficient data detection with low complexity for an uplink multi-user massive MIMO system, Computers and Electrical Engineering, Volume 101, 2022, 108045, ISSN 0045-7906.
- ✓ Elfatih, N.M., Hasan, M.K., Kamal, Z., Gupta, D., Saeed, R.A., Ali, E.S., Hosain, M.S.: Internet of vehicle's resource management in 5G networks using AI technologies: Current status and trends. IET Commun. 1–21 (2021).
- ✓ Abadin, A. F. M. Z., Sarker, S., Hosain, M. S., Ahmed, M. M., & Imtiaz, A. (2021). A Comprehensive Study and Analysis of Different Routing Protocols for Enterprise LAN. International Journal of Science and Business, 5(8), 20-28.
- ✓ Ali MH, Hosain MS, and Hossain MA. (2021). Big data analysis using bigquery on cloud computing platform, Aust. J. Eng. Innov. Technol., 3(1), 1-9.
- ✓ J. Rahman, J.J. Sadique, M. S. Hossain and S.E. Ullah "Secured Audio Signal Transmission in 5G Compatible mmWave Massive MIMO FBMC System with Implementation of Audio-to-Image Transformation Aided Encryption Scheme" Global Journal of Computer Science and Technology: E Network, Web & Security, Vol.18 no.1 Year 2018.
- ✓ T. Saha, M. S. Hosain, S. A. Istiaq, "Performance Analysis of Encrypted Color Image in a D-BLAST Aided LDPC Encoded MC-CDMA Wireless Communication System", Advances in Networks, 2016; 4(2):13-20. doi: 10.11648/j.net.20160402.11.

- ✓ L. C. Paul, M. S. Hosain, S. Sarker, M. H. Prio, M. Morshed, A. K. Sarkar, "The Effect of Changing Substrate Material and Thickness on the Performance of Inset Feed Microstrip Patch Antenna", *American Journal of Networks and Communications (AJNC)*, Vol. 4, No. 3, Pp. 54-58, May 2015, doi: 10.11648/j.ajnc.20150403.16.
- ✓ M. S. Hosain, S. E. Ullah, R. Yasmin, " Quality Assessment of Encrypted Color Image in a D-BLAST aided LDPC encoded SC-FDMA Wireless Communication System", *International Journal of Emerging Technologies in Computational and Applied Sciences (IJETCAS)*, Vol. 12, No. 1, March-May, 2015, pp. 58-64.
- ✓ M. S. Hosain, S. E. Ullah, R. Yasmin, " Performance analysis of D-BLAST aided Turbo Encoded SC-FDMA wireless communication system", *International Journal of Scientific & Engineering Research*, Volume 5, Issue 7, Pp. 744-749, July-2014, ISSN 2229-5518, <http://www.ijser.org>.
- ✓ M. H. Kafi, M. S. Hosain, S. S. Islam, " Impact of MGSTC BLAST spatial multiplexing scheme on performance assessment of MCCDMA wireless communication system", *International Journal of Emerging Technologies in Computational and Applied Sciences (IJETCAS)*, Vol. 12, No. 1, March-May, 2015, pp. 08-14.
- ✓ M. S. Hosain, M. Haque, S. E. Ullah, " Performance Assessment of MIMO MCCDMA System on Video Signal Transmission with Implementation of Various Digital Signal Processing Techniques", *International Journal of Wireless Communications and Mobile Computing*, Vol. 3, No. 2, 2015, pp. 18-26, Published online April 17, 2015. doi: 10.11648/j.wcmc.20150302.12
- ✓ M. S. Hosain, M. Z. Hasan, R. Yasmin, " Impact of Iterative Channel Equalization Schemes on Text Message Transmission in a FEC Encoded Multi Carrier CDMA Wireless Communication System", *J. of Mobile Communication*, ISSN: 1990-794X, Vol. 7, No. 2, pp. 12-16, 2013.

## Conference

- ✓ M. S. Hosain, Y. Sugiura, M. S. Rahman and T. Shimamura, "Cross-Cultural Analysis of Emotional Expression in a Multinational Speaker Dataset", 2024 ACM Symposium on Age of Computing and Augmented Life, October 17–18, 2024, AIUB, Dhaka, Bangladesh.

- ✓ M. S. Hosain, Y. Sugiura, M. S. Rahman and T. Shimamura, "Cross-Cultural Analysis of Emotional Expression in Bone-Conducted Speech", 2024 RISP International Workshop on Nonlinear Circuits, Communications and Signal Processing, Feb. 27 to Mar. 1, 2024, Honolulu, Hawaii, USA.
- ✓ M. A. Haque, L. C. Paul, S. Kumar, R. Azim, M. S. Hosain, M. A. Zakariya, "A Plowing T-shaped Patch Antenna for WiFi and C Band Applications," International Conference on Automation, Control and Mechatronics for Industry 4.0 (ACMI), 8-9 July 2021, Rajshahi, Bangladesh, Publisher: IEEE
- ✓ N. Halder, S. M. Rakibul Islam, M. S. Hosain, E. Ahmed, A. Islam and S. R. H. Noori, "Efficacy and Acceptance of Virtual Classrooms During COVID-19: Bangladesh Perspective," 2021 3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications (HORA), 2021, Publisher: IEEE, pp. 1-6, doi: 10.1109/HORA52670.2021.9461390.

## References:

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2) Dr. Tetsuya Shimamura  
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