

# RESUME – K. M. NAIMUL HASSAN

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## PERSONAL INFORMATION

 [Personal website](#)  [Email](#)  [Google Scholar](#)  [GitHub](#)  [LinkedIn](#)

## RESEARCH INTERESTS

■ Auditory Attention Detection ■ Brain-Computer Interface ■ Applied Machine Learning/Deep Learning ■ Audio Informatics ■ Healthcare ■ Signal Processing

## CURRENT/ON- GOING RESEARCH

**An Audio-Video based Listening Study to Determine Physical and Neural Cues that Correlate with Speech Attention.**  
Supervisor : [Dr. Donald Williamson](#)

## EDUCATION

**Ph.D. in Computer Science and Engineering (CSE)** *August 2023-Present*  
The Ohio State University (OSU)  
Supervisor : [Dr. Donald Williamson](#)

**M.Sc. in Electrical and Electronic Engineering (EEE)** *July 2021-July 2023*  
Bangladesh University of Engineering and Technology (BUET)  
Major in Communication & Signal Processing  
Supervisor : [Dr. Mohammad Ariful Haque](#)

**B.Sc. in Electrical and Electronic Engineering (EEE)** *February 2016-February 2021*  
Bangladesh University of Engineering and Technology (BUET)  
Major in Communication & Signal Processing  
Supervisor : [Dr. Md. Forkan Uddin](#)

## RELEVANT COURSEWORK

Introduction to Artificial Intelligence, Deep Learning, Machine Learning and Pattern Recognition, Biomedical Signal Processing, Advanced Multimedia Communication, Digital Signal Processing, Random Signal Processing, Digital Image Processing, Microprocessors and Embedded Systems, Control Systems, Probability and Statistics.

## PROFESSIONAL EXPERIENCE

**Graduate Research/Teaching Associate (G-RA/TA)** *August 2023-Present*  
Department of CSE, The OSU



**Graduate Fellow** *December 2021-July 2023*  
Department of EEE, BUET

**Research Assistant (RA)** *July 2021-November 2021*  
Department of EEE, BUET



## PUBLICATIONS

### International Conference Proceedings

■ **K. M. N. Hassan** and M. A. Haque, "SS+CEDNet : A Speech Privacy Aware Cough Detection Pipeline by Separating Sources," 2022 IEEE 10th Region 10 Humanitarian Technology Conference (R10-HTC), 2022, pp. 32-37, doi : 10.1109/R10-HTC54060.2022.9929794.

 [Repository](#)  [Paper](#)

■ **K. M. N. Hassan** et al., "ALSNet : A Dilated 1-D CNN for Identifying ALS from Raw EMG Signal," ICASSP 2022 - 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022, pp. 1181-1185, doi : 10.1109/ICASSP43922.2022.9747366.

 [Repository](#)  [Paper](#)

■ **K. M. N. Hassan**, S. Biswas and M. F. Uddin, "Electrical Power Consumption Profile Modelling of Air Conditioner for Smart Grid Load Management," 2020 11th International Conference on Electrical and Computer Engineering (ICECE), 2020, pp. 178-181, doi : 10.1109/ICECE51571.2020.9393101.

 [Repository](#)  [Paper](#)

■ **K. M. N. Hassan**, S. K. Biswas, M. S. Anwar, M. S. Iman Siam and C. Shahnaz, "A Dual-Purpose Refreshable Braille Display Based on Real Time Object Detection and Optical Character Recognition," 2019 IEEE International Conference on Signal Processing, Information, Communication & Systems (SPICSCON), 2019, pp. 78-81, doi : 10.1109/SPICSCON48833.2019.9065110.

 [Repository](#)  [Paper](#)

■ A. B. A. Qayyum, A. Anika, M. M. M. Miah, M. M. Rahman, **K. M. N. Hassan** et al., "Direction of Arrival Estimation through Noise Suppression : A Novel Approach using GSC Beamforming and Room Acoustic Simulation," 2019 IEEE International Conference on Signal Processing, Information, Communication & Systems (SPICSCON), 2019, pp. 104-108, doi : 10.1109/SPICSCON48833.2019.9065151.

 [Paper](#)

## Journal Publications

■ **K. M. N. Hassan** and M. A. Haque, "ASFNet : Audio Spectrogram Fourier Network for Efficient Medical Sound Event Detection," IEEE/ACM Transactions on Audio, Speech, and Language Processing. (*under review*).

■ M. F. Uddin, **K. M. N. Hassan** and S. Biswas, "Peak load minimization in smart grid by optimal coordinated ONOFF scheduling of air conditioning compressors," Sustainable Energy, Grids and Networks, Volume 28, 2021, 100545, ISSN 2352-4677, <https://doi.org/10.1016/j.segan.2021.100545>.

 [Repository](#)  [Paper](#)

■ A. B. A. Qayyum, **K. M. N. Hassan**, A. Anika et al., "DOANet : a deep dilated convolutional neural network approach for search and rescue with drone-embedded sound source localization," J AUDIO SPEECH MUSIC PROC. 2020, 16 (2020). <https://doi.org/10.1186/s13636-020-00184-2>.

 [Repository](#)  [Paper](#)

## AWARDS/HONORS

### Recipient, IEEE SPS Scholarship, 2024-Present

The IEEE Signal Processing Society (SPS) awards scholarships up to three years of consecutive support to students who have expressed interest and commitment to pursuing signal processing education and real-world career experiences.

### Recipient, CSE Scarlet and Gray Award, 2023-Present

The CSE Scarlet and Gray Award (CSGA) is a 5-year program that provides a stipend, tuition, and fees for graduate studies during the academic year as one makes satisfactory progress in the Ph.D. program. The award will include some combination of research and teaching associateships over the course of the five years and is subject to making satisfactory progress in the program.

Department of CSE, The OSU.

### Recipient, Post-graduate fellowship (M.Sc.), 2021-2023

For outstanding research profile.

Department of EEE, BUET.

### Second runner-up, IEEE Signal Processing (SP) Cup, 2020

Final at IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2020, Barcelona, Spain.

 [Competition overview magazine](#)

### First runner-up, IEEE Video and Image Processing (VIP) Cup, 2019

Final at IEEE International Conference on Image Processing (ICIP) 2019, Taipei, Taiwan.

 [Competition overview magazine](#)

### World finalist & champion in Bangladesh section, Innovation Challenge, IEEE YE-SIST12, 2019

Final at Stamford University, Hua Hin, Thailand.

### Champion, Inter-University Poster Presentation, Esonance, 2017

Islamic University of Technology (IUT).

## SELECTED PROJECTS

- ✓ Detection and classification of sound events in medical environments.
- ✓ Synthetic speech attribution - classification of algorithms used to generate synthetic speech.
- ✓ Intelligent dialog management of social-bots.
- ✓ Identifying Amyotrophic Lateral Sclerosis (ALS) from raw EMG Signal.
- ✓ Drone-embedded sound source localization for search & rescue.
- ✓ Privacy protected office activity recognition from first-person-view body camera videos.
- ✓ Refreshable braille display based on real-time object detection and optical character recognition.

- ✓ Unsupervised abnormality detection from sensors and video feeds of intelligent and heterogeneous autonomous systems.
- ✓ Real-time English (British) sign language digits to Bengali sign language digits translation.

TEACHING  
EXPERIENCE

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**Graduate Teaching Associate (GTA)**

*August 2023-Present*

Department of CSE, The OSU

*CSE 1223 : Introduction to Computer Programming in Java*

*Autumn 2024, Spring 2024, Autumn 2023*

TECHNICAL  
STRENGTHS

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**Operating Systems :** MacOS, Windows, Linux.

**Languages :** C, C++, Python, MATLAB, AMPL, Octave, 8086 Assembly, Verilog, HTML, Java.

**Document Preparation :** LaTeX.

**ML Frameworks & Libraries :** PyTorch, Keras, Tensorflow, Numpy, Pandas, Scikit-learn.

**Version Control :** GitHub, GitLab.

**Circuit Simulation and Design :** Proteus, PSpice, Quartus, Tina-TI.

VOLUNTEER  
WORKS

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**Vice-Chairperson,** IEEE Signal Processing Society BUET SB Chapter, 2019-2021

**Member,** IEEE Signal Processing Society, 2017-Present

**Student Member,** IEEE, 2017-Present

REFERENCES

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**Dr. Donald Williamson**

Associate Professor

Department of Computer Science and Engineering

The Ohio State University

*williamson.413@osu.edu*

**Dr. Mohammad Ariful Haque**

Professor

Department of Electrical and Electronic Engineering

Bangladesh University of Engineering and Technology

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