

# K. M. NAIMUL HASSAN

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Department of Electrical and Electronic Engineering (EEE),  
Bangladesh University of Engineering and Technology (BUET), Dhaka-1205, Bangladesh

## CAREER OBJECTIVE

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To develop a career and excel in research. To apply and disseminate earned engineering knowledge. As a graduate, the motive is to gather relevant experience, to grow as an avid researcher.

## RESEARCH INTERESTS

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Deep Learning  
DCASE  
Signal Processing  
Smart Grid

## EDUCATION

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**Bangladesh University of Engineering and Technology** August 2021-Present

- M.Sc. in Electrical & Electronic Engineering
- Major in Communication & Signal Processing

**Bangladesh University of Engineering and Technology** February 2016-February 2021

- B.Sc. in Electrical & Electronic Engineering
- Major in Communication & Signal Processing

## WORK EXPERIENCE

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### Research Assistant (RA)

*Department of Electrical & Electronic Engineering (EEE), Bangladesh University of Engineering and Technology (BUET)* July 2021-Present

## PUBLICATIONS

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### Journal Publications

- Uddin, M. F., **Hassan, K. M. N.**, and Biswas, S.K., "Peak load minimization in smart grid by optimal coordinated ON-OFF scheduling of air conditioning compressors." *Sustainable Energy, Grids and Networks* 28 (2021): 100545.
- Qayyum, A.B.A., **Hassan, K. M. N.**, Anika, A., Shadiq, M.F., Rahman, M.M., Islam, M.T., Imran, S.A., Hossain, S. and Haque, M.A., 2020. DOANet: a deep dilated convolutional neural network approach for search and rescue with drone-embedded sound source localization. *EURASIP Journal on Audio, Speech, and Music Processing*, 2020(1), pp.1-18.

### International Conference Proceedings

- **Hassan, K. M. N.** 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.
- **Hassan, K. M. N.**, Biswas, S.K. and Uddin, M. F., "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.

- **Hassan, K. M. N.**, Biswas, S.K., Anwar, M.S., Siam, M.S.I. and Shahnaz, C., 2019, November. A Dual-Purpose Refreshable Braille Display Based on Real Time Object Detection and Optical Character Recognition. In 2019 IEEE International Conference on Signal Processing, Information, Communication & Systems (SPICSCON) (pp. 78-81). IEEE.
- Qayyum, A.B.A.A., Anika, A., Miah, M.M.M., Rahman, M.M., **Hasan, K. M. N.**, Islam, M.T., Shouborno, S.A.I., Shadiq, M.F. and Haque, M.A., 2019, November. Direction of Arrival Estimation through Noise Suppression: A Novel Approach using GSC Beamforming and Room Acoustic Simulation. In 2019 IEEE International Conference on Signal Processing, Information, Communication & Systems (SPICSCON) (pp. 104-108). IEEE.

## ACHIEVEMENTS

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### **Recipient, Post-graduate Fellowship**

2021-Present

*Bangladesh University of Engineering and Technology (BUET)*

- Post-graduate fellowship (M.Sc.)
- Department of Electrical and Electronic Engineering (EEE)

### **Second Runner-up**

2020

*IEEE Signal Processing (SP) Cup*

- Unsupervised abnormality detection by using intelligent and heterogeneous autonomous systems
- Team: BUET Andromeda
- 45th IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2020, Barcelona, Spain
- [Recorded Presentation of the final round](#)
- [Competition Overview Magazine](#)

### **First Runner-up**

2019

*IEEE Video and Image Processing (VIP) Cup*

- Activity Recognition from Body Cameras
- Team: BUET Ravenclaw
- 26th IEEE International Conference on Image Processing (ICIP) 2019, Taipei, Taiwan
- [Competition Overview Magazine](#)

### **Champion in Bangladesh Section & World Finalist**

2019

*Innovation Challenge, IEEE YESIST12-2019*

- Project- Third Eye: A braille display based on real time object detection
- Team: BUET Phoenix
- Final at Stamford University, Hua Hin, Thailand

### **World Rank-10**

2019

*IEEE Signal Processing (SP) Cup*

- Search & rescue with drone-embedded sound source localization
- Team: BUET Sonorous

### **Champion**

2017

*Inter University Poster Presentation, Esonance 2017, Islamic University of Technology*

- Project name: PowerGym
- Team: BUET Unsullied

**Recipient, Scholarship of Merit** 2011-2021  
*Intermediate and Secondary Education Board, Bangladesh*

- Government scholarship for outstanding result in Higher Secondary Certificate (H.S.C), Secondary School Certificate (S.S.C) and Junior School Certificate (J.S.C) examinations

**Recipient, Scholarship of Merit** 2008-2011  
*Primary Education Board, Bangladesh*

- Government scholarship for outstanding result in Primary School examination

## PROJECTS

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### Ongoing Projects

- Audio Source Separation
- Audio Event Detection
- Audio Representation Learning
- Synthetic Speech Attribution

### Notable Earlier Projects

- Identifying Amyotrophic Lateral Sclerosis (ALS) from raw EMG Signal
- Peak load minimization of air conditioners connected to a Smart Grid (SG)
- Search & Rescue with Drone-Embedded Sound Source Localization
- Activity Recognition from Body Cameras
- Refreshable Braille Display Based on Real Time Object Detection and Optical Character Recognition
- Electrical Power Consumption Profile Modelling of Air Conditioner for Smart Grid Load Management
- Unsupervised abnormality detection by using intelligent and heterogeneous autonomous systems
- Real Time English (British) Sign Language to Bengali Sign Language Translation System

## TECHNICAL STRENGTHS

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<b>Computer Languages</b>	C, C++, Python, MATLAB, AMPL, Octave
<b>Deep Learning API &amp; platforms</b>	PyTorch, Keras, Tensorflow
<b>Version Control Systems</b>	GitHub, GitLab
<b>Documentation</b>	LaTeX, Microsoft Word
<b>Circuit Simulators</b>	Proteus

## EXTRA CURRICULAR ACTIVITIES

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

**IEEE**  
*Student Member* 2016-Present

## REFERENCES

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**Dr. Mohammad Ariful Haque**

Professor

Department of EEE, BUET

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**Dr. Md. Forkan Uddin**

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