

# Mashrur Mahmud Morshed

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## SHORT BIOGRAPHY

I'm an AI Engineer at Intelligent Machines, a deep-tech startup in Dhaka, Bangladesh. My research interests include Computer Vision, audio-visual representation learning, GANs, resource-efficient deep learning (TinyML), video processing, and human action recognition.

## EDUCATION

**Islamic University of Technology, Dhaka, Bangladesh** **Jan. 2017 - Mar. 2021**  
Bachelor of Science, Computer Science and Engineering  
CGPA: 3.87/4.00

## WORK EXPERIENCE

**AI Engineer, Intelligent Machines Limited** **Feb. 2021 - Present**  
My work includes object detection, image segmentation, handwritten text recognition, speech keyword spotting, and human action recognition. I've also worked on developing the ML Ops structure at my organization.

**AI Apprentice, Intelligent Machines Limited** **Feb. 2020 - Jan. 2021**  
Worked on inference latency reduction, object detection, and various Computer Vision tasks.

**Teaching Assistant, CSE4709, IUT** **Jan. - July 2020**  
Helped organize supplementary course materials and assisted students with theory for CSE4709: Machine Learning.

**Intern, Samsung R&D Institute Bangladesh (SRBD)** **Nov. 2019 - Jan. 2020**  
Worked on developing applications based on conditional Generative Adversarial Networks (cGAN) and Image-to-Image translation.

## RESEARCH EXPERIENCE

**Undergraduate Researcher, SSL Group, IUT** **Jan. 2020 - Mar. 2021**  
Supervised by Dr. Hasan Mahmud, Assistant Professor, CSE department, IUT. Worked on developing robust hand gesture recognition systems and learning effective multimodal representations.

## PUBLICATIONS

- [1] Mashrur M. Morshed, A. O. Ahsan, Hasan Mahmud, and Md. Kamrul Hasan. "Learning Audio Representations With MLPs." arXiv preprint arXiv:2203.08490 (2022). In submission to PMLR, vol. 166, NeurIPS 2021 workshop on Holistic Evaluation of Audio Representations.
- [2] Mashrur M. Morshed, and A. O. Ahsan. "Attention-Free Keyword Spotting." arXiv preprint arXiv:2110.07749 (2021). (Under blind review; expected Mar. 25, 2022.)
- [3] Hasan Mahmud, Mashrur M. Morshed, and Md. Kamrul Hasan. "A Deep Learning-based Multimodal Depth-Aware Dynamic Hand Gesture Recognition System." arXiv preprint arXiv:2107.02543 (2021). (Under review at The Visual Computer.)

## OTHER RESEARCH PROJECTS

### **SparseGoogLeNet [MicroNet Challenge, NeurIPS 2019]**

**Oct. 2019**

My submission for the MicroNet challenge, hosted at the NeurIPS 2019 competition track—a GoogLeNet model trained with iterative pruning and quantization, which had a sparsity of 0.7 and was  $3.5\times$  smaller than the original model.

## ACHIEVEMENTS

### **HEAR Challenge, NeurIPS 2021**

**Oct. 2021**

Obtained 1<sup>st</sup> place in the following benchmarks:

1. Speech Commands Full
2. Speech Commands 5H
3. Mridingham Tonic

### **Handwritten Bengali Grapheme Classification, Kaggle**

**Mar. 2020**

Obtained Silver medal (57<sup>th</sup> place, top 3%).

### **MicroNet Challenge, NeurIPS 2019**

**Oct. 2019**

Obtained 26<sup>th</sup> place in the CIFAR-100 track.

### **Blood Pressure Estimation, Huawei Honorcup 2018**

**Oct. 2018**

Obtained 38<sup>th</sup> place.