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, Ahmad Omar 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 Ahmad Omar 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 1st 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 (57th place, top 3%).

MicroNet Challenge, NeurIPS 2019   **Oct. 2019**

Obtained 26th place in the CIFAR-100 track.

Blood Pressure Estimation, Huawei Honorcup 2018   **Oct. 2018**

Obtained 38th place.