

# Md Mahedi Hasan

PhD Researcher, West Virginia University, Morgantown, USA

 Portfolio |  Google Scholar |  GitHub |  mh00062@mix.wvu.edu |  +1 (681) 212-9391

**Summary:** My research focuses on developing a universal facial representation learning model, utilizing pre-training on noisy web-sourced image-text pairs for low-resolution face analysis and cross-modal understanding. Currently, I am working on algorithms for cross-modal face recognition [1, 4, 5], face captioning [1], and lifelong face recognition [2], using large language models (LLMs) and vision-language pre-training frameworks.

**Research Interests:** Machine Learning | Computer Vision | Biometrics

**Technical Skills:**

Languages: C++, Java, Python, CUDA

Libraries: TensorFlow, PyTorch, NumPy

Computer Vision: Face Recognition, Image Retrieval, Image Captioning

Machine Learning: Continual Learning, Weakly Supervised Learning, Representation Learning

Algorithms: Transformers, LLMs, VLMs, Fine-tuning (LoRA, Q-LoRA), CNNs, GANs

## EDUCATION

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**West Virginia University**, Morgantown, USA

June 2021 - present

- PhD in Computer Engineering
- Courses: Deep Learning, Pattern Recognition, Applications of Neural Networks, Computer Vision

**Bangladesh University of Engineering and Technology**, Bangladesh

October 2015 - September 2020

- M.Sc. in Information and Communication Technology

## SELECTED PUBLICATIONS

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1. Learning Multi-Scale Knowledge-Guided Features for Text-Guided Face Recognition  
**M. Hasan**, S. Sami, N. Nasrabadi, J. Dawson, IEEE Transactions on Biometrics, Behavior, and Identity Science
2. Contrastive Learning and Cycle Consistency-Based Transductive Transfer Learning for Target Annotation  
S. Sami, **M. Hasan**, N. Nasrabadi, and R. Rao, IEEE Transactions on Aerospace and Electronic Systems
3. CLFace: A Scalable and Resource-Efficient Continual Learning Framework for Lifelong Face Recognition  
**M. Hasan**, S. Sami, and N. Nasrabadi; IEEE/CVF Winter Conference on Applications of Computer Vision, 2025
4. Text-Guided Face Recognition using Multi-Granularity Cross-Modal Contrastive Learning  
**M. Hasan**, S. Sami, and N. Nasrabadi; IEEE/CVF Winter Conference on Applications of Computer Vision, 2024
5. Improving Face Recognition from Caption Supervision with Multi-Granular Contextual Feature Aggregation  
**M. Hasan**, and N. Nasrabadi; IEEE International Joint Conference on Biometrics, 2023
6. Learning view-invariant features using stacked autoencoder for skeleton-based gait recognition  
**M. Hasan**, and Hossen Asiful Mustafa; IET Computer Vision, 2021

## RESEARCH PROJECTS & GRANTS

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1. One-to-One Face Recognition with Human Examiner in the Loop
  - Name of Funding Organization: CITer (Project #22S-06W), IUCRC - NSF
  - My Role in the Project: I developed a text-guided face recognition (FR) system to improve the performance of state-of-the-art FR algorithms by integrating facial attributes through natural language descriptions
2. A Perpetual Deep Face Recognition System
  - Name of Funding Organization: CITer (Project #22F-01W), IUCRC - NSF
  - My Role in the Project: I designed the class-incremental learning framework which can learn and improve from a sequence of face recognition tasks without storing any exemplar sets.
3. Universal Facial Representation Learning
  - My Role in the Project: I propose a new framework for learning facial representations using face caption pre-training, which achieves meaningful image-text interaction by addressing domain misalignment between pairs.

## WORK EXPERIENCE

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- **Teaching Faculty** Department of Computer Science and Engineering (CSE), MIU April 2019 - May 2021
- **Graduate researcher** at West Virginia University (WVU) June 2021 - Present
- **Graduate researcher** at Center for Identification Technology Research (CITer) June 2021 - Present