

Zabir Mohammad

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👤 [Portfolio](#) | [Linkdin](#) | [GitHub](#) | [Google Scholar](#) |

Dhaka - 1215, Bangladesh.

RESEARCH INTERESTS

- Computer Vision and Representation Learning
- Deep Learning for Image and Video Understanding.
- Gait analysis, Biometrics, and Human-Centric AI.
- Self-Supervised Learning for clustering and retrieval tasks.
- Generative AI, Explainable AI, and HCI.

EXPERIENCE

- **Advanced Machine Intelligence Research Lab** 🌐 Jan 2023 - Present
Researcher Dhaka, Bangladesh
 - Conducted research in Gait analysis using multimodal sensor data, focusing on pre-fall detection.
 - Introduced an ensemble CNN-RNN model for fall detection in imbalanced datasets.
 - Proposed a fall prevention mechanism for elderly care, enhancing safety measures.
 - Prepared manuscripts and mentored undergraduate students, improving lab productivity.
 - Developing a self-supervised image retrieval system with Vision Transformers (ViTs) to enhance retrieval accuracy.
- **King Abdul Aziz University** 🌐 Sept 2022 - Jan 2023
Adjunct Co-Investigator Remote
 - Developed a self-supervised writer identification model from unlabeled data.
 - Designed a pairwise training pipeline for clustering handwriting embeddings.
 - Conducted extensive experiments on unlabeled handwriting datasets.
 - Prepared the manuscript and published research in Mathematics.
- **Bangladesh University of Business and Technology** 🌐 Jun 2021 - Dec 2022
Research Assistant Dhaka, Bangladesh
 - Developed deep learning models for Signature verification and writer identification.
 - Improved handwriting accuracy with robust feature extraction.
 - Assisted in manuscript preparation and research collaboration.
 - Presented findings at 24th International Conference on Computer and Information Technology (ICCIT).

EDUCATION

- **Bangladesh University of Business and Technology** Feb 2017 - Jan 2021
B.Sc in Computer Science and Engineering Dhaka, Bangladesh
 - GPA: 3.80/4.00
 - **Thesis:** An Offline Writer-independent Signature Verification System using AutoEmbedder
- **Tejgoan College** 2016
Higher Secondary School Certificate Dhaka, Bangladesh
 - Grade: 4.75/5.00
- **Government Science School** 2014
Secondary School Certificate Dhaka, Bangladesh
 - GPA: 5.00/5.00

PUBLICATIONS

C=CONFERENCE, J=JOURNAL, S=IN SUBMISSION, P=IN PROGRESS

- [J.1] Zabir Mohammad, Arif Reza Anwary, Muhammad Firoz Mridha et al. (2023). **An Enhanced Ensemble Deep Neural Network Approach for Elderly Fall Detection System Based on Wearable Sensors**. *Sensors*, Vol. 23, Issue 10, pp. 4774. DOI: 10.3390/s23104774
- [J.2] Zabir Mohammad, Muhammad Mohsin Kabir, Muhammad Mostafa Monowa, et al. (2022). **Self-Writer: Clusterable Embedding Based Self-Supervised Writer Recognition from Unlabeled Data**. *Mathematics*, Vol. 10, Issue 24, pp. 4796. DOI: 10.3390/math10244796
- [J.3] MF Mridha, Zabir Mohammad, Muhammad Mohsin Kabir, et al. (2023). **An Unsupervised Writer Identification Based on Generating Clusterable Embeddings**. *Computer Systems Science & Engineering*, Vol. 46, Issue 2, DOI: 10.32604/csse.2023.032977

[C.1] Zabir Mohammad, et al. (2021). **An Offline Writer-independent Signature Verification System using AutoEmbedder**. In *24th International Conference on Computer and Information Technology (ICCIT)*, pp. 1-6. Publisher: IEEE. Date: 2021/12/18, Location. DOI: 10.1109/ICCIT54785.2021.9689780

[S.1] Zabir Mohammad et al. (2025). **DeepAct-Net: A hybrid CNN-BiLSTM framework with self-attention for sensor-based human activity recognition**. Manuscript submitted for publication in *Scientific Reports*.

[P.1] Zabir Mohammad and M.F Mridha. **Self-Retrive: A self-supervision-based image retrieval system**. The work is currently in implementation process.

SKILLS

- **Programming Languages:** Python(advanced), C, C++, MATLAB(basic)
- **Machine Learning & Deep Learning:** TensorFlow, Keras, PyTorch, Scikit-learn
- **Computer Vision:** OpenCV, Object Detection, Semantic Segmentation, Image Classification
- **Data Science & Analytics:** Pandas, NumPy, Matplotlib, Seaborn
- **Algorithms & Frameworks:** CNNs, RNNs, LSTMs, GANs, ViTs, Hyperparameter Tuning
- **Web Technologies:** HTML, CSS, JavaScript, Node.js
- **Databases & Data Handling:** MySQL, SQLite, Oracle, TensorFlow Datasets
- **Version Control & Collaboration:** Git, GitHub, GitLab, Jupyter Notebooks
- **Interpersonal & Soft Skills** Critical thinking, Data analysis, Problem Solving, Research design, Technical Writing, Literature review, Communication skills, Time management

HONORS AND AWARDS

- **Annual Research Publication Award 2021**

Advanced Machine Learning Lab

◦ Awarded for significant research contributions in machine learning.

◦ Honored for publishing high-quality research articles in top-tier journals.

2021
- **Research Publication Award 2022**

King Abdul Aziz University

◦ Recognized for outstanding research contributions in the field of Deep learning.

◦ Acknowledged for the impact of published work in academic circles.

2022
- **Competition Achievement**

Intra-University Programming Contest, BUBT

◦ One-time Champion and 3-time Runner-up

◦ Demonstrated strong problem-solving skills by winning the contest and securing runner-up positions.

◦ Showcased proficiency in algorithmic thinking and coding challenges.

2017-2020
- **Merit-Based Academic Scholarship**

Bangladesh University of Business & Technology

◦ Awarded for maintaining a high CGPA throughout the undergraduate program.

◦ Recognized for academic excellence and commitment to studies.

2017-2021

VOLUNTEER EXPERIENCE

- **Research Mentorship**

Advanced Machine Intelligence Research(AMIR) Lab

◦ Guided undergraduate students in deep learning, self-supervised learning, and human activity recognition research. Provided support in experiment design, model evaluation, and academic writing.

2023 - Present
- **Peer Reviewer**

MDPI Journals

◦ Volunteered as a peer reviewer for MDPI journals, evaluating research manuscripts in computer vision and machine learning. Provided constructive feedback to improve the quality and impact of submitted papers.

2024 - Present

ADDITIONAL INFORMATION

Languages: English (Fluent), Bangla (Native), Hindi & Urdu (Conversational).
Interests: Reading Books, Playing Soccer and Cricket, Traveling and Hiking, Competitive Programming.

REFERENCES

1. **Dr. Muhammad Firoz Mridha.**

Professor, Department of Computer Science.

American International University.

Email: firoz.mridha@aiub.edu

Phone: +880 16 74791594.

Relationship: Thesis Advisor, Director of AMIR lab.

2. **Dr. Muhammad Mostafa Monowar.**

Professor, Department of Computing and Information Technology.

King AbdulAziz University.

Jeddah, Saudi Arabia

Email: mmonowar@kau.edu.sa

Phone: +966 56 773 4785.

Relationship: Project Supervisor.

3. **Sadah Anjum Shanto.**

Assistant Professor, Department Computer Science.

Bangladesh University of Business and Technology.

Email: sshanto@bubt.edu.bd

Phone: +880 16 74533198.

Relationship: Direct faculty, Academic mentor.