Sahid Hossain Mustakim

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RESEARCH INTERESTS

Multimodal Deep Learning, Multimodal Adversarial Robustness, Human-AI Interaction, and Explainable & Ethical AI

EDUCATION

United International University, Dhaka, Bangladesh   2020 — 2024
Bachelor of Science in Computer Science and Engineering (**Major**: Data Science)   CGPA: 3.91/4.00
Thesis Supervisor: Prof. Dr. Swakkhar Shatabda

EXPERIENCE

Lecturer   June 2024–Present
United International University

- Collaborated on redesigning the "Introduction to Computer Systems" curriculum with updated concepts and real-world applications.
- Supported department initiatives and contributed to organizing the National CSE Fest 2025.
- **Courses conducted:** Introduction of Computer Systems, Discrete Mathematics, Structured Programming Language Lab, Object Oriented Programming Lab, Data Structures and Algorithms II Lab, Microprocessors and Microcontrollers Laboratory, Artificial Intellgence Lab, Software Engineering lab.

Undergraduate Assistant   Oct 2022 — May 2024
United International University

- Designed and implemented comprehensive course materials including assignments, quizzes, and laboratory exercises across multiple core computer science courses.
- Provided hands-on instruction and mentoring to undergraduate students in fundamental programming concepts, data structures, digital logic design, and microprocessor architecture.
- **Courses supervised:** Structured Programming Language Laboratory, Data Structure and Algorithms I Laboratory, Digital Logic Design Laboratory, Microprocessors and Microcontrollers Laboratory, Electronics Laboratory.

PUBLICATIONS

Journals

- S. M. J. Islam, **Sahid Hossain Mustakim**, M. Hossain, M. Mashira, N. I. Shourav, M. R. Ahmed, S. Islam, S. Shatadba, and A. K. M. M. Islam, "An audio video-based multi-modal fusion approach for speech emotion recognition," **Knowledge-Based Systems (Elsevier)**, I.F 7.6, under 2nd revision, 2024.

Conference and Workshop papers

- **Sahid Hossain Mustakim**, S. M. J. Islam, U. M. Muna, M. Chowdhury, M. Jawwadul Islam, S. Ahmmed, T. Sikder, S. T. A. Dhrubo, and S. Shatabda, "Watch, Listen, Understand, Mislead: Tri-modal Adversarial Attacks on Short Videos for Content Appropriateness Evaluation", Long-paper (proceedings) track in **SVU Workshop @ ICCV 2025**.
- S. M. J. Islam, **Sahid Hossain Mustakim**, S. Ahmmed, M. F. A. Sayeedi, S. Khandoker, S. T. A. Dhrubo, and N. Hossain, "MIMIC: Multimodal Islamophobic Meme Identification and Classification," 3rd **Muslims in ML Workshop − NeurIPS**, 2024. arXiv:2412.00681

RESEARCH EXPERIENCE

An audio video-based multi-modal fusion approach for speech emotion recognition.

- **Co-supervised by**: Md. Rayhan Ahmed, Dr. Salekul Islam, Dr. Swakkhar Shatabda, and Dr. A.K.M Muzahidul Islam.
- Under Review at Knowledge-Based Systems (Elsevier) [codebase].
- We present an approach to classify human emotions by fusing audio and visual inputs. Our approach sets new state-of-the-art results while keeping the architecture very simple. Additionally, we present a new frame filtering strategy to overcome the problem of spatiotemporal redundancy.

ChimeraBreak: a novel coordinated tri-modal attack on MLLMs

- **Supervised by**: Dr. Swakkhar Shatabda.
- Long paper (Proceedings), SVU Workshop @ ICCV 2025. [paper(arxiv)] [code] [dataset].
- We introduce SVMA, an adversarial dataset for content moderation in short-form videos, and ChimeraBreak. This coordinated strategy exposes systemic safety flaws in leading MLLMs for content appropriateness evaluation. We experiment with open and closed source MLLMs and utilize LLM-as-a-Judge to evaluate ethical reasoning and confidence.

MIMIC: Multimodal Islamophobic Meme Identification and Classification

- **Supervised by**: Nahid Hossain.
- Accepted at MusIML Workshop - NeurIPS 2024. Future work for version 2. [arXiv version] [OpenReview] [codebase].
- Anti-Muslim hate speech has emerged within memes, characterized by context-dependent and rhetorical messages using text and images that seemingly mimic humor but convey Islamophobic sentiments. This work presents a novel dataset and proposes a classifier based on the Vision-and-Language Transformer (ViLT) specifically tailored to identify anti-Muslim hate within memes by integrating both visual and textual representations.

PROJECTS

NurtureAid   [Github]
Developed a real-time AI-based cross-platform mobile application that simplifies care through caretakers. Led the app's backend and frontend development as a full-stack engineer.
Tech Stack: React Native, Node.js, Flask, MongoDB, Firebase, LLaMA-Index, PyTorch.
Acknowledgements: Champion of the UIU CSE Project Show, Software Engineering Laboratory; Champion of the Hult Prize OnCampus round in UIU; Selected for the Hult Prize Summit in Boston.
Haven   [Github]
Created a BCI-powered mental health speech-to-speech conversational agent that understands and responds with emotion. Led the app's backend, frontend, and AI development as a full-stack engineer.
Tech Stack: Python, OpenAI, Emotiv, Firebase, Streamlit.
Acknowledgments: Winner, Harvard HSIL Hackathon Dhaka Hub 2024.
BhaShammo   [Github]
Solving the unique problem of IPA Transcription of Bengali Regional Dialects using Dialect Guided Tokens.
Tech Stack: Python, Hugging Face, PyTorch.
Acknowledgements: Champion of the Bhashamul national NLP datathon.

ACHIEVEMENTS

Winner, Harvard Health Systems Innovation Lab Hackathon 2025 (Dhaka Hub)	April 2025
Academic Excellence Scholarship	2020 — 2024
Gold Award (Champion), International Blockchain Olympiad (IBCOL) 2023	November 2023
Champion, Bhashamul: Bengali Regional Text to IPA National NLP Datathon	March 2024
Champion, Hult Prize On Campus Round	March 2024
Representative, Hult Prize Summit in Boston, USA	June 2024
Silver Award(1st Runner Up), Bangladesh Blockchain Olympiad (BCOLBD) 2023	July 2023
Finalist, ICT Innovation Grant (for NurtureAid)	December 2023
Champion, Software Engineering Lab	September 2023
2nd Runner Up of the UIU CSE Project Show Sum'22, Database Management Systems Lab	May 2022
Champion, Advanced Object Oriented Programming Lab	January 2022

SKILLS

Programming: C, C++, Java, Python, JavaScript, PHP, SQL, NoSQL.
Machine Learning: PyTorch, Scikit-Learn, Matplotlib, Numpy, Pandas.
Frameworks/Libraries: React.js, Node.js, React Native, Firebase.
Soft Skills: Communication, Leadership, Teaching, Design Thinking, Public Speaking, Team Player, Content Design.
Tools: MS Word, PowerPoint, Excel, Microsoft Teams, Canva.
DevOps Tools: Git, GitHub.

EXTRA CURRICULARS

UIU Computer Club - served as Vice President	Apr 2024 — July 2024
UIU Computer Club - served as Head of Public Relations	Jun 2023 — Mar 2024
UIU Computer Club - served as Head of Human Resource	Jun 2022 — Jun 2023
UIU Entrepreneur Development Forum - served as Head of Human Resource	May 2021 — May 2022
Triumph of IBCOL 2023 and the Future of Blockchain in Bangladesh by Jamuna TV	Link
Trainer, Hands-on Workshop on Automatic Speech Recognition by Bengali.AI and IUT Computer Society	Link
Trainer for Blockchain Olympiad Grooming Session of UIU CSE Fest 2025. Invited by UIU Computer Club.	Link

REFERENCES

Dr. Swakkhar Shatabda
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Brac University, Dhaka, Bangladesh
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Dr. Salekul Islam
Professor of Electrical and Computer Engineering
North South University, Dhaka, Bangladesh
E-mail: salekul.islam@northsouth.edu