Mohammad Saim

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RESEARCH INTERESTS

Large Vision-Language Modeling, Multi-modal Understanding, Natural Language Processing

EDUCATION

PhD in Computer Science and Engineering *2024 - Present*
University of Cincinnati GPA: 3.83/4.0
Doctoral Advisor Dr. Tianyu Jiang
Research Focus Vision Language Modeling for Emotion Understanding

Bachelor of Technology in Computer Engineering *2020 - 2024*
Zakir Husain College of Engineering & Technology GPA: 9.07/10.0

TECHNICAL SKILLS

Languages: C, C++, Python, JavaScript and Solidity
ML/ DL Frameworks: PyTorch, TensorFlow, HuggingFace Transformers, OpenCV, Keras
Web Technologies: React, Flask, Streamlit, Gradio
Data Science: Pandas, NumPy, Matplotlib, Seaborn
Tools: Git, Docker, LaTeX, QGIS, Tableau, Adobe Suite

RESEARCH EXPERIENCE

Doctoral Research | University of Cincinnati

(Aug'24 - Present) | Dr. Tianyu Jiang

- Developed ELENA (Embodied LVLM Emotion Narratives), a novel framework utilizing large vision-language models for embodied emotion recognition through zero-shot learning.
- Implemented systematic face-masking methodology and attention visualization analysis, revealing critical attention adaptation failures in contemporary LVLMs when facial information is unavailable.
- Conducted comprehensive evaluation across various datasets and multiple state-of-the-art models, achieving up to 15.6 F1-point improvements over baseline approaches.

Summer Research Intern | Indian Institute of Technology, Jodhpur

School of Artificial Intelligence and Data Science, IIT Jodhpur. *(May'24 - July'24)* | Prof. Ganesh Manjhi

- Developed comparative image projection analysis of water surface area changes in lakes and non-reservoir water bodies across Jharkhand state using satellite imagery and geospatial analysis techniques.
- Utilized WRIS (Water Resources Information System) dataset integration with OpenStreetMap and QGIS for advanced layering, labelling, and temporal analysis of water body variations.

PUBLICATIONS

- **Saim M.**, Duong P. A., Luong C., Bhanderi A, Jiang T. "Anatomy of a Feeling: Narrating Embodied Emotions via Large Vision-Language Models" *To Appear in Findings of the 2025 Conference on Empirical Methods in Natural Language Processing* ***(EMNLP 2025)***
- **M. Saim**, R. Rizvi, M.Khan, "Analyzing the Performance of Machine Learning and Deep Learning Models in Detecting Cyberbullying Comments," *2023 International Conference on Recent Advances in Science and Engineering Technology (ICRASET), B G NAGARA, India, 2023, pp. 1-6.*
- **M. Saim** and R. M. Rizvi, "Digital Resilience: A Review of Cutting-Edge Approaches to Cyberbullying Detection in the Social Media Landscape," *1st DMIHER International Conference on Artificial Intelligence in Education and Industry 4.0 (IDICAIEI), Wardha, India, 2023, pp. 1-6.*
- M. Mamoon, **M. Saim**, I. Shah, and A. Samad, "A Decentralized BYOD Authentication System secure against ReEntrancy Attacks", *2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT), Delhi, India, 2023, pp. 1-7.*

- **M. Saim**, M. Mamoon, I. Shah, and A. Samad, "E-Voting via Upgradable Smart Contracts on Blockchain", *2022 International Conference on Futuristic Technologies (INCOFT), Belgaum, India, 2022, pp. 1-6.*

TEACHING EXPERIENCE

Graduate Teaching Assistant | University of Cincinnati

Operating Systems (Aug'25 - Present) | Prof. John C. Gallagher

- Assisting students with kernel compilation, module development, and system-level programming assignments, including custom Linux kernel builds and troubleshooting compilation errors.

Intelligent Data Analysis (Jan'25 - May'25) | Prof. Gowtham Atluri

- Aided students in a variety of data analysis topics and data mining techniques, including frequent pattern mining, exploratory data analysis, classification algorithms, and statistical modeling approaches.

Machine Learning (Aug'24-Dec'24) | Prof. Anca Ralescu

- Assisted students in various statistical machine learning topics, along with doubt clearance and assignment grading on topics of regression, Bayesian learning, gradient ascent training rules in ANN, and SMO implementation.

SELECT PROJECTS

Comment Toxicity Classification |

- Developed a toxic comment classification web application using natural language processing and deep learning techniques, including BERT, DistilBERT, and GRU models.
- Built a user interface with Gradio to allow text input and display toxicity predictions. The system classifies toxic online comments with over 90% accuracy.

Real Time Object Detection Application for Visually Impaired | Prof. Mohammad Sarosh Umar

- Built an assistive application using the MobileNet SSD model with voice feedback and OCR features for blind users.
- Integrated haptic feedback through the mobile application in case of navigation and emergency.

A Decentralised BYOD Authentication System | Dr. Abdus Samad

- Developed a smart contract for an authentication system using credentials that are cryptographically secured using the keccak256 algorithm
- Developed a user interface for interaction with the smart contract.

ACADEMIC ACHIEVEMENTS

- Recipient of the *IEEE Lance Stafford Larson Student Award 2023* for paper presented at computer field conferences, recognized for excellence in technical content, writing skills, and presentation.
- Awarded the Sir Syed Mentoring & Assistance Fellowship for the session 2023-24.
- Secured third rank under Engineering and Technology project proposals in the ***In-House Students' Research Convention*** organized by the 'Innovation Council and University Incubation Center of the Aligarh Muslim University. In The News

POSITIONS OF RESPONSIBILITY

Chairperson (2023-24)

IEEE Computer Society, Zakir Husain College of Engineering and Technology

- Organized three consistent workshops on Machine Learning and Artificial Intelligence attended by 60+ students of the university.
- Led the editorial team to the launch of the first annual newsletter of the society.
- Oversaw the collaboration of the society with other clubs for organizing various coding competitions.

Co-Coordinator: Design & Animation (2021-22)

IEEE Student Branch, Zakir Husain College of Engineering and Technology

- Assumed leadership in conceptualizing event promotions through innovative designs and strategic posting.

SYMPOSIA & CONFERENCE PRESENTATIONS

- Asian Undergraduate Symposium (2024) held by the *National University of Singapore* on the topic of Sustainability & Regeneration, DEI and Heritage & Culture, Singapore. Work involved developing plans to revive low-resource languages in Southeast Asia.
- International Conference on "Artificial Intelligence in Education and Industry 4.0" (IDICAIEI) 2023.
- International Conference on Recent Advances in Science & Engineering Technology (ICRASET) 2023.
- 14th International Conference on Computing, Communication, and Networking Technologies (ICCCNT), IIT Delhi, India, 2023.
- International Conference on Futuristic Technologies (INCOFT), Belgaum, India, 2022.