ZEESHAN MEMON

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400 Dowman Dr, Atlanta, GA 30322, USA

EDUCATION

Ph.D. Computer Science, Emory University 2024 - 2029(Expected)
Supervised By: Dr. Liang Zhao
Research Interests: Foundation Models for Complex Networks, Optimization, Multi-Agent Communication

Bachelors of Software Engineering, National University of Science and Technology 2020- 2024
CGPA: 3.99/4.0 (Class Rank: 1/90)
Research Specialization: Deep Learning, Computer Vision & Representation Learning
Research Assistant advised by Dr. Faisal Shafait

PUBLICATIONS

Deep Identification of Propagation Trees Preprint 2025
Zeeshan Memon, *Chen Ling, Ruochen Kong, Vishwanath Seshagiri, Andreas Zufle, Liang Zhao*
arXiv preprint arXiv:2503.00646

On the Fundamental Limits of LLMs at Scale Preprint 2025
Muhammad Ahmed Mohsin, Muhammad Umer, Ahsan Bilal, ***Zeeshan Memon****, . . . , Muhammad Ali Jamshed, John M. Cioffi*
arXiv preprint arXiv:2511.12869

Deep Causal Generative Models with Property Control Preprint 2025
Qilong Zhao, Shiyu Wang, ***Zeeshan Memon****, Yang Qiao, Guangji Bai, B Pan, Zhaohui Qin, Liang Zhao*
arXiv preprint arXiv:2405.16219v2

LLM-Informed Discrete Prompt Optimization ICML Workshop 2024
Zeeshan Memon*, Muhammad Arham, Adnan Ul-Hasan, Faisal Shafait*
ICML 2024 Workshop on LLMs and Cognition

Content-Aware Urdu Handwriting Generation Aug 2023
Zeeshan Memon*, Adnan Ul-Hasan, Faisal Shafait*
The 17th International Conference on Document Analysis and Recognition (ICDAR) *San José, California, USA*

EXPERIENCE

Visiting Student Oct 2025 - Present
Argonne National Laboratory *Remote*

- Foundation models for large-scale power-grid optimization with constraint-aware, learning-augmented solvers (under Genesis Mission Project).
- Contributed to scalable training and systematic evaluation pipelines for ML-based optimization models.
- Advised by: Dr. Kibaek Kim

OpenLab Summer Student Jun 2023 - Aug 2023
CERN *Geneva, Switzerland*

- Developed and implemented an Autoregressive Vector-quantized Variational Autoencoders (VQ-VAE) architecture.

- Focused on optimizing loss functions and preprocessing techniques for transformer-based implementations.
- Supervised by: Dr. Dalila Salamani and Piyush Raikawar

Research Fellow Jun 2022 - Sep 2022
Hoschule RheinMain *Wiesbaden, Hessen, Germany*

- Used Auto-Encoders for super resolution of satellite imagery
- Attained results on par with state-of-the-art supervised learning methods using unsupervised method.
- Experimented different multi-modal spatial fusion techniques for super resolution task
- Supervised by: Dr. Adrian Ulges , Dr. Ulrich Schwanecke

ACHIEVEMENTS

- Selected as prestigious Openlab Researcher at CERN from pool of 2000 candidates (1.5% acceptance rate).
- Awarded prestigious MBZUAI undegraduate fully funded research internship.
- Awarded DAAD fully funded research internship.
- Got NUST Merit Based Scholarship for 8 consecutive semesters

PROFESSIONAL SKILLS

Programming Languages: Python, Java, LaTeX
Deep Learning Frameworks: PyTorch, Keras, JAX

SERVICES

Reviewer / Program Committee
PC Member, IEEE International Conference on Data Science and Advanced Analytics 2025
PC Member, LLMs4Science @ AAAI 2025
Reviewer, IEEE Transactions on Big Data (TBD)
Reviewer, Workshop on Rethinking Financial Time-Series 2025
Reviewer, NEGEL Workshop @ NeurIPS 2025
Reviewer, Assessing World Models @ ICML 2025
Reviewer, Re-Align Workshop @ ICLR 2025

Teaching Experience
Teaching Assistant for 584: Spatial Computing@ Emory University
Teaching Assistant for CS584: Deep Learning on Graphs@ Emory University
Teaching Assistant for CS 110: Computer Science Fundamentals @ Emory University
Teaching Assistant for CS 250: Data Structures and Algorithms @ SEECS, NUST