

Mahnoor Fatima Saad

PhD, Research Assistant

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Education

PhD - University of Utah, U.S.A

Computer Science, Specialization: Computer Vision and Multimodal Learning

Salt Lake City, UT

Aug 2023 – Present

- Advisor: Dr. Ziad Al-Halah, PI Computer Vision Lab
- Research Area: Audio-Visual Scene Understanding and Multimodal Representation Learning — how models perceive and align information across audio and vision for robust scene interpretation

BS - COMSATS University, Islamabad

Software Engineering

Islamabad, PK

Aug 2017 – May 2021

- CGPA: 3.77, Graduated Magna Cum Laude

Publications

- 1 Mahnoor Saad, Ziad Al-Halah. "How Would It Sound? Material-Controlled Multimodal Acoustic Profile Generation." In **Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV)**, 2025.

Research Projects

Material-Conditioned Acoustic Profile Generation

ICCV 2025

- Novel task of predicting the acoustic profile (RIR) of a space conditioned on user-defined materials
- Constructed a new large-scale audio-visual dataset consisting of material-conditioned acoustics by using embodied agents in SoundSpaces using Habitat AI simulator
- Achieved SOTA and established new baselines for this novel task

Realistic Material-Aware RIR Estimation

In Progress

- Improving on existing SOTA work by isolating impact of materials in the scene on the acoustic profile
- Training and designing a novel multimodal transformer-based architecture to predict acoustics from vision alone

Industry Experience

PhotoGAUGE Inc./ Konstant Variables

Islamabad, PK

Machine Learning Engineer

Dec 2021 – Sep 2022

- Designed lightweight and deployable multimodal 3D mesh reconstruction, key point detection, and object segmentation of indoor scenes - automating human-oriented tasks for industry
- Designed, trained, and deployed custom StyleGAN and 3D human face reconstruction to build personalized avatars and NFTs using single/multi-view 2D images
- Integrated ML workflows for the company on Kubernetes

- Contributed to the development of the country's first data analytics initiative in telecommunications
- Generating business ad hoc reports for internal and external teams and Etisalat International Group for UAE and Pakistan
- Using Teradata Vantage to extract, analyze, and plot key performance indicators for deep dive analytics and customer engagement analysis used for country-wide campaigns

Technical Skills

Programming Languages:

Python, C, C++, Java

Audio & Vision Processing:

Librosa, torchaudio, Seaborn, torchvision

Simulation & Embodied AI:

Habitat-Sim, Habitat-Lab, Matterport3D, Replica

Deep Learning Frameworks:

PyTorch, TensorFlow, HuggingFace Transformers

Machine Learning Tools:

NumPy, Pandas, Scikit-learn, OpenCV, Matplotlib, Weights & Biases (W&B), AWS Sagemaker, AWS EC2/ECR, Docker, Kubernetes, Teradata Vantage, Anaconda, Jupyter

Services

Graduate Women in Computer Science

PhD Chair

University of Utah

Dec 2023 - present

- Set up and started the Graduate Women in Computer Science organization to provide a space academic, personal, and professional growth for female-identifying graduate students at the Kahlert School of Computing at the University of Utah
- Organized and led academic and professional development workshops aimed at supporting and empowering women in Computer Science
- Developed and implemented structured pipelines connecting faculty, staff, and graduate students to foster a more inclusive, supportive, and collaborative graduate school environment