Mansoor Ali, PhD candidate.

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Employment History

2022 – 2025 **Teaching Assistant.** School of Engineering and Sciences, Tecnologico de Monterrey, Mexico.

2012 – 2020 **Lecturer.** Electronic Engineering Department, Mehran University of Engineering and Technology, Jamshoro, Pakistan.

2009 – 2009 **Intern.** Faculty of Electrical, Electronic and Computer Engineering, Mehran University of Engineering and Technology, Jamshoro, Pakistan. .

Education

2023 **Visiting Research Scholar**
Six-month research stay at the University of Leeds, UK.

2021 – 2025 **Ph.D., Tecnologico de Monterrey, Mexico** in Medical Image Analysis.
Thesis title: *Generalizable computer vision methods for endoscopic surveillance and surgical interventions.*
Grade: 98 / 100
Advisors: Dr. Gilberto Ochoa Ruiz (Tecnologico de Monterrey, Mexico), Dr. Sharib Ali (University of Leeds, UK)

2014 – 2016 **ME., Electronic Systems Engineering, Mehran University, Pakistan** in Image Processing.
Thesis title: *Image-based hand gesture recognition using FPGA.*
Grade: 3.67 / 4.0
Advisor: Dr. Tayab din Memon (Torrens University, Australia)

2008 – 2012 **BE., Electronic Engineering, Mehran University, Pakistan** in Embedded Systems.
Thesis title: *Design of an embedded system for vehicle authentication.*
Grade: 3.85 / 4.0

Research interests

- **Medical Image Analysis**. Exploring novel deep learning solutions for understanding surgical scene.
- **Surgical Data Science**. Exploit unlabeled data to develop efficient solutions for intra-operative surgical guidance and decision support.
- **Deep Learning model generalizability**. Develop new methods for generlizable medical image segmentation models.
- **Multimodal Deep Learning**. Leverage text and image data for efficient medical image classificaton.

Research Publications

Journal Articles

1. M. A. Teevno, G. Ochoa-Ruiz, and S. Ali, "RobustSurg: Endoscopic domain generalization for surgical scene segmentation," 2025, Under Review.
2. M. A. Teevno, R. Toman, G. Ochoa-Ruiz, and S. Ali, "PolypDINO: Adapting DINOv2 for domain generalized polyp segmentation," 2025, Under Review.

3 S. Hussain, M. Ali, U. Naseem, *et al.*, "Breast cancer risk prediction using machine learning: A systematic review," *Frontiers in Oncology*, vol. 14, p. 1 343 627, 2024.

4 S. Hussain, **Mansoor Ali**, U. Naseem, D. B. A. Avalos, S. Cardona-Huerta, and J. G. Tamez-Peña, "Multiview multimodal feature fusion for breast cancer classification using deep learning," *IEEE Access*, 2024.

5 S. Hussain, U. Naseem, M. Ali, *et al.*, "TECRR: A benchmark dataset of radiological reports for BI-RADS classification with machine learning, deep learning, and large language model baselines," *BMC Medical Informatics and Decision Making*, vol. 24, no. 1, p. 310, 2024.

6 S. Hussain, Y. Lafarga-Osuna, M. Ali, U. Naseem, M. Ahmed, and J. G. Tamez-Peña, "Deep learning, radiomics and radiogenomics applications in the digital breast tomosynthesis: A systematic review," *BMC bioinformatics*, vol. 24, no. 1, p. 401, 2023.

7 M. Nawaz, R. Qureshi, M. A. Teevno, and A. R. Shahid, "Object detection and segmentation by composition of fast fuzzy C-mean clustering based maps," *Journal of Ambient Intelligence and Humanized Computing*, vol. 14, no. 6, pp. 7173–7188, 2023.

8 **Teevno, Mansoor Ali**, G. Ochoa-Ruiz, and S. Ali, "A semi-supervised teacher-student framework for surgical tool detection and localization," *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, vol. 11, no. 4, pp. 1033–1041, 2023.

9 M. Ali, R. M. G. Pena, G. O. Ruiz, and S. Ali, "A comprehensive survey on recent deep learning-based methods applied to surgical data," *arXiv preprint arXiv:2209.01435*, 2022.

10 S. Metlo, M. G. Memon, F. K. Shaikh, M. A. Teevno, and A. Talpur, "Crowdsource based vehicle tracking system," *Wireless Personal Communications*, vol. 106, no. 4, pp. 2387–2405, 2019.

11 A. Channa, S. M. A. Shah, A. Patoli, A. R. Memon, and M. A. Teevno, "A hierarchical approach to home energy management systems," *Indian Journal of Science and Technology*, vol. 9, p. 47, 2016.

12 N. Mahoto, A. Memon, and M. TEEVNO, "Extraction of web navigation patterns by means of sequential pattern mining," *Sindh University Research Journal-SURJ (Science Series)*, vol. 48, no. 1, 2016.

Conference Proceedings

1 C. Aparicio, C. Guerrero, M. Ali Teevno, G. Ochoa-Ruiz, and S. Ali, "Exploring anchor-free object detection models for surgical tool detection: A comparative study of faster-rcnn, yolov4, and centernet++," in *Mexican International Conference on Artificial Intelligence*, Springer, 2024, pp. 222–235.

2 S. Hussain, M. Ali, F. Ali Pirzado, M. Ahmed, and J. G. Tamez-Peña, "Comparative analysis of deep learning models for breast cancer classification on multimodal data," in *Proceedings of the First International Workshop on Vision-Language Models for Biomedical Applications*, 2024, pp. 31–39.

3 S. Hussain, M. Ali, U. Naseem, *et al.*, "Performance evaluation of deep learning and transformer models using multimodal data for breast cancer classification," in *MICCAI Workshop on Cancer Prevention through Early Detection*, Springer, 2024, pp. 59–69.

4 M. A. Teevno, R. Martinez-Garcia-Pena, G. Ochoa-Ruiz, and S. Ali, "Domain generalization for endoscopic image segmentation by disentangling style-content information and superpixel consistency," in *2024 IEEE 37th International Symposium on Computer-Based Medical Systems (CBMS)*, IEEE, 2024, pp. 383–390.

5 M. A. Teevno, G. Ochoa-Ruiz, and S. Ali, "Tackling domain generalization for out-of-distribution endoscopic imaging," in *International Workshop on Machine Learning in Medical Imaging*, Springer, 2024, pp. 43–52.

6 R. Martinez-Garcia-Pena, M. A. Teevno, G. Ochoa-Ruiz, and S. Ali, "SUPRA: Superpixel guided loss for improved multi-modal segmentation in endoscopy," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2023, pp. 285–294.

7 P. E. Chavarrias-Solano, M. Ali-Teevno, G. Ochoa-Ruiz, and S. Ali, "Improving artifact detection in endoscopic video frames using deep learning techniques," in *Mexican International Conference on Artificial Intelligence*, Springer, 2022, pp. 327–338.

8 P. E. Chavarrias-Solano, M. A. Teevno, G. Ochoa-Ruiz, and S. Ali, "Knowledge distillation with a class-aware loss for endoscopic disease detection," in *MICCAI Workshop on Cancer Prevention Through Early Detection*, Springer, 2022, pp. 67–76.

9 S. Khan, W. H. Bhatti, F. Chaudhary, *et al.*, "A deep learning framework for the classification of ecg signals," in *2022 International Conference on Engineering and Emerging Technologies (ICEET)*, IEEE, 2022, pp. 1–5.

10 M. A. Teevno, T. D. Memon, S. H. Khaskheli, and S. Memon, "Area-performance-power analysis of hand gesture recognition system in FPGA," in *2018 International Conference on Computing, Mathematics and Engineering Technologies (iCoMET)*, IEEE, 2018, pp. 1–6.

Skills

Coding	Python, Pytorch framework, MATLAB, Assembly, C, C++.
Software	Vivado HLS, Xilinx ISE Design Suite (VHDL, System Generator), LabVIEW, CISCO Packet Tracer, Proteus, Cenon CAM Manufacturing Software.
Misc.	Academic research, teaching, training, consultation, LaTeX typesetting and publishing.
Languages	Strong reading, writing and speaking competencies for English, Sindhi, Urdu.

Miscellaneous Experience

Academic Services

- **Reviewer (Journals)**: IEEE Journal of Biomedical and Health Informatics, Computers in Biology and Medicine, Clinical Breast Cancer.
- **Reviewer (Conferences)**: Medical Image Computing and Computer-assisted Interventions (MICCAI)- 2023, 2024, IEEE International Symposium on Biomedical Imaging (ISBI) 2024, CaPTions @ MICCAI 2023, 2024, DEMI @ MICCAI 2024.

Awards and Achievements

2024	**Conference grant**, MICCAI'24 Marrakech full travel, registration and accommodation grant.
2023	**Conference grant**, ECCV'23 Paris registration.
2022	**Conference grant**, MICCAI'22 Singapore registration and accommodation grant.
2023– 2024	**Research grant**, Received research collaborative grant for a six-month research stay at the University of Leeds, UK.
2022	**Research Award**, Won the first slot in most impactful research presentation among all grad schools at Tecnologico de Monterrey.
2021 – 2025	**Doctoral funding**, Mexican Government Scholarship.
2008 – 2011	**Merit Award**, Being one of the top 5% students throughout undergraduate.
2001	**Department Prize for Outstanding Student Performance**, Unseen University.

Administrative Services

2016 – 2019	**Laboratory Incharge**. Supervised Advanced Electronics laboratory activities at Electronic Engineering department, Mehran University, Jamshoro, Pakistan.

Miscellaneous Experience (continued)

2019 – 2020
- **Laboratory Incharge**. Supervised Analog Electronics laboratory activities at Electronic Engineering department, Mehran University, Jamshoro, Pakistan.
- **Advisor**. Worked as Student advisor.

Conference Participation

2023
- **IEEE ISBI**. Volunteered and attended ISBI'23 at Cartagena, Colombia.
- **MICCAI'23**. Attended MICCAI'23 online at Vancouver, Canada.

2022
- **MICCAI'22**. Attended and presented research paper and poster at MICCAI'22 at Singapore.
- **MICAI**. Attended MICAI'22 at Tecnologico de Monterrey, Mexico.

Professional Memberships

2022 – present
- **MICCAI society**. Awarded MICCAI student membership by MICCAI by society.

2021 – 2023
- **IEEE**. IEEE student member.

2012 – present
- **Pakistan Engineering Council**. Registered Engineer.

References

Available on Request