Mansoor Ali

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🌐 https://mansoor-at.github.io/

Employment History

2022 – 2025	🔖	**Teaching Assistant.** School of Engineering and Sciences, Tecnologico de Monterrey, Mexico.
2012 – 2017	🔖	**Lecturer.** Electronic Engineering Department, Mehran University of Engineering and Technology, Jamshoro, Pakistan.
2017 – present	🔖	**Assistant Professor.** 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** *Research exchange at the University of Leeds, UK. During this time, I collaborated with University of Oxford to develop novel multicentre dataset.*
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: 99 / 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**. Using unlabeled data to develop efficient solutions for intraoperative 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 classification.

Research Publications

Journal Articles

1. 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.

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

3. S. Hussain 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.

4. S. Hussain, Y. Lafarga-Osuna, **Ali, Mansoor**, 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.

5. 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.

6. **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.

7. **Ali, Mansoor**, 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.

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

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

10. N. Mahoto, A. Memon, and **TEEVNO, MA**, "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. **Ali, Mansoor**, R. Toman, G. Ochoa-Ruiz, and S. Ali, "Polypdino: Adapting dinov2 for domain generalized polyp segmentation," in *Annual Conference on Medical Image Understanding and Analysis*, Springer, 2025, pp. 190–203.

2. C. Aparicio, C. Guerrero, **Ali Teevno, Mansoor**, 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.

3. 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.

4. S. Hussain 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.

5. **Teevno, Mansoor Ali**, 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.

6. **Teevno, Mansoor Ali**, 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.

7. R. Martinez-Garcia-Pena, **Teevno, Mansoor Ali**, 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.

8 P. E. Chavarrias-Solano, **Ali-Teevno, Mansoor**, 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.

9 P. E. Chavarrias-Solano, **Teevno, Mansoor A**, 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.

10 S. Khan 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.

11 **Teevno, Mansoor Ali**, 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	Pytho, MATLAB, Assembly, C, C++.
Development	Pytorch framework
Edge Computing	NVIDIA Jetson Nano, CUDA, TensorRT
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.

Teaching Experience

I had been teaching several courses on the undergraduate engineering level during my employment at Mehran University, Pakistan. Some of them are provided below.

- **Digital Image Processing at UP, Aguascalientes**.
- **Electronic Circuit Design**.
- **Instrumentation and Control**.
- **Microprocessors and Microcontrollers**.
- **C and Assembly programming**.
- **FPGA-based System Design**.
- **Embedded Systems**.
- **Microelectronics**.
- **Printed Circuit Board Design**.
- **Sensors and Actuators**.

Administrative Experience

During my tenure at Electronic Engineering department, Mehran University Pakistan, I worked on a number of committees and performed various administrative tasks. Key among them was the implementation of Washington Accord. Details are provided below

- **Program Committee**. Served as a Secretary on the committee overseeing the overall implementation of outcome-based education for the undergraduate programs. Clinical Breast Cancer.
- **Curriculum Review Committee**. As a member of the committee, my job was to re-design first and second year courses of the program as per the outcome-based education guidelines.

Administrative Experience (continued)

- 🔖 **Final year project committee**. As a secretary of the committee, I was responsible to organize initial, progressive and final seminars of thesis projects, and arrange an open-day of projects.
- 🔖 **Student Advisor**. As a student advisor at University level, I was responsible to provide mentorship to students, arrange job interview and test sessions and oversee Prime Minister laptop distribution events.

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

Conference Participations

2024	🔖 **MICCAI'24**. Presented oral and poster at MLMI workshop at MICCAI'24 at Marrakech.
2023	🔖 **IEEE ISBI**. Volunteered and attended ISBI'23 at Cartagena, Colombia.
	🔖 **MICCAI'23**. Attended MICCAI'23 online at Vancouver, Canada.
2022	🔖 **MICCAI'22**. Presented oral and poster at MICCAI'22 at Singapore.
	🔖 **MICAI**. Attended MICAI'22 at Tecnologico de Monterrey, Mexico.
	🔖 **ICCV**. Presented my research at LatinX workshop at ICCV22.

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