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.

Submitted Works

1 **Mansoor Ali**, G. Ochoa-Ruiz, and S. Ali, "RobustSurg: Endoscopic domain generalization for surgical scene segmentation," 2025, submitted to Medical Image Analysis.

2 **Mansoor Ali**, G. Ochoa-Ruiz, and S. Ali, "Self-supervision with feature disentanglement for generalizable depth estimation in surgical data," 2025, submitted to International Conference on Information Processing in Computer-Assisted Interventions (IPCAI'2026).

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.
- **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.

Miscellaneous Experience (continued)

- 🔖 **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