ABDULLAH TAUQEER

Health AI & Computational Imaging

📍 North York, ON, Canada | ✉ abdullatauqir@gmail.com | 📞 +1 437 460 0377

RESEARCH SUMMARY

Health AI researcher with 4+ years building learning systems for clinical imaging and live cell microscopy, with a focus on reliable evaluation, efficient training and deployment ready code. Recent work is accepted in *Scientific Reports* and EMBC 2025.

EDUCATION

Master of Applied Science, Electrical & Computer Engineering　　　　　Sep 2023 – Jul 2025
York University, Toronto, ON

Bachelor of Electrical Engineering　　　　　Sep 2019 – Jul 2023
National University of Sciences and Technology (NUST), Islamabad, Pakistan

PUBLICATIONS & PREPRINTS

- **Tauqeer, A.**, Parsian, M., Sheibani-Asl, N., Asif, A., & Sadeghi-Naini, A. (2025). *SAM for Live and Multi-Scale Bright-Field Microscopy.* **Submitted to ISBI 2026**.
- **Tauqeer, A.**, Sheibani-Asl, N., Asif, A., & Sadeghi-Naini, A. (2025). *SERN-MIL: Selective Embedding Retrieval & Nuclei-Feature Aggregation based MIL for Prostate Gleason Grading.* **Under review in Nature Methods**.
- Parsian, M., Amanpour, T., **Tauqeer, A.**, Francis, S., Asif, A., Wang, R., & Sadeghi-Naini, A. (2025). *High-Throughput Quantitative Morphometric and Motility Analysis of Cultured Smooth Muscle Cells Using Machine Learning.* **Under review in npj Aging**.
- **Tauqeer, A.**, Asif, A., & Sadeghi-Naini, A. (2025). *Detection, Localization, and Staging of Breast Cancer Lymph Node Metastasis on Whole-Slide Images.* **Published**, *Scientific Reports*.
- **Tauqeer, A.**, Asif, A., & Sadeghi-Naini, A. (2025). *TexSegNet: A Hybrid Encoder and Decoder Model for Robust Nuclei Segmentation and Classification.* **Published**, EMBC 2025.
- Naqvi, S., **Tauqeer, A.**, Bhatti, R., & Ali, S. B. (2022). *Improved Lung Segmentation Based on U-Net Architecture and Morphological Operations.* arXiv:2210.10545.
- Elaziz, A. A., **Tauqeer, A.**, Shahid, F., Asif, A., & Farag, E. Z. H. (2023). *Application of Feasibility Area for Cybersecurity of Electric Power Systems.* IEEE PESGM, 1–5.
- Bhatti, R., Naqvi, A. J., & **Tauqeer, A.** (2023). *Energy Prediction of PV Panels for Demand and Response System Using ANN.*

RESEARCH EXPERIENCE

Research Associate　　　　　**May 2025 – Present**
QUANTIMB Lab, Toronto, ON

- Built compute and memory efficient pipelines for time lapse microscopy analysis and cell tracking; accelerated inference with CUDA and cache aware tiling for scalable experiments.
- Designed reproducible analysis workflows from data ingestion to metrics reporting using Python notebooks and Docker; standardized QC for reliable comparisons across studies.
- Deployed real time analytics on constrained GPUs (Jetson) and multi GPU servers, emphasizing robustness, latency and throughput.

Graduate Researcher　　　　　**Sep 2023 – May 2025**
Lassonde School of Engineering, York University, Toronto, ON

- Clinical imaging classification under weak supervision with representation filtering and attention pooling; improved patient level F1 by +**4%** vs. strong baselines.
- Robust instance segmentation and classification with a hybrid encoder and decoder model; +**5.6%** F1 under stain and scanner shifts.
- Large scale feature mining with selective embedding retrieval to fuse global patterns with local cellular cues; supports risk stratification and triage experiments.

- Live cell analytics using SAM assisted tracking to quantify drug effects via migration, proliferation and morphology metrics for high throughput screens.
- Engineered a custom image stitching and tiling tool for gigapixel imagery with validated geometric fidelity; integrated into training and evaluation pipelines.

TEACHING & SERVICE

Graduate Teaching Assistant, York University   Sep 2023 – Apr 2025
EECS 1012, 1516, 2021, 2210 — led labs, graded 300+ assignments, mentored project teams.

Peer Reviewer, Biomedical Signal Processing and Control (Elsevier)   Oct 2023 – Present

Mitacs Globalink Ambassador & Mentor, Toronto, ON   Jan 2023 – Oct 2024
Mentored 17 international interns; organized onboarding and research skills sessions.

ADDITIONAL EXPERIENCE

Computer Vision Team Lead, NustagOfficial, Islamabad, Pakistan   Sep 2022 – May 2023
- Led real time perception stack for autonomous navigation; C++ sensor fusion with stereo and LiDAR optimized on Jetson AGX Xavier.

TECHNICAL SKILLS

ML: representation learning, weak supervision (MIL), segmentation, tracking, transformers.
Engineering: PyTorch, TensorFlow, scikit learn, OpenCV, Git, Docker, Linux, C++/CUDA; distributed and mixed precision training.
Systems & Data: multi GPU and HPC, NVIDIA Jetson, tiling for large images; clinical imaging and digital microscopy, time lapse experiments.