

MARAWAN ELBATEL

Website | mkfmlbatel@ust.hk | [Google Scholar](#) | [GitHub](#) | [LinkedIn](#)

RESEARCH VISION

I develop clinically grounded multimodal agents for evidence-scarce medicine, enabling reliable diagnosis from low-cost, contrast-free imaging through data-efficient learning across institutions and countries, with a particular focus on clinical validation and translation in partnership with African healthcare institutions.

EDUCATION

Ph.D. Candidate in Computer Engineering *CGPA 4.3/4.3*

· The Hong Kong University of Science and Technology

September 2023 – Present

Erasmus Mundus Master's degree in Medical Imaging (*cum laude*)

· University of Girona, University of Cassino, University of Burgundy

September 2021 – July 2023

B.Sc. in Computer Engineering *CGPA 3.8/4 (Distinction with Honours)*

· Cairo University, Faculty of Engineering

September 2016 – June 2021

AWARDS, HONOURS AND FELLOWSHIPS

Awards and Honours

- MICCAI 2025 Outstanding Reviewer, Honorable Mention *September 2025*
- Zindi 2025 Clinical Reasoning in Rural Healthcare **LLMs Challenge** (1st/400) *June 2025*
- MICCAI 2023 DeCaF Workshop **Best Paper Award** (first author) *October 2023*
- MICCAI 2023 EndoVis-SynISS **Challenge Winner** (first author) *October 2023*
- MICCAI 2023 PS-FH-AoP **Challenge Winner** (first author) *October 2023*
- MICCAI 2022 DART Workshop **Best Paper Award** (NVIDIA-sponsored, first author) *September 2022*
- MICCAI 2022 Breast FL Density **Challenge Winner** (NVIDIA-sponsored, first author) *September 2022*
- Dell Technologies Award for B.Sc. Thesis in the Middle East, North Africa, and Turkey *July 2021*

Fellowships and Scholarships

- Hong Kong Government Ph.D. Fellowship (**HKPFS**) *2023–2026*
- Hong Kong Government **Belt and Road** Ph.D. Scholarship *2023–2026*
- HKUST Ph.D. Redbird Award *2023*
- International Visiting Fellowship at HKUST (M.Sc. Thesis) *2023*
- **Erasmus Mundus Joint Master's Fellowship** (25/800) in Medical Imaging (MaIA) *2021–2023*
- Research Fellowship, University of Bradford, sole awardee in the department *2020*
- Research Fellowship, Egypt-Japan Education Partnership (EJEP), one of two awardees in the department *2019*

ACADEMIC & INDUSTRY POSITIONS

Medical AI and Computer Vision Group, HKUST

Doctoral Researcher

Hong Kong

September 2023 – Present

· Supervised by Xiaomeng Li.

ACCC, Amsterdam University Medical Center

Visiting Scholar

Amsterdam, the Netherlands

September 2025 – Present

· External validation of AI models for echocardiography. Hosted by Folkert W. Asselbergs.

BCN-AIM Lab, Universitat de Barcelona

Visiting Scholar

Barcelona, Spain

January 2025 – Present

· Federated learning for cardiac imaging. Hosted by Karim Lekadir.

VICOROB Lab, University of Girona

Master's Researcher

Girona, Spain

January 2022 – September 2023

· Supervised by Robert Martí.

Dell Technologies

B.Sc. Researcher

Cairo, Egypt

March 2021 – July 2021

· Industry-sponsored thesis on scalable video surveillance for contact tracing.

AIRe Lab, University of Bradford

Research Intern

Bradford, United Kingdom

September 2020 – February 2021

· HEIF project on COVID-19 data. Supervised by Daniel Neagu.

SELECTED PUBLICATIONS

* equal contribution † corresponding author Name in **bold** Full publication list: [Google Scholar](#)

Journal Articles

- [1] MedSapiens: Taking a Pose to Rethink Medical Imaging Landmark Detection. **Elbatel, M.**^{*}, Wang, A.^{*}, Liu, K., Mouheb, K., Almar-Munoz, E., Lin, L., Yang, Y., Lekadir, K., Li, X. (2026). *Medical Image Analysis*.
- [2] PSFHS Challenge Report: Pubic Symphysis and Fetal Head Segmentation from Intrapartum Ultrasound Images. Bai, J., Zhou, Z., Ou, Z., Koehler, G., Stock, R., Maier-Hein, K., **Elbatel, M.**, et al. (2025). *Medical Image Analysis*. [Challenge Winner]
- [3] Learning Unlabeled Clients Divergence for Federated Semi-Supervised Learning via Anchor Model Aggregation. **Elbatel, M.**, Wang, H., Chen, J., Wang, H., Li, X. (2024). *Transactions on Machine Learning Research*.
- [4] FoPro-KD: Fourier Prompted Effective Knowledge Distillation for Long-Tailed Medical Image Recognition. **Elbatel, M.**, Martí, R., Li, X. (2024). *IEEE Transactions on Medical Imaging*.
- [5] Fair Evaluation of Federated Learning Algorithms for Automated Breast Density Classification: The Results of the 2022 ACR-NCI-NVIDIA Federated Learning Challenge. Schmidt, K., Bearce, B., Chang, K., Coombs, L., Farahani, K., **Elbatel, M.**, et al. (2024). *Medical Image Analysis*. [Challenge Winner — NVIDIA-sponsored]

Peer-Reviewed Conference Papers

- [6] A Multi-Center Benchmark for Abdominal Disease Diagnosis and Report Generation from Non-Contrast CT. Elbakry, M., Sheha, A. S., Tantawy, S. H., Yassin, A., Spampinato, C., Lekadir, K., Li, X., **Elbatel, M.**[†] (2026). *MICCAI 2026*. [Early Accept, Spotlight top 4%; Senior author, mentee-led]
- [7] OpenEcho: an agentic framework for echocardiography interpretation. **Elbatel, M.**, Yang, H., Guo, J., Qin, Y., Song, S., Wang, L., Guala, A., Lopez-Gutierrez, P., Lekadir, K., Boonstra, M. J., van der Zwaard, S., Asselbergs, F. W., Lee, A. P. W., Li, X. (2026). *ESC Digital & AI Summit 2026*. [Oral]
- [8] Adaptive Frame Selection for Gestational Age Estimation from Blind Sweep Fetal Ultrasound Videos. Akumu, T., **Elbatel, M.**, Campello, V. M., Osuala, R., Martin-Isla, C., Valenzuela, I., Li, X., Khanal, B., Lekadir, K. (2025). *MICCAI 2025*. [Oral, top 2.2%]
- [9] Geometric-Guided Few-Shot Dental Landmark Detection with Human-Centric Foundation Model. Wang, A.^{*}, **Elbatel, M.**^{*}, Liu, K., Lin, L., Lan, M., Yang, Y., Li, X. (2025). *MICCAI 2025*.
- [10] FD-SOS: Vision-Language Open-Set Detectors for Bone Fenestration and Dehiscence Detection from Intraoral Images. **Elbatel, M.**, Liu, K., Yang, Y., Li, X. (2024). *MICCAI 2024*. [Oral, top 2.8%]
- [11] An Organism Starts with a Single Pix-Cell: A Neural Cellular Diffusion for High-Resolution Image Synthesis. **Elbatel, M.**, Kamnitsas, K., Li, X. (2024). *MICCAI 2024*.
- [12] Evaluating the Fairness of Neural Collapse in Medical Image Classification. Mouheb, K., **Elbatel, M.**, Klein, S., Bron, E. E. (2024). *MICCAI 2024*.

Book Chapters and Workshop Papers

- [13] Benchmarking Foundation Models for Cervical Cancer CT Reporting in Zambia. Mukuka, K. E., Mwape, F., Spampinato, C., Lekadir, K., **Elbatel, M.** (2026). *AFRICAI Workshop – MICCAI 2026*. [Senior author, mentee-led]
- [14] ULF-Synth: Physics-Guided Ultra-Low-Field MRI Enhancement for Pediatric Neuroimaging. Musah, T., Calcagno, S., Proietto Salanitri, F., Li, X., Adewole, M., **Elbatel, M.** (2026). *AFRICAI Workshop – MICCAI 2026*. [Senior author, mentee-led]
- [15] Federated learning on long-tailed datasets. **Elbatel, M.**, Martí, R., Li, X. (2025). *Federated Learning for Medical Imaging, The MICCAI Society Book Series*.
- [16] Self-Prompting Large Vision Models for Few-Shot Medical Image Segmentation. Wu, Q., Zhang, Y., **Elbatel, M.** (2023). *DART: Domain Adaptation and Representation Transfer Workshop – MICCAI 2023*. [Senior author, mentee-led]
- [17] Federated Model Aggregation via Self-Supervised Priors for Highly Imbalanced Medical Image Classification. **Elbatel, M.**, Wang, H., Fu, H., Martí, R., Li, X. (2023). *DeCaF: Distributed, Collaborative and Federated Learning Workshop – MICCAI 2023*. [Best Paper Award]
- [18] Seamless Iterative Semi-supervised Correction of Imperfect Labels in Microscopy Images. **Elbatel, M.**, Bornberg, C., Kattel, M., Almar, E., Marrocco, C., Bria, A. (2022). *DART: Domain Adaptation and Representation Transfer Workshop – MICCAI 2022*. [Best Paper Award — NVIDIA-sponsored]

Manuscripts Under Review and Submitted

- [19] Echocardiographic Multimodal Generative AI Enables Expert-level Cardiac Diagnostics. Qin, Y.^{*}, **Elbatel, M.**^{*}, Song, S.^{*}, et al. (2026). *Under review, Nature*.
- [20] TriALS: Triphasic-Aided Liver Lesion Segmentation Benchmark in Non-Contrast CT. **Elbatel, M.**[†], et al. (2026). *Under submission*. [preprint]

OPEN DATASETS AND BENCHMARKS

- TriCECT CT Reporting Dataset: 3,000 patients, 12,000 triphasic CT volumes with paired reports.
- TriALS Liver Lesion Segmentation Dataset: 150 patients, 600 triphasic CT volumes with segmentation masks.
- Cervical Cancer CT Benchmark: 100 patients, 900 CT volumes with paired reports.
- FDTooth Dataset: 241 patients, 1,800 annotated bounding boxes with CBCT ground truth.

RESEARCH MENTORSHIP

- Mariam Elbakry, M.Sc., ASU, Egypt. First-author MICCAI 2026; senior and corresponding author. 2025–2026
- Anbang Wang, B.Sc., HKUST, Hong Kong. MICCAI 2025 and MedIA 2026; joint first author. 2025–2026
- Kangwa E. Mukuka, B.Sc., UNZA, Zambia. First-author AFRICAI–MICCAI 2026; senior author. 2025–2026
- Toufiq Musah, M.Sc., KNUST, Ghana. First-author AFRICAI–MICCAI 2026; senior author. 2025–2026
- Qi Wu, B.Sc., HKUST, Hong Kong. First-author DART–MICCAI 2023; senior author. 2023–2024

ACADEMIC SERVICE AND LEADERSHIP

- Career Advancement Chair, MICCAI 2028 (forthcoming) 2028
- Lead Organizer, TriALS Report Generation Challenge, MICCAI 2027 (forthcoming) 2027
- Lead Organizer, AFRICAI Workshop, MICCAI 2026 2026
- Vice President, SIG-AFRICAI, MICCAI Society 2024–Present
- Lead Organizer, TriALS Segmentation Challenge, MICCAI 2024 & 2025 2024–2025
- Organizing Committee, MICCAI 2024 2024
- Reviewer for IEEE TMI, IEEE TPAMI, IEEE TNNLS, and Medical Image Analysis 2024–Present

INVITED TALKS

- *Multimodal AI Agents for Clinical Decision Support*. AI in Ophthalmology, UCL, UK. February 2026
- *Data and Label Efficient Learning in Medical Imaging*. University of Girona, Spain. November 2024
- *Tips and Tricks for Winning Challenges* (panel discussion). MICCAI Student Board. April 2024
- *Winning Solutions for MICCAI Challenges*. AFRICAI webinar. November 2023

TEACHING

- *Your First Step Into Research: Conferences, Competitions, and Beyond*. IEEE EMBS Cairo, Egypt. August 2025
- *Academic Style for Writing Successful MICCAI Papers*. RISE-MICCAI Local Hub Summer School. July 2025
- Teaching Assistant, Signals and Networks, HKUST, Hong Kong. 2024

REFEREES

- Xiaomeng Li, Ph.D. supervisor. Associate Professor, HKUST, Hong Kong.
- Karim Lekadir, research host. Professor and Director of BCN-AIM, Universitat de Barcelona, Spain.
- Robert Martí, M.Sc. thesis supervisor. Associate Professor, University of Girona, Spain.
- Folkert W. Asselbergs, research host. Professor of Translational Data Science, Amsterdam UMC, the Netherlands.
- Aya Yassin, clinical collaborator. Professor, Ain Shams University, Egypt.