Mohammed Yusuf Ansari

PHD CANDIDATE · COMPUTER ENGINEERING

Texas A&M University, 301 WEB, 188 Bizzell St, College Station, TX 77840, United States

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Education

Texas A&M University (Expected Graduation: May 2025) — *College Station, Tx, USA*
PHD CANDIDATE IN COMPUTER ENGINEERING: CGPA (4.0/4.0) — *Aug 2022 - present*
- Advisors: Dr. Raffaella Righetti and Dr. Marwa Qaraqe

Hamad Bin Khalifa University — *Doha, Qatar*
MS DATA SCIENCE AND ENGINEERING: CGPA (4.0/4.0) — *Aug 2020 - May 2022*
- Advisor: Dr. Yin Yang

Carnegie Mellon University — *Pittsburgh, PA, USA*
BS COMPUTER SCIENCE WITH MINOR IN MATHEMATICS: CGPA (3.93/4.0) — *Aug 2016 - May 2020*
- Honors thesis/undergrad research advisor: Dr. Mohammad Hammoud

Professional Experience

2022-Pres	**PhD Fellow,** Dept. Electrical and Computer Engineering, Texas A&M University, USA
2020-2022	**Graduate Research Associate,** Artificial intelligence Unit, Hamad Medical Corporation, Qatar
2020-2021	**Graduate Research Assistant (Part-time),** Dept. Computer Science, Carnegie Mellon University, Qatar
2018-2019	**Undergraduate Research Assistant (Summer),** Dept. Computer Science, Carnegie Mellon University, Qatar
2017-2020	**Undergraduate Course Assistant (Part-time),** Dept. Computer Science, Carnegie Mellon University, Qatar

Research Interest

My research focuses on developing efficient and scalable deep learning systems, with an emphasis on real-world applications in computer vision, signal analysis, and large language models (LLMs). I specialize in designing lightweight neural networks and hybrid solutions optimized for practical, resource-constrained environments, ensuring high performance and scalability. Specifically, my work involves leveraging unstructured visual and multimodal datasets to create custom AI solutions for biomedical data. I am particularly passionate about integrating LLMs with computer vision workflows to address diverse downstream tasks and deliver cutting-edge solutions.

Awards, Fellowships, & Scholarships

2024	**Runner-Up, Star of Excellence Award (Team Member),** Hamad Medical Corporation
2022	**Recipient of PhD Research Fellowship,** Texas A&M University
	Winner of Qatar's 2022 Artificial Intelligence Competition- MENA Region, Qatar University
2020	**Recipient of Qatar Foundation's 25th Anniversary Scholarship,** Qatar Foundation
	University and College Honors, Carnegie Mellon University
	Dean's List Honors, Carnegie Mellon University
2019	**Winner of Capture The Flag Cybersecurity Contest,** Qatar University
	Dean's List Honors, Carnegie Mellon University
2018	**Recipient of Qatar Foundation Undergraduate Merit Scholarship,** Qatar Foundation
	Winner of Oman Collegiate Programming Contest, ICPC Foundation
	Dean's List Honors, Carnegie Mellon University

Publications

Published Journal Articles (by year)

1. Mohammed Yaqoob †, Mohammed Ishaq †, **Mohammed Yusuf Ansari** †, Yemna Qaiser, Rehaan Hussain, Harris Rabbani, Thomas D. Seers. "Advancing Paleontology: A Survey on Deep Learning Methodologies in Fossil Image Analysis". Artificial Intelligence Review, (2025).

2. Iffa Afsa Changaai Mangalote, **Mohammed Yusuf Ansari**, Pramod Kumar Meher, Omar Aboumarzouk, Abdulla Al-Ansari, Osama Halabi, Sarada Prasad Dakua. "Pareto Optimal Cardiac Arrest Prediction: A Class Imbalance-Resilient StrataChron Pyramid Fusion Framework Leveraging ICA and Exploring Explainability." IEEE Transactions on Biomedical Engineering, (2025).

3. **Mohammed Yusuf Ansari**, Iffa Afsa Changaai Mangalote, Pramod Kumar Meher, Omar Aboumarzouk, Abdulla Al-Ansari, Osama Halabi, Sarada Prasad Dakua. "Segmentation of B-mode Ultrasound Images Using Neural Networks: A Comprehensive Survey". IEEE Transactions on Emerging Topics in Computational Intelligence, (2024).

4. Mohammed Yaqoob †, Mohammed Ishaq †, **Mohammed Yusuf Ansari** †, Issac Sujay Anand John Jayachandran, Tamim Al Tamimi, Stefano Tavani, Amerigo Corradetti, Thomas D. Seers. "GeoCrack: A High-Resolution Dataset For Segmentation of Fracture Edges in Geological Outcrops". Scientific Data, (2024).

5. Ishaq Ansari, Abubakar Mohammad, Yaqoob Ansari, **Mohammed Yusuf Ansari**, Saquib Razak, Eduardo Feo Flushing. "Co-CoLoSSI: Multi-Robot Task Allocation in Spatially-Distributed and Communication Restricted Environments". IEEE Access, (2024).

6. **Mohammed Yusuf Ansari**, Marwa Qaraqe, Erchin Serpedin, Raffaella Righetti, Khalid Qaraqe. "Enhancing ECG-Based Heart Age: Impact of Acquisition Parameters and Generalization Strategies for Varying Signal Morphologies and Corruptions". Frontiers in Cardiovascular Medicine, (2024).

7. **Mohammed Yusuf Ansari**, Marwa Qaraqe, Fatme Charafeddine, Erchin Serpedin, Raffaella Righetti, Khalid Qaraqe. "Estimating Age and Gender from Electrocardiogram Signals: A Comprehensive Review of the Past Decade". Artificial Intelligence in Medicine, (2023).

8. Pragati Rai, **Mohammed Yusuf Ansari**, Mohammed Warfa, Hammad Al-Hamar, Julien Abinahed, Ali Barah, Sarada Prasad Dakua, Shidin Balakrishnan. "Efficacy of fusion imaging for immediate post-ablation assessment of malignant liver neoplasms: A systematic review". Cancer Medicine, (2023).

9. Vaisali Chandrasekar, **Mohammed Yusuf Ansari**, Ajay Vikram Singh, Shahab Uddin, Kirthi S Prabhu, Sagnika Dash, Souhaila Al Khodor, Annalisa Terranegra, Matteo Avella, Sarada Prasad Dakua. "Investigating the Use of Machine Learning Models to Understand the Drugs Permeability Across Placenta". IEEE Access, (2023).

10. **Mohammed Yusuf Ansari**, Pragati Rai, Yin Yang, Shidin Balakrishnan, Julien Abinahed, Abdulla Al-Ansari, Omran Almokdad, Ali Barah, Ahmed Omer, Ajay Vikram Singh, Pramod Kumar Meher, Jolly Bhadra, Osama Halabi, Mohammad Farid Azampour, Nassir Navab, Thomas Wendler, Sarada Prasad Dakua. "Dense-PSP-UNet: A neural network for fast inference liver ultrasound segmentation". Computers in Biology and Medicine, (2023).

11. **Mohammed Yusuf Ansari**, Marwa Qaraqe. "MEFood: A Large-scale Representative Benchmark of Quotidian Foods for the Middle East". IEEE Access, (2023).

12. **Mohammed Yusuf Ansari**, Marwa Qaraqe, Erchin Serpedin, Raffaella Righetti, Khalid Qaraqe. "Unveiling the Future of Breast Cancer Assessment: A Critical Review on Generative Adversarial Networks in Elastography Ultrasound". Frontiers in Oncology, (2023).

13. **Mohammed Yusuf Ansari**, Vaisali Chandrasekar, Ajay Vikram Singh, Sarada Prasad Dakua. "Re-routing drugs to blood brain barrier: A comprehensive analysis of Machine Learning approaches with fingerprint amalgamation and data balancing". IEEE Access, (2022).

14. **Mohammed Yusuf Ansari**, Alhusain Abdalla, Mohammed Yaqoob Ansari, Mohammed Ishaq Ansari, Byanne Malluhi, Snigdha Mohanty, Subhashree Mishra, Sudhansu Sekhar Singh, Julien Abinahed, Abdulla Al-Ansari, Shidin Balakrishnan, Sarada Prasad Dakua. "Practical utility of liver segmentation methods in clinical surgeries and interventions". BMC Medical Imaging, (2022)

15. **Mohammed Yusuf Ansari**, Yin Yang, Shidin Balakrishnan, Julien Abinahed, Abdulla Al-Ansari, Mohamed Warfa, Omran Almokdad, Ali Barah, Ahmed Omer, Ajay Vikram Singh, Pramod Kumar Meher, Jolly Bhadra, OsamaHalabi, Mohammad Farid Azampour, Nassir Navab, Thomas Wendler, and Sarada Prasad Dakua. "A lightweight Neural Network with Multiscale Feature Enhancement for Liver CT Segmentation". Scientific Reports, (2022).

16. Yusuf Akhtar, Sarada Prasad Dakua, Alhusain Abdalla, Omar Mousa Aboumarzouk, **Mohammed Yusuf Ansari**, Julien Abinahed, Mohamed Soliman Mohamed Elakkad, and Abdulla Al-Ansari. "Risk Assessment of Computer-aided Diagnostic Software for Hepatic Resection". IEEE Transactions on Radiation and Plasma Medical Sciences, (2021).

Published Conference Articles (by year)

1. **Mohammed Yusuf Ansari**, Iffa Afsa Changaai Mangalote, Dima Masri, Sarada Prasad Dakua. "Neural Network-Based Fast Liver Ultrasound Image Segmentation". IEEE international joint conference on neural networks (IJCNN), 2023.

2. **Mohammed Yusuf Ansari**, Snigdha Mohanty, Serah Jessy Mathew, Subhashree Mishra, Sudhansu Sekhar Singh, Julien Abinahed, Abdulla Al-Ansari, and Sarada Prasad Dakua. "Towards Developing a Lightweight Neural Network for Liver CT Segmentation". International Conference on Medical Imaging and Computer-Aided Diagnosis, (2022).

Under Review

1. **Mohammed Yusuf Ansari**, Marwa Khalid, Doja Qaraqe, Erchin Serpedin, Raffaella Righetti. "From Twelve to Four: A Novel Deep Neural Network-based Twelve-lead Electrocardiogram Pruning and Diagnosis System". Scientific Reports.

2. **Mohammed Yusuf Ansari**, Eduardo Feo Flushing, Mohammad Yaqoob, Mohammed Ishaq, Gianni Di Caro. "Fast Inference of Team Performance in Heterogeneous Multi-Robot Task Allocation using Deep Learning". IEEE Transactions on Automation Science and Engineering.

3. **Mohammed Yusuf Ansari**, Marwa Qaraqe, Erchin Serpedin, Raffaella Righetti. "ECGAge-Insights: Influence of Acquisition Parameters and Handcrafted Feature Quality on ECG-Derived Heart Age". IEEE-EMBS International Conference on Biomedical and Health Informatics.

4. Mohammed Yaqoob, Mohammed Ishaq, **Mohammed Yusuf Ansari**, Venkata Ram Sagar Konagandla, Mohammed Hashim, Thomas D. Seers. "MicroCrystalNet: An Efficient Convolutional Neural Network for Microcrystal Classification using Scanning Electron Microscope Petrography". IEEE Access.

5. **Mohammed Yusuf Ansari†**, Mohammed Yaqoob†, Mohammed Ishaq†, Eduardo Feo Flushing, Iffa Afsa changaai Mangalote, Sarada Prasad Dakua, Omar Aboumarzouk, Raffaella Righetti, Marwa Qaraqe. "From Transformers to LLMs: A Review of Innovations in ECG Disease Diagnosis". Artificial Intelligence Reviews.

6. Mohammed Yaqoob†, **Mohammed Yusuf Ansari†**, Mohammed Ishaq†, Unais Ashraf, Saideep Pavuluri, Arash Rabbani, Harris Sajjad Rabbani, Thomas D. Seers. "FluidNet-Lite: Lightweight Convolutional Neural Network for Pore-scale Modeling of Multiphase Flow in Heterogeneous Porous Media". Advances in Water Resources.

Presentations

Invited Talks

Fall 2021. *Real-Time Image Segmentation for Enabling Fusion Imaging in Hepatocellular Carcinoma Ablation*. Hamad Bin Khalifa University, Doha, Qatar.

Fall 2022. *Lightweight Deep Neural Network Framework for Liver CT Segmentation*. Hamad Bin Khalifa University, Doha, Qatar.

Conference Presentations

Mohammed Yusuf Ansari, Iffa Afsa Changaai Mangalote, Dima Masri, Sarada Prasad Dakua. 2023. *Neural network-based fast liver ultrasound image segmentation*. International joint conference on neural networks (IJCNN), Queensland, Australia.

Mohammed Yusuf Ansari, Snigdha Mohanty, Serah Jessy Mathew, Subhashree Mishra, Sudhansu Sekhar Singh, Julien Abinahed, Abdulla Al-Ansari, and Sarada Prasad Dakua. 2022. *Towards Developing a Lightweight Neural Network for Liver CT Segmentation*. International Conference on Medical Imaging and Computer-Aided Diagnosis, Online.

Teaching Experience

Fall 2024	**Engineering Computation (Lab Instructor)**, Teaching Assistant, Texas A&M University
Fall 2023	**Medical Image Processing (Lab Instructor)**, Teaching Assistant, Hamad Bin Khalifa University
Spring 2020	**15-110: Principles of Computing**, Course Assistant, Carnegie Mellon University
Fall 2019	**15-112: Fundamentals of Programming**, Course Assistant, Carnegie Mellon University
Fall 2018	**15-112: Fundamentals of Programming**, Course Assistant, Carnegie Mellon University
Spring 2018	**15-112: Fundamentals of Programming**, Course Assistant, Carnegie Mellon University
Fall 2017	**15-112: Fundamentals of Programming**, Course Assistant, Carnegie Mellon University
Spring 2017	**15-112: Fundamentals of Programming**, Course Assistant, Carnegie Mellon University

Mentoring

2024-pres	**Mahnoor Muhammad Nayyar**, Masters in Biopsychology and Neuroscience, Hamad Bin Khalifa University
2024-pres	**Aairah Tanveer**, Masters in Sustainable Environment, Hamad Bin Khalifa University
2024-pres	**Muhammad Ahmed**, Bachelors in Computer Engineering, Hamad Bin Khalifa University
2024-pres	**Bushra Musa Samarah**, Masters in Biological and Biomedical Science, Hamad Bin Khalifa University
2024-pres	**Syeda Hira Hashmi**, Masters in Genomic and Precision Medicine, Hamad Bin Khalifa University
2024-pres	**Iffa Afsa Changaai Mangalote**, Masters in Computing, Qatar University
2024-pres	**Anurag Aryal**, Sophomore Computer Science, Carnegie Mellon University
2023-2024	**Mohammed Yaqoob**, Undergraduate Senior, Texas A&M University
2023-2024	**Mohammed Ishaq**, Undergraduate Senior, Texas A&M University

Academic Service & Memberships

Editorial Roles

2024-pres	**BMC Medical Imaging**, Editorial Board Member

Journal Peer Review

- **Engineering Applications of Artificial Intelligence**, reviewer since 2023.
- **Medical Image Analysis**, reviewer since 2024.
- **Artificial Intelligence in Medicine**, reviewer since 2024.
- **Nature Scientific Reports**, reviewer since 2024.
- **Computer Methods in Biomechanics and Biomedical Engineering**, reviewer since 2024.
- **Computer Methods and Programs in Biomedicine**, reviewer since 2024.
- **Artificial Intelligence Review**, reviewer since 2024.
- **Computers in Biology and Medicine**, reviewer since 2023.
- **Biomedical Signal Processing and Control**, reviewer since 2023.
- **Image and Vision Computing**, reviewer since 2024.
- **Pattern Recognition**, reviewer since 2024.
- **Cluster Computing**, reviewer since 2024.
- **Discover Artificial Intelligence**, reviewer since 2024 .

- **European Heart Journal**, reviewer since 2024.

- **Journal of Cancer Immunology**, reviewer since 2024.

- **BMC Medical Imaging**, reviewer since 2024.

- **IEEE Access**, reviewer since 2024.

- **NPJ Biomedical Innovation**, reviewer since 2024.

- **PLOS ONE**, reviewer since 2024.

Conference Peer Review

- **International Conference on Joint Neural Networks (ICJNN)**, reviewer for 2023, 2024, and 2025.

- **IEEE International Symposium on Biomedical Imaging (ISBI)**, reviewer for 2025.

Professional Memberships

- **IEEE**

- **IEEE Engineering in Medicine and Biology Society**

- **IEEE Computational Intelligence Society**

- **IEEE Nuclear & Plasma Sciences Society**