Mohamed Rayan Barhdadi

Curriculum Vitae · bmrayan.com

Interests

3D/4D Scene Understanding/Reconstruction, Vision Language Models (VLMs), Physics Informed Learning, Cognitive Science

Education

Texas A&M University Qatar 2023–2027

Bachelor of Science, Electrical Engineering

- *Thesis (3rd year):* "The Physical World as the First Teacher: Structured 4D Scene Representation."
  Advisors: Prof. Hasan Kurban, Prof. Erchin Serpedin.
- *Notable Award*:
  - Richard E. Ewing Award for Excellence in Student Research
    (1 of ∼450; awarded to one undergraduate annually across all students by nomination).
- *Selected Summer/Winter Schools* (typically for PhD students):
  - International Computer Vision Summer School (ICVSS), Italy, 2026. (upcoming)
  - African Computer Vision Summer School (ACVSS), Ghana, 2026. (upcoming)

Under Review

** denotes equal contribution*

Intrinsic 4D Gaussian Segmentation from Scene Cues
H Yazar*, MR Barhdadi*, E Serpedin, M Tuncel, and H Kurban
British Machine Vision Conference BMVC, 2026 (under rev.)

Perception, Not Reasoning, Limits Visual Theory of Mind
MR Barhdadi, ST Wasim, J Gall, E Serpedin, and H Kurban
Neural Information Processing Systems NeurIPS, 2026 (under rev.)
Also Accepted at 2nd Workshop on MMRAgI CVPR–W, 2026

Mixture Normalizing Flows with Exact Likelihood
MR Barhdadi, SB Belhaouari, H Bensmail, and M Aupetit
Neural Information Processing Systems NeurIPS, 2026 (under rev.)

4D Synchronized Fields: Motion-Language Gaussian Splatting
MR Barhdadi, S Abdaljalil, R Khanbayov, E Serpedin, and H Kurban
European Conference on Computer Vision ArXiV and ECCV, 2026 (under rev.)

IRIS: A Real-World Benchmark for Inverse Recovery and Identification of Physical Dynamic Systems from Monocular Video
R Khanbayov*, MR Barhdadi*, E Serpedin, and H Kurban
European Conference on Computer Vision ArXiV and ECCV, 2026 (under rev.)

Publications

EMPATHIA: Multi-Faceted Human-AI Collaboration for Refugee Integration
MR Barhdadi, M Tuncel, E Serpedin, and H Kurban
Neural Information Processing Systems NeurIPS, 2025

+ Invited Keynote Talk at NeurIPS Affinity Workshop 2025

PhysicsNeRF: Physics-Guided 3D Reconstruction from Sparse Views
MR Barhdadi, H Kurban, and H Alnuweiri
Building Physically Plausible World Models Workshop
International Conference on Machine Learning ICML–W, 2025

Research Experience

Harvard University, AI and Robotics Lab 03/2026–Present
Research Assistant with Dr. Mengyu Wang
Topic: 3D/4D Understanding, Vision Language Models.

Texas A&M Qatar, Kurban Intelligence Lab 02/2025–Present
Research Assistant with Dr. Hasan Kurban and Dr. Erchin Serpedin
Topics: All things Perception/Vision from Cog Sci/Phys approach.

Qatar Computing Research Institute, AI Center 05/2025–03/2026
Research Intern with Dr. Halima Bensmail and Dr. Michael Aupetit
Topics: Normalizing Flows and Generative Models.

Texas A&M Qatar, Power System Modeling Laboratory 01/2024–12/2024
Research Assistant with Dr. Selma Awadallah
Topic: ML for fault detection in electrical transformers.

Industry Experience

Overshoot (Y Combinator W26) 05/2026–Present
Research Scientist Intern with Younes and Zakaria El Hjouji
Topic: Unified Encoder for Vision Language Models.

Ottonomi AI 07/2025–10/2025
Computer Vision Software Engineer with Dr. Hussein Alnuweiri
Under NDA ;)

Digital & Integration, SLB 06/2025–08/2025
Engineering Intern with Azhar Khan
Topic: Automated Well Integrity Evaluation.

Grants and Funding

ValuesLab Award Grant, Columbia University 2026
Principal Investigator, Awarded $3,000 of funding and compute.
Topic: Machine Imagination as a new learning paradigm.

Student Research Experience Grants (SREG), TAMUQ 2026
Lead Undergraduate Investigator, Awarded $50,000 of funding.
Topic: Physics informed 3D reconstruction and understanding.

Undergraduate Research Experience Project (UREP), QRDI 2025
Member, Awarded $26,000 of funding.
Topic: ML for fault detection in electrical transformers.

Travel Award to ICVSS in Italy, TAMUQ 2026
Travel Award to CVPR in Denver, Overshoot (YC W26) and TAMUQ 2026
Travel Award to ACVSS in Ghana, Google and INRIA 2026
Travel Award to EACL in Morocco, TAMUQ 2026
Travel Award to MenaML in Saudi, KAUST and Google DeepMind 2026
Complementary Registration NeurIPS, NeurIPS Committee 2025
Travel Award to NeurIPS in San Diego, TAMUQ 2025
Travel Award to ICML in Vancouver, TAMUQ 2025
Travel Funding to present at IFTP in Texas, TAMU 2025
Travel Award for SLEP leadership exchange in Texas, TAMU 2025

Selected Talks

Invited Keynote Speaker at the "MusIML" Workshop, NeurIPS 2025 12/2025
Invited Speaker at "Human Inspired Computer Vision" Seminar, TAMUQ 11/2025

Selected Speaker at the "Undergraduate Research Conference", MIT 10/2025
Invited Speaker at Moroccans in Artificial Intelligence Research (MAIR) 10/2025

Honors and Awards

Richard E. Ewing Award for Excellence in Research (1 out of 450) – $1,250 2026
Undergraduate Research Scholars, College of Engineering, TAMU 2026
1st Place at Qatar Computing Research Institute Symposium (1/108) 2025
First Place at AIX Hackathon, Rising Ventures (+85 Teams) – $5,000 2025
1st Place at EC 3rd Undergraduate Research Retreat – $550 2025
Woqod x Qatar Foundation Scholar Award Recipient – $10,000 2025
Second Place (Global Phase) Invent for the Planet by TAMU – $2,500 2025
First Place (Qatar Phase) Invent for the Planet by TAMUQ – $1,650 2024
+Best Prototype Award
+Best Video Award
Winner of Qatar Foundation Tech Pitch Competition – $11,000 2024
2nd Place Texas A&M University Qatar Robotics Competition 2024
Inducted in Engineering Honors Program at TAMUQ 2023

Academic Service

Reviewer, AI4Good Workshop, ICML 2026
Reviewer, ReLearn: Rediscovering Intelligence Workshop, CVPR 2026
Volunteer, MusIML Workshop, ICML/NeurIPS 2025

Leadership

IEEE, *Student Member* 2023–Present
ACL, *Student Member* 2026–Present
The Peace Club TAMUQ, *Advisor* 2025
The Peace Club TAMUQ, *President* 2025
The Peace Club TAMUQ, *Vice-President* 2024
Lead Organizer, "Effective Humanitarian Engineering Solutions Workshop" 2024
Qatar Foundation, *Student Orientation Leader* 2024
IEEE Student Chapter, *Class Representative* 2023
Moroccan National Swimming Federation, *Instructor Volunteer* 2022

Languages

English (Fluent) · Arabic (Native) · French (Bilingual Proficiency) · Spanish (Elementary)

References

Dr. Hasan Kurban hkurban@hbku.edu.qa
Director, Kurban Intelligence Lab
Assistant Professor, Hamad Bin Khalifa University
Adjunct Assistant Professor, Texas A&M University Qatar and IU Bloomington

Dr. Erchin Serpedin eserpedin@tamu.edu
Department Chair, ECEN, Texas A&M University Qatar
Full Professor, Texas A&M University

Dr. Halima Bensmail hbensmail@hbku.edu.qa
Principal Scientist, Qatar Computing Research Institute
Previously: Oak Ridge National Lab, University of Washington, INRIA

Zakaria El Hajouji zakaria@overshoot.ai
Founder & CEO, Overshoot (Y Combinator W26)
Previously: MIT, Meta, Uber

Last updated: June 2, 2026