

Parham Zilouchian Moghaddam

School of Electrical and Computer Engineering, University College of Engineering, University of Tehran, Tehran, Iran.

✉ p.zilouchian@gmail.com | 🎓 Google Scholar | 🆔 ORCID | 🌐 Website | 🌐 parhamzm | 🌐 parhamzm | 📞 (+98) 998-123-0333

Education

🏛️ University of Tehran

- M.Sc. in Computer Engineering (Computer Architecture)
- Cumulative GPA: **19.18/20**
- Thesis: *Designing Generative Models for Developing Deep Learning Applications in Video Compression*

Tehran, Iran
Sep. 2019 – Feb. 2023

🏛️ University of Kashan

- B.Sc. in Computer Engineering (Software Engineering)
- GPA (last **two** years): **18.25/20** | • Cumulative GPA: **17.68/20**
- Thesis: *A Hybrid Deep Learning–SVM Classification Framework*

Kashan, Iran
Sep. 2015 – Sep. 2019

Research Interests

- ✓ Trustworthy AI
- ✓ Generative & Multimodal Models
- ✓ LLM Evaluation & Reliability
- ✓ Human–AI Interaction
- ✓ Efficient ML systems
- ✓ Accountable AI Agents

Research Experience

✓ Researcher — Trustworthy LLM Systems and Agent Accountability

May 2026 – Present

• In collaboration with *Dr. Mehrdad Tajbakhsh*

- Developing **accountability mechanisms** for autonomous agents: recording, explaining and defending their actions.
- Studying **Sovereign AI**: how institutional control over AI infrastructure shapes whether agents can be governed.
- Building an open-weight **LLM co-expert** for **intangible-asset valuation**, grounded in domain knowledge via **RAG**.
- Developing methods for **report reliability** and **data anonymisation** to protect user-disclosed information.

✓ Researcher at Qatar Computing Research Institute (QCRI)

March 2025 – March 2026

• Supervised by *Dr. Mohammad Amin Sadeghi, Dr. Anas A. Al-Nuaimi*

QCRI, Doha, Qatar (Hybrid)

- Led culturally aligned image-generation benchmarking for **Fanar**, an Arabic-centric multimodal generative AI platform.
- Built the platform's image-generation evaluation suite (FID, CLIP Score, Inception Score, PSNR, SSIM).
- Designed **15 custom LLM-as-a-judge metrics** spanning cultural accuracy and generation quality, informing model selection.
- Assessed agreement between automated judge scores and **Elo rankings derived from human pairwise comparisons**.
- Resulting manuscript: "Fanar Oryx: Culturally Aligned Image Generation for Arabic-Islamic Visual Culture" [6].

✓ Researcher at Computer Vision Lab

April 2024 – Present

• Supervised by *Dr. Mostafa Tavassolipour*

University of Tehran, Iran

- Developing a **generative–algorithmic assistant** that proposes carpet patterns and components for designers to refine.
- Combining generative proposals with algorithmic enforcement of limited-palette and pixel-grid constraints for machine weaving.

✓ Research Assistant at Computational Modeling and Machine Learning Lab

Jan. 2020 – March 2023

• Supervised by *Dr. Mehdi Modarressi, Dr. Mohammad Amin Sadeghi*

University of Tehran, Iran

- Developed **NU-Class Net**, a custom neural architecture for restoring visual quality in low-bitrate compressed video.
- Used residual prediction to reduce compression artifacts after conventional decoding, without modifying the underlying codec.
- First author of the resulting article in *Engineering Applications of Artificial Intelligence* (2025) [1].

✓ Research Assistant at Intelligent Architectures for Computing Systems Research Lab

Nov. 2019 – Present

• Supervised by *Dr. Mehdi Modarressi*

University of Tehran, Iran

- Coordinating the laboratory's reading group on LLM hardware and computational efficiency.
- Developing efficient LSTM models for EEG analysis on wearable devices, focusing on model complexity and predictive accuracy [5].
- Co-authored *Smart Memory*, published in *IEEE Computer Architecture Letters* [2].

✓ Artificial Intelligence Researcher

2018 – 2019

• Supervised by *Dr. Javad Salimi Sartakhti*

University of Kashan, Iran

- Developed a hybrid DNN–SVM classifier for the B.Sc. thesis, leading to a conference publication in 2019 [3].

✓ Augmented Reality Researcher

2017 – 2019

• Supervised by *Dr. Javad Salimi Sartakhti*

University of Kashan, Iran

- Developed a Unity-based augmented-reality application for surface detection and placement of 3D objects.

Publications

Peer-reviewed publications

[1] **P. Z. Moghaddam**, M. Modarressi, M. A. Sadeghi, “A novel deep learning-based approach for video quality enhancement,” *Engineering Applications of Artificial Intelligence*, vol. 144, article 110118, 2025. [DOI]

[2] S. H. S. A. Rezaei, **P. Z. Moghaddam**, M. Modarressi, “Smart Memory: Deep Learning Acceleration in 3D-Stacked Memories,” *IEEE Computer Architecture Letters*, 2024. [DOI]

[3] **P. Z. Moghaddam**, J. S. Sartakhti, “Deep Learning Based on Support Vector Machines (SVM),” *5th National Conference on Distributed Computing and Big Data Processing*, 2019. In Persian. [Paper]

[4] **P. Z. Moghaddam**, F. Lotfali, J. S. Sartakhti, “Improving Robot Behavior in a Real-Time Game Using the Grey Wolf Optimizer,” *2nd International Computer Games Conference: Opportunities and Challenges*, 2019. In Persian. [Code]

Preprints & Manuscripts in preparation

[5] F. Shayeste Roodi, **P. Z. Moghaddam**, M. Mohammadi-Nasab, M. Modarressi, M. E. Salehi Nasab, M. Daneshtalab, “Reducing the Complexity of Deep Learning Models for EEG Analysis on Wearable Devices,” 2026. [arXiv:2606.12742]

[6] **P. Z. Moghaddam**, K. Isufaj, M. A. Sadeghi, R. Abolhasani, A. A. Al-Nuaimi, “Fonar Oryx: Culturally Aligned Image Generation for Arabic-Islamic Visual Culture,” 2026. *Manuscript in preparation*.

[7] **P. Z. Moghaddam**, M. Charbaghi, J. S. Sartakhti, “Faster Wav2Vec: Improving the Inference Speed of Speech Representation Models,” 2026.

Honors & Awards

- **HATEF Technology Development Grant**, University of Tehran; selected from over 300 proposals. 2026
- Admitted to the Ph.D. program in Computer Science at the University of California, Irvine, for Fall 2024 and Fall 2025; unable to enroll due to U.S. visa processing delays. 2024 – 2025
- Offered entrance-exam-exempt Ph.D. admission to the University of Tehran through the Exceptional Talent scheme. 2023 – 2024
- **Graduated 1st** (highest overall GPA) among M.Sc. Computer Engineering (CA) students, University of Tehran. 2023
- Awarded ‘direct’ (entrance-exam-exempt) **M.Sc. admission** to the University of Tehran as an **Exceptional Talent**. 2019
- Awarded ‘direct’ **M.Sc. Admission offer** from the [University of Kashan](#) and [Shahid Beheshti University](#) as an Exceptional Talent. 2019
- **Ranked 2nd** by GPA among Computer Software Engineering Students, University of Kashan. 2019
- **Recognized as a Distinguished Student** by The University Committee for the Exceptional Talents, University of Kashan 2018

Selected Industry Experience

- **Molavi Carpet: Software Engineer & Board Member** 2015 – Present
 - Integrated multimodal generative AI into workflows for product imagery and marketing videos.
 - Lead the corporate web-platform team and administer Linux servers and network infrastructure.
- **ModAI: Computer Vision Developer** Jul. 2024 – Feb. 2025
 - Developed object-detection and instance-segmentation models using YOLOv8 and SAM-based methods for fashion-product catalogs.
 - Designed an image-compression pipeline that reduced image payload size by 75%.
- **TechnoFarsh (carpet-industry marketplace): Founder & Developer** 2017 – 2020
 - Founded a carpet-industry marketplace, incubated at the University of Kashan Innovation and Commercialization Center.
 - Built a Unity-based augmented-reality application for virtual eyewear try-on and in-room carpet visualization.

Technical Skills

- **LLMs & Agents:** open-weight model deployment (Qwen3.8, FP8), LLM APIs (OpenRouter), RAG (LangChain), LLM-as-a-judge design, prompting strategies
- **ML & Systems:** model compression (pruning, quantization), GPU/HPC job scheduling (Slurm), generative metrics (FID, CLIP Score, IS, PSNR, SSIM), FFmpeg pipelines
- **MLOps & Infrastructure:** MLOps/LLMOps, Docker, Google Cloud Platform, Linux server administration, Git
- **Web & Deployment:** Django, FastAPI, Next.js, React, Node.js
- **Programming:** Python (PyTorch, NumPy, Pandas), C/C++, SQL, MATLAB | also: Julia, R, VHDL, Verilog
- **Languages:** English (IELTS Academic 7.5), Persian (Native)

Selected Teaching Experience

University of Tehran

- **Trustworthy AI** — Head Teaching Assistant 2023 – Present
 - Teach AI ethics; design and grade assignments and examinations.
- **Generative Models** — Teaching Assistant 2022 – 2023
- **Data Analysis** — Teaching Assistant 2021, 2022
- **Neural Networks & Deep Learning** — Teaching Assistant 2021

University of Kashan

- **Machine Learning** — Head Teaching Assistant 2022
- **Discrete Mathematics** — Head Teaching Assistant 2021
- **Artificial Intelligence** — Head Teaching Assistant 2020

Selected Academic Projects

- **Denoising Diffusion Probabilistic Models (DDPM)** 2024
 - Implemented a DDPM from scratch for image denoising and generation, studying the forward/reverse diffusion process and the role of variance scheduling in sample quality.
- **Semantic Segmentation with U-Net** 2023
 - Developed a U-Net model for pixel-level segmentation of road, vehicle, and pedestrian classes on a self-driving car dataset.
- **Car Detection with YOLO** 2022
 - Built a YOLO-based detection pipeline for street imagery, producing bounding-box predictions on a real-world vehicle dataset.
- **LSTM-Based Music Generator** 2022
 - Trained a multi-layer LSTM for multi-genre music generation, exploring Delta-RNN and quantization for inference efficiency.
- **Bio-Inspired Computing : Optimization Algorithms** 2021
 - Implemented Genetic Algorithm, Particle Swarm Optimization, K-Means, and Ant Colony Optimization for classical problems including ZOE and Vehicle Routing.
- **Parkinson’s Disease Classifier** 2021
 - Designed and benchmarked 15 classifiers (KNN, DNN, SVM, ensembles) on a 700+ feature clinical dataset, achieving 98.3% accuracy.
- **Generative Adversarial Networks (GAN) Suite** 2021
 - Constructed and compared DCGAN, C-GAN, SR-GAN, and WGAN architectures, analyzing convergence and output fidelity.

Selected Courses & Certificates

- **Creative Thinking Tools for Success and Leadership** [Certificate], Imperial College London 2026
- **Google Prompting Essentials Specialization** [Certificate], Google 2026
- **Machine Learning in Production** [Certificate], DeepLearning.AI 2025
- **Machine Learning Specialization** [Certificate], Stanford University 2024
- **2023 Oxford Machine Learning Summer School — Health** [Certificate], OxML 2023
- **2023 Oxford Machine Learning Summer School — Finance & NLP** [Certificate], OxML 2023
- **Deep Learning Specialization** [Certificate], DeepLearning.AI 2023
- **Professional Neuroscience & Systems**, IPM School of Cognitive Science 2021 – 2022
- **Generative Adversarial Networks (GANs) Specialization** [Certificate], DeepLearning.AI 2022
- **Deep Neural Networks with PyTorch** [Certificate], IBM 2021

Workshops, Schools & Seminars

- **2024 Oxford MLx: Generative AI — Theory, Agents, Products** [Certificate], AI for Global Goals 2024
- **8th Winter Seminar Series (WSS)** [Certificate], Sharif University of Technology 2023
- **ReACT 2023** [Certificate], Sharif University of Technology 2023
- **Scale TransformX, Scale AI** 2021 & 2022
- **How to be a Teaching Assistant** [Certificate], University of Tehran 2022
- **Sixth IPM Advanced School on Computing & Artificial Intelligence** [Certificate], IPM 2022
- **Fifth IPM Advanced School on Computing & Artificial Intelligence** [Certificate], IPM 2021

References

- **Dr. Mehdi Modarressi**
 - ASSOCIATE PROFESSOR- UNIVERSITY OF TEHRAN
 - ✉ modarressi@ut.ac.ir
 - **Dr. Mohammad Amin Sadeghi**
 - SENIOR SCIENTIST - QATAR COMPUTING RESEARCH INSTITUTE (QCRI)
 - ✉ msadeghi@hbku.edu.qa
- **Dr. Javad Salimi Sartakhti**
 - ASSOCIATE PROFESSOR - UNIVERSITY OF KASHAN
 - ✉ salimi@kashanu.ac.ir
 - **Dr. Mostafa Tavassolipour**
 - ASSISTANT PROFESSOR - UNIVERSITY OF TEHRAN
 - ✉ tavassolipour@ut.ac.ir