Mohammadreza Mofayezi

mofayezi@cs.toronto.edu | mofayezi.github.io | mofayezi | marmofayezi | marmofayezi

Education

University of Toronto — *Ontario, Canada*

Ph.D. in Computer Science — *Sep. 2024 - Current*

- Advisor: Prof. Nandita Vijaykumar

Sharif University of Technology — *Tehran, Iran*

B.Sc. in Computer Engineering — *Sep. 2019 - Jan. 2024 (Expected)*

- Advisor: Dr. Ehsaneddin Asgari

Publications

- Mohammadreza Mofayezi and Yasamin Medghalchi. Benchmarking robustness to text-guided corruptions. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2023
- Saeed Saadatnejad, Ali Rasekh, Mohammadreza Mofayezi, Yasamin Medghalchi, Sara Rajabzadeh, Taylor Mordan, and Alexandre Alahi. A generic diffusion-based approach for 3d human pose prediction in the wild. In *International Conference on Robotics and Automation (ICRA)*, 2023

Preprints

- Mohammadreza Mofayezi, Reza Alipour, Mohammad Ali Kakavand, Ehsaneddin Asgari. M^3Face: A Unified Multi-Modal Multilingual Framework for Human Face Generation and Editing. *preprint*, 2024

Research & Work Experiences

Sharif University of Technology (SUT) — *Tehran, Iran*

Bachelor Project Under the Supervision of Dr. Ehsaneddin Asgari — *July 2023 - Feb. 2024*

- Worked on multi-modal multilingual human face generation and editing.
- Introduced a framework for generating and editing face images through facial landmarks and semantic segmentation.
- Proposed a large-scale multi-modal multilingual face dataset with more than 150K images.

Max Planck Institute for Informatics (MPII) — *Remote*

Undergraduate Research Assistant Under the Supervision of Prof. Adam Kortylewski | GVRL Lab — *Dec. 2022 - Mar. 2023*

- Proposed a novel benchmark for evaluating the robustness of image classifiers to text-guided corruptions.
- Introduced a set of hand-engineered prompts for each ImageNet sub-class to generate better image manipulations.
- The work resulted in a paper accepted at the CVPR 2023 Workshop on Generative Models for Computer Vision.

École polytechnique fédérale de Lausanne (EPFL) — *Remote*

Undergraduate Research Assistant Under the Supervision of Prof. Alexandre Alahi | VITA Lab — *Oct. 2021 - July 2022*

- Formulated the task of human motion synthesis with a diffusion process that starts from a Gaussian noise and generates a human pose.
- Proposed a novel generative diffusion model for human motion reconstruction and prediction from incomplete and noisy data.
- Conducted experiments on different aspects of the model, such as the diversity of the generated motion and its accuracy.
- The work resulted in a paper accepted at ICRA 2023 and NeurIPS 2022 Workshop on Score-Based Methods.

MadLlama Game Studio — *Tehran, Iran*

Augmented Reality Developer — *Oct. 2020 - Jan. 2022*

- Worked on Mobile AR Games with ARCore, ARKit, and Unity and published two games to the App Store.
- Developed a fully automated system for generating a Japanese-style environment for the Remortal game.
- Implemented an optimized road mesh generation tool with the ability to compress or decompress the mesh.

Research Interests

Computer Vision

- Representation Learning
- Generative Models

Machine Learning

- Efficient and Safe ML
- Robust Learning and Fairness

Voluntary Teaching Experiences

Artificial Intelligence, Instructor: Prof. Rohban and Soleymani — *Spring 2022 - Fall 2023*
Head TA of the course (S2023, F2023). Designed and graded assignments (S2022 and F2022).

Probability and Statistics, Instructor: Prof. Sharifi-Zarchi — *Fall 2021*
Designed and graded assignments, quiz and created educational materials.

Data Structures and Algorithms, Instructor: Prof. Safarnejad — *Fall 2021*
Designed and graded assignments.

Fundamentals of Programming (C, C++), Instructor: Prof. Fazli and Fakouri — *Fall 2020, Fall 2021*
Designed and graded assignments. Created reading materials.

Academic Service

Reviewer at WACV, BMVC, ICML, and ECCV — *Online*
Reviewed paper for WACV'25, BMVC'24, SPIGM@ICML'24, SPIGM@ICML'23, WiCV@ECCV'24. — *June 2023 - Current*

Machine Learning Challenge (MLC) — *Tehran, Iran*
Organized the first Machine Learning Challenge in AI course of Sharif University of Technology. — *June 2023*

Made in Lobby 2021 — *Tehran, Iran*
Created technical content about Unity Engine for the Game Design Workshop at Made in Lobby. — *Summer 2021*

Gamein 2020 Contest — *Tehran, Iran*
As a member of the Technical Staff, developed a large-scale multiplayer game with Unity3D and C# — *Summer 2020 - Fall 2020*

Notable Projects

RobuText — *MPII, Germany*
CVPRW 2023 — *Spring 2023*
- Official implementation of "Benchmarking Robustness to Text-Guided Corruptions". GitHub Link

DePOSit — *EPFL, Switzerland*
ICRA 2023 — *Fall 2022*
- Official implementation of "A generic diffusion-based approach for 3D human pose prediction in the wild". GitHub Link

Breast Cancer Survival Prediction — *Tehran, Iran*
Machine Learning Course, *Prof. Sharif-Zarchi* — *Spring 2023*
- Implemented different ML models for breast cancer survival prediction. GitHub Link

Hand Gesture Detection — *Tehran, Iran*
Hardware Lab Course, *Prof. Ejlali* — *Spring 2023*
- Developed a hand gesture detection system on Raspberry Pi. GitHub Link

WeTube — *Tehran, Iran*
Computer Networks Course, *Prof. Jafari* — *Spring 2022*
- Developed an online streaming app with Django framework. GitHub Link

Honors and Awards

2019 **Winner**, 2nd Team in Spaghetti Code Contest
2019 **Award**, Scholarship Award of National Elites Foundation
2019 **Top 20**, University Entrance Exam; 1st rank among more than 50k students, 15th among 250k students

Skills

Programming	Python, C#, C/C++, Java, R, SQL.
Machine Learning Tools	PyTorch, Tensorflow, NumPy, Pandas, Scikit-learn, Matplotlib.
Game Engine	Unity for Game and Cinematic.
Data Management & Databases	PostgreSQL, MySQL, MongoDB, Redis.
Graphical Design Tools	CorelDraw, Adobe Photoshop, Adobe Illustrator.
Frameworks & Programming Knowledge	Spring Framework, Rest API, WebSocket.
Miscellaneous	Linux, LaTeX, Microsoft Office, Git.

Languages

English
TOEFL iBT 109 (R29, L27, S27, W26)

Persian
Native proficiency

German
Elementary proficiency