Barbod Pajoum

🔗 Webpage   🎓 Google Scholar   ⌂ Barbodpj

Education

M.Sc.	**Technische Universität Kaiserslautern**, Computer Science	Oct 2022 – Apr 2025

- GPA: 1.2/5.0 (German grading system – Best: 1.0, Worst: 5.0.)
- Thesis: *3D Morphable Hand Model based on Gaussian Splatting*

B.Sc.	**Sharif University of Technology**, Computer Engineering	Sept 2017 – Feb 2022

- GPA: 18.04/20 (Equivalent to 1.32/5.0)

Publications and Preprints

ARAE: Adversarially Robust training of Autoencoders Improves Novelty Detection — Neural Network 2021

Mohammadreza Salehi, Atrin Arya, Barbod Pajoum, Mohammad Otoofi, Amirreza Shaeiri, Mohammad Hossein Rohban, Hamid R Rabiee

Adaptive Grids for Neural Scene Representation ⧉ — International Symposium on Vision, Modeling, and Visualization 2024

Barbod Pajoum, Gereon Fox, Mohamed Elgharib, Marc Habermann, Christian Theobalt

Multi-level Supervised Contrastive Learning ⧉ — arxiv 2025

Naghmeh Ghanooni, Barbod Pajoum, Harshit Rawal, Sophie Fellenz, Vo Nguyen Le Duy, Marius Kloft

Research Experience

Visual Computing and Artificial Intelligence Department at Max Planck Informatic, Saarland ⧉ — April 2023 - Present

Supervisor: Prof. Christian Theobalt, Dr. Marc Habermann

- M.Sc. thesis on creating a Morphable 3D Gaussian Hand Avatar based on Gaussian Splatting and MANO hand model. (to be submitted to NeurIPS2025)
- Adaptive Grids for Neural Scene Representation Project Page ⧉

Machine Learning Lab, Technical university of Kaiserslautern — Sep 2023 - Present

Supervisor: Prof. Marius Kloft

- Multi-level Supervised Contrastive Learning ⧉

VITA Lab, EPFL — May 2020 - Sep 2020

Supervisor: Prof. Alexandre Alahi

- Conducted a remote internship on medical data generation, contributing to the NeurIPS 2020 Hide-and-Seek Challenge. ⧉

Robust and Interpretable Machine Learning Lab, Sharif University of Technology — Dec 2018 - Apr 2020

Supervisor: Prof. Mohammad Hossein Rohban

- ARAE: Adversarially Robust training of Autoencoders Improves Novelty Detection ⧉

Job Experience

Machine Learning Engineer at AI Home Design ⧉ — Dec 2021 - Sep 2022

- Trained and deployed machine learning models for real estate applications, in-

cluding virtual staging, image enhancement, and scene relighting.
- Designed data-driven strategies to improve the performance of the image enhancement model.
- Created APIs for services with FastAPI and deployed models in Docker containers for a reliable inference pipeline.
- Optimized inference servers using the TensorRT compiler.
- Reducing computational overhead through mixed-precision training and quantization for inference.

Artificial Intelligence Intern at Myket App Store ⧉   May 2018 - Oct 2018
- Leveraged Classical Natural Language Processing Techniques for detecting spam reviews.

Honors and Awards

- Received Fast-Track Ph.D. admission (Bachelor to Ph.D.) from the Max Planck Institute of Informatics in 2022.

- Member of Iran's National Elites Foundation.

- Silver Medalist, National Math Olympiad, 2016.

- Gold Medalist, Iranian Geometry Olympiad, 2014; Silver Medalist, 2016.

- Gold Medalist, National Qualification for International Math Contest(IMC), 2016.

- Ranked 77th in Iran's National university entrance exam, among over 150,000 participants, 2017.

- Gold Medalist, Tehran Youth Chess Championship, 2007.

- First Place, International Frankenthal Christmas Open Chess Tournament, 2022.

Technical Skills

- Knowledge:

    - Deep Learning: Transformers, CNN, VIT, BERT, GPT, CI/CD, Model Deployment ans serving.
    - Computer Graphics and 3D Computer Vision: Camera Calibration, Structure from Motion(SfM), SLAM, Shading models (e.g., Phong, Lambertian), Deformable human models and mesh skinning.
    - Deep Learning for 3D Vision: Gaussian Splatting, NeRF, Human Avatars, SMPL, MANO.
    - Self Supervised Learning/ Representation Learning: Contrastive Learning, Masked Image Modelling.
    - Generative AI: Diffusion Models, GAN, VAE, VQVAE.

- Languages: Python, C, C++, Java

- Libraries: PyTorch, Tensorflow, Keras, OpenCV, Pytorch3D, TensoRT, pandas

- Tools: Git, Slurm, Docker, Latex, AWS, Linux, Blender,

Teaching Experience

Teaching Assistant at Sharif University of Technology   Jan 2017 - Feb 2022
- Database Design (Prof. Abbas Heydarnoori), Advanced 3D Computer Vision (Prof. Shohreh Kasaei), Data Structures and Algorithms (Prof. Mahdi Safarnejad), Fundamentals of Programming (Prof. Hossein Hadian).

Mathematics Teacher for University Entrance Exams in Iran   Dec 2019 – July 2021