KOSSAR POURAHMADI-MEIBODI

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EDUCATION

Ph.D., Computer Science, University of California, Davis *Sep. 2022 - Present*
Advisor: Dr. Hamed Pirsiavash

MS, Computer Science, University of California, Davis *Sep. 2022 - Mar 2025*
Advisor: Dr. Hamed Pirsiavash
Conferral: Mar 2025

Ph.D., Computer Science, University of Maryland, Baltimore County *Aug. 2021 - May 2022*
Transferred to the University of California, Davis
Advisor: Dr. Hamed Pirsiavash

Bachelor of Science, Computer Engineering, University of Tehran *Sep. 2015 - Feb. 2020*
Thesis: Energy consumption analysis of android applications by generating automatic test cases.
Advisor: Dr. Fathiyeh Faghih

RESEARCH EXPERIENCE

Research Scientist Intern, Mirror MirrorAI *Apr. 2025 - Present*
I'm collaborating with Machine Learning Engineers and Software Engineers to develop fine-tuned image generation models and solutions to speed up image generation. I'll also assist in enhancing the recommendation systems and contribute to R&D in ML/AI applications in fashion.

Applied Scientist Intern, Amazon *Jun. 2024 - Sep. 2024*
During my internship with Fashion & Fitness team, I worked on efficient fine-tuning of Open-Sora with masked transformers. By masking out 50% of the video tokens during training, we were able to double the training speed and reduce memory usage per GPU by 30%, while maintaining comparable visual performance.

Applied Scientist Intern, Amazon *Jun. 2023 - Sep. 2023*
I was doing an internship in Workplace Health and Safety team. I explored self-supervised video representation learning for temporal activity segmentation to perform Automated Ergonomic Risk Assessment. We got inspired by self-supervised image representation learning methods and adapted them to video data. Our goal was to propose a method that can work well across different datasets. We were able to outperform reproducible state-of-the-art self-supervised action segmentation methods on three public datasets.

Graduate Student Researcher, University of California, Davis *Sep. 2022 - Present*
PI: Dr. Hamed Pirsiavash, University of California, Davis

ML Research Intern, Apple Inc. *Jun. 2022 - Sep. 2022*
As an intern in Machine Intelligence and Neural Design (MIND) team, I worked with Golnoosh Samei, Sachin Mehta, and Mohammad Rastegari on a non-heuristic sample-efficient training method that selects the most meaningful subset of training data at each epoch for the model to learn. My responsibilities included implementing a generic method that does not depend on the choice of the network architectures and is able to maintain accuracy while reducing the number of optimization updates. Our method was able to consistently outperform the recent sampling baseline under the same selection setting.

Research Assistant, University of Maryland, Baltimore County *Aug. 2021 - May 2022*
Collaborated in implementing a non-contrastive self-supervised representation learning approach, called CMSF, that generalizes the idea of BYOL, *NeurIPS* 2020, by pulling one view of the query image to not only its other view but also to its far neighbors that are still semantically related. This paper got accepted at **ECCV 2022**.
PI: Dr. Hamed Pirsiavash, University of Maryland, Baltimore County

Research Assistant, Remote *Aug. 2020 - Jul. 2021*
Proposed a simple baseline for low-budget active learning on image classification that does not require 1) the human-in-the-loop process of unlabeled data annotation and 2) a large initial labeled pool. The paper is under review.
PI: Dr. Hamed Pirsiavash, University of Maryland, Baltimore County

Research Assistant, University of Tehran *Sep. 2019 - Mar. 2020*
Analyzed the effects of bounding box size, aspect ratio, and center on bounding box regression performance of object detection models, and proposed a novel bounding box representation method using the polar coordinate system to improve the small object detection accuracy.
PI: Dr. Mohammad Rastegari, University of Washington and Dr. Mohammad Amin Sadeghi, University of Tehran

Bachelor's Research, University of Tehran *Aug. 2019 - Feb. 2020*
Generated test cases for android applications based on the control-flow graph of the source code in order to detect the missing deactivation of energy-related resources by static and dynamic analyses. This project received the **Best Undergraduate Project Award**.
PI: Dr. Fathiyeh Faghih, Department of Computer Engineering

Research Intern, Institute for Research in Fundamental Sciences, Iran *May 2018 - Nov. 2019*
Implemented a hardware accelerator in HDL to speed up neural network training by sharing resources in a pipelined manner. The paper is accepted at **ISCAS 2020**.
PI: Dr. Ahmad Khonsari, Department of High Performance Computing

Research Intern, University of Tehran *May 2017 - Aug. 2017*
Collected and evaluated data from a multi-armed bandit problem for human characteristics studies.
PI: Dr. Babak Nadjar Araabi, Pattern Recognition Laboratory

PUBLICATIONS

K L Navaneet*, **Kossar Pourahmadi***, Soroush Abbasi Koohpayegani, Hamed Pirsiavash. "CompGS: Smaller and Faster Gaussian Splatting with Vector Quantization." *ECCV*, 2024 (* equal contribution)

Ajinkya Tejankar, K L Navaneet, Ujjawal Panchal, **Kossar Pourahmadi**, Hamed Pirsiavash. "MoIN: Mixture of Introvert Experts to Upcycle an LLM." *arXiv preprint arXiv:2410.09687*, 2024

Parsa Nooralinejad, Ali Abbasi, Soroush Abbasi Koohpayegani*, **Kossar Pourahmadi***, Rana Muhammad*, Soheil Kolouri, Hamed Pirsiavash. "PRANC: Pseudo RAndom Networks for Compacting deep models." *ICCV*, 2023 (* equal contribution)

Ajinkya Tejankar*, Soroush Abbasi Koohpayegani*, KL Navaneet*, **Kossar Pourahmadi**, Akshayvarun Subramanya, Hamed Pirsiavash. "Constrained Mean Shift Using Distant Yet Related Neighbors for Representation Learning." *ECCV*, 2022 (* equal contribution)

Kossar Pourahmadi, Parsa Nooralinejad, Hamed Pirsiavash. "A Simple Baseline for Low-Budget Active Learning." *arXiv preprint arXiv:2110.12033*, 2021

Reza Hojabr, **Kossar Pourahmadi***, Parsa Nooralinejad*, Kamyar Givaki*, Ahmad Khonsari, Dara Rahmati, and M. Hassan Najafi. "TaxoNN: A Light-Weight Accelerator for Deep Neural Network Training." *IEEE International Symposium on Circuits and Systems*, 2020 (* equal contribution)

TEACHING EXPERIENCE

Teaching Assistant, CMSC 341 - Data Structures, University of Maryland, Baltimore County
Aug. 2021 - May 2022
Providing support sessions for course projects.
Dr. Mohammad Khashayar Donyaee, Department of Computer Science

Teaching Assistant, Data Structures and Algorithms, University of Tehran
Aug. 2019 - Jan 2020
Provided support sessions for course projects and homeworks, evaluated laboratory write-ups, and graded exams.
Dr. Hesham faili and Dr. Fathiyeh Faghih, Department of Computer Engineering

HONORS

Recipient, ICCV 2023 DEI Grant *Aug. 2023*

Recipient, Graduate Student Association (GSA) Professional Development Grant *May 2022*
University of Maryland, Baltimore County

Recipient, CVPR 2022 Travel Grant *Apr. 2022*

Recipient, Best Undergraduate Project Award, University of Tehran *Feb. 2020*

Recipient, Master's Fellowship Award, University of Tehran *Mar. 2019*
Exempted from the master's comprehensive entrance exam of the University of Tehran as an exceptionally talented student.

COURSES

CMSC 678 Introduction to Machine Learning, Prof. Tim Oates *Fall 2021*

ECS 289G Artificial Intelligence, Prof. Ilias Tagkopoulos *Fall 2022*

ECS 174 Computer Vision, Prof. Hamed Pirsiavash *Spring 2023*

ECS 231 Large-Scale Scientific Computation, Prof. Zhaojun Bai *Winter 2024*