

KOSSAR POURAHMADI-MEIBODI

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ABOUT

I'm a Ph.D. student at the University of California, Davis, working with Prof. Hamed Pirsiavash. My research interest lies at the intersection of computer vision and machine learning. Specifically, I'm studying how to teach machines to learn from limited labeled data.

EDUCATION

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

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 Faghieh

RESEARCH EXPERIENCE

Research Assistant, University of California, Davis *Sep. 2022 - Present*
PI: Dr. Hamed Pirsiavash, University of California, Davis

ML Research Intern, Apple Inc. *May 2022 - Aug. 2022*
As an intern in Machine Intelligence and Neural Design (MIND) team, I worked on a non-heuristic based sample efficient training method that selects a 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 the 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*
Designing a hybrid neural network architecture that takes advantage of convolutional operations and self-attention mechanisms to combine local and global features for enhanced representation learning.
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, Department of Computer Science, University of Washington
and Dr. Mohammad Amin Sadeghi, Department of Computer Engineering, 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

Ajinkya Tejankar*, Soroush Abbasi Koohpayegani*, KL Navaneet*, **Kossar Pourahmadi**, Akshay-varun 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, 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.