Ainaz Eftekhar

PhD. Student of Computer Science and Engineering at Universtiy of Washington

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Research Interests

Embodied-AI, Reinforcement Learning, Computer Vision, Cognitive Science, Cognitively-Inspired AI

Education

Univeristy of Washington — *Seattle, US*
PH.D. IN COMPUTER SCIENCE AND ENGINEERING — *September 2022 - PRESENT*
- **GPA: 4.0/4.0**, Advisor: **Prof. Ali Farhadi** and **Prof. Ranjay Krishna.**

Ecole Polytechnique Federale de Lausanne (EPFL) — *Lausanne, Switzerland*
VISITING STUDENT RESEARCHER IN VILAB — *September 2021 - August 2022*
- Advisor: **Prof. Amir Zamir.**

Sharif University of Technology — *Tehran, Iran*
B.S. IN COMPUTER ENGINEERING — *September 2017 - August 2022*
- **GPA: 19.22/20**, Ranked **8th** among 120 Students.

Publications

Selective Visual Representations Improve Convergence and Generalization for Embodied-AI — *Arxiv (in submission)*
AINAZ EFTEKHAR*, KUO-HAO ZENG*, JIAFEI DUAN, ALI FARHADI, ANI KEMBHAVI, RANJAY KRISHNA. — *November 2023*

Omnidata: A Scalable Pipeline for Making Multi-Task Mid-Level Vision Datasets from 3D Scans — ***ICCV 2021***
AINAZ EFTEKHAR*, ALEXANDER SAX*, JITENDRA MALIK, AMIR ZAMIR. — *October 2021*

Puzzle-AE: Novelty Detection in Images through Solving Puzzles — *Arxiv (preprint)*
MOHAMMADREZA SALEHI, AINAZ EFTEKHAR*, NIOUSHA SADJADI*, MOHAMMAD HOSSEIN ROHBAN, HAMID R. RABIEE — *September 2020*

Research Experience

University of Washington — *Seattle, US*
RESEARCH ASSISTANT, SUPERVISOR: **PROF. ALI FARHADI, PROF. RANJAY KRISHNA** — *September 2022 - Present*
- Learning good visual representations for Embodied-AI tasks.

Allen Institute for Artificial Intelligence (AI2) — *Seattle, US*
RESEARCH INTERN, SUPERVISOR: **PROF. ANI KEMBHAVI, PROF. RANJAY KRISHNA** — *June 2023 - September 2023*
- Team: Perceptual Reasoning and Interaction Research (PRIOR)
- Project: Selective Visual Representations for Embodied-AI
- Inspired by selective attention in humans, we introduce a parameter-efficient approach to filter visual stimuli for Embodied-AI.

Ecole Polytechnique Federale de Lausanne (EPFL) — *Lausanne, Switzerland*
RESEARCH ASSISTANT, SUPERVISOR: **PROF. AMIR ZAMIR** — *September 2020 - August 2022*
- Paper accepted at ***ICCV 2021***
- Created a pipeline to generate "steerable" multi-task vision datasets by parametrically sampling and rendering 3D scans, providing a pathway to explore various data sampling effects and create better vision datasets

Sharif University of Technology *Tehran, Iran*
Research Assistant, Supervisor: **Prof. Mohammad Hossein Rohban** *September 2019 - September 2020*

- Worked on different approaches of Anomaly/Novelty Detection in images and videos with a focus on self-supervised learning methods and adversarial robust training.

Indian Institute of Technology *Kharagpur, India*
Summer Intern, Supervisor: **Prof. Abir Das, Prof. Pabitra Mitra** *July 2019 - September 2019*

- Worked on reducing the effect of severe dataset imbalance in image classification by training an end-to-end CycleGAN-Classifier architecture to produce additional training examples from the minority class.

Honors & Awards

2021	**EPFL Summer Research Fellowship**, Ecole polytechnique federale de Lausanne	*Lausanne, Switzerland*
2020	**Top 5% Academic Ranking**, Sharif University of Technology	*Tehran, Iran*
2017	**Ranked 92th in Iranian Nationwide University Entrance Exam**, Among +300,000	*Tehran, Iran*
2016	**Bronze medal**, Iranian National Math Olympiad	*Tehran, Iran*
2015	**Bronze medal**, Iranian National Math Olympiad	*Tehran, Iran*
2013	**Gold Medal in the 9th International Mathematics Contest**, IMC (Singapore), **[certificate]**	*Singapore*

Skills

Programming	Python, Java, C/C++, LaTeX
Machine Learning Tools	PyTorch, OpenCV, scikit-learn, NumPy, pandas, matplotlib
Distribution and Deployment Tools	Kubernetes, Docker, Github's CI/CD
Languages	Persian (native), English (advanced, TOEFL score:109), French (Basic)

Teaching Assistant

2024	**Deep Learning**, Prof. Ranjay Krishna	*Seattle, US*
2020	**Discrete Structures**, Prof. Hamid Zarrabi-Zadeh	*Tehran, Iran*
2020	**Data Structures and Algorithms**, Prof. Saber Salehkaleybar	*Tehran, Iran*
2020	**Logical Circuits**, Prof. Shaahin Hessabi	*Tehran, Iran*
2019	**Artificial Intelligence**, Prof. Mohammad Hossein Rohban	*Tehran, Iran*
2019	**Discrete Structures**, Prof. Hamid Zarrabi-Zadeh	*Tehran, Iran*
2018	**Advanced Programming**, Dr. Mahdi Mostafazadeh	*Tehran, Iran*

Relevant Coursework

University of Washington

- Deep Robotic Learning (CSE 599 G), Deep Learning (CSE 493G1), Computational Neuroscience (CSE 528 A)

Sharif University of Technology

- Digital Image Processing (graduate), Artificial Intelligence, Machine Learning, Signals and Systems, Advanced Information Retrieval, Linear Algebra, Probability and Statistics, Design of Algorithms, Data Structures

Online MOOCs

- CS231n: Convolutional Neural Networks for Visual Recognition by Stanford, Deep Learning Specialization by deeplearning.ai, Machine Learning by Stanford-Online.

Machine Vision and Learning Winter School

- Brain Engineering Center and Cognitive Science School, IPM, Iran **[certificate]**