Alireza Kazemipour

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Education

K.N. Toosi University of Technology — Tehran, Iran
B.S. in Electrical-Control Engineering, GPA: 3.22/4.00 — Sep 2015–Sep 2020

- Thesis: "Continuous Control With Deep Reinforcement Learning"
- Demonstration of the superiority of different state-of-the-art DeepRL methods in Continuous Space settings against traditional Control approaches.

Razi High School — Tehran, Iran
Diplomas in Physics and Mathematics, GPA: 3.89/4.00 — Sep 2011–Sep 2015

Research Interests

- (Deep) (Multi-Agent) (Self-Play) Reinforcement Learning
- Computer Vision & Image Processing
- Robotics
- Deep (Unsupervised) (Semi-Supervised) Learning

Academic Projects

Rainbow
Combining Improvements in Deep Reinforcement Learning. [Project page]

- Implemented improvements (PER, NoisyNets, Dueling and etc.) of the DQN paper to play Pong.

Exploration by Random Network Distillation
Exploration based on intrinsic rewards (Novelty Seeking). [Project page]

- Implemented RND to solve Montezuma's Revenge game and first level of Super Mario Bros game that demand intelligent exploration.

Proximal Policy Optimization Algorithms
Policy Gradient methods that alternate between sampling data and optimizing a "surrogate" objective. [Mario page]

- Implemented PPO to solve Breakout game, 29/32 levels of Super Mario Bros game and some simulated robots.

Soft Actor-Critic
Off-Policy Maximum Entropy Deep Reinforcement Learning with a Stochastic Actor. [Humanoid page] [MsPacman page]

- Implemented SAC to train a Humanoid walking and an agent playing MsPacman game.

Deep Deterministic Policy Gradient and Hindsight Experience Replay
Using DDPG to control continuously and HER to solve sparse-reward environments problem. [Project page]

- Implemented DDPG + HER to train a 7 DOF manipulator to fetch, pick and place a box in a sparse and multi-goal environment.

Twin Delayed Deep Deterministic Policy Gradient
Addressing Function Approximation Error in Actor-Critic Methods. [Project page]

- Implemented TD3 to train an Ant robot and a Hopper to move forward correctly.

Cycle GAN

Unpaired Image-to-Image Translation using Cycle-Consistent Adversarial Networks. [Project page]

- Implemented Cycle GAN to produce horse images from zebras and vice versa.

Auxiliary and Deep Convolutional GANs

Using DCGAN to generate real-like images and Auxiliary GAN to improve quality. [Project page]

- Implemented DCGAN and AUXGAN to produce images similar to MNIST dataset.

Face Detection and Facial Expression Classification

Final project of Fundamentals of Computer Vision course. [Project Description]

- Using Cascade Detectors with Local Binary Pattern features to detect the face and a CNN to classify the expression of the detected face.

Academic Experience

26th International Computer Conference, Computer Society of Iran [Homepage]

Lecturer — Mar 2021

- Presented some DeepRL recent advances and highlighted challenging points of DeepRL algorithms' implementations. [slides]

Fundamentals of Computer Vision Course [Homepage]

Teaching Assistant — Feb 2015–Jul 2020

- Designed and prepared instructions of 13th lab (Machine Learning session) of the course and moreover, was responsible to evaluate and grade 20% of students based on their performance in each lab of the course.
- Instructor: Dr. Behrooz Nasihatkon

Signals and Systems Course

Head Teaching Assistant — Sep 2019–Feb 2020

- Was Responsible to design and arrange assignments and weekly reporting of students' outcomes.
- Instructor: Dr. Maryam mohebbi

KN2C Robotics Team [Homepage]

Research Assistant — Sep 2017–Sep 2019

- Computer Vision and A.I researcher at Micro Aerial Vehicle section.
- Supervisor: Dr. Hamid D. Taghirad

Awards and Honors

- **3rd place** of The RoboCup Iran Open Competitions in Unmanned Aerial Vehicle League. [link] 2018
- **6rd place** of The RoboCup Asia-Pacific Competitions in Unmanned Aerial Vehicle League. [link] 2018
- Ranked within **top 0.7 percent** in Iran's National University Exam among nearly 252,000 participants 2015

Certificates

- **Reinforcement Learning Specialization** [Certificate] Mar 2021
  University of Alberta on Coursera
- **Divide & Conquer, Sorting & Searching, and Randomized Algorithms** [Certificate] Feb 2021
  Stanford | Online on Coursera
- **Neural Networks and Deep Learning** [Certificate] Dec 2020
  DeepLearning.AI on Coursera

Languages

- **Farsi:** Native
- **English:** Professional Proficiency
  - **TOEFL:** 104 (Reading:24 Listening: 29 Speaking: 25 Writing: 26)
  - **GRE (General):** Analytical Writing Assessment: 3.5 Verbal Reasoning: 154 Quantitative Reasoning: 160

Technical Skills

- **Programming Languages:** Python, C/C++, Bash, VHDL, Java (Familiar)
- **Libraries:** PyTorch, TensorFlow, Keras, Gym, NumPy, Scikit-learn, OpenCV
- **Engineering Software:** MATLAB and Simulink, ISE - Xilinx
- **Frameworks:** Qt, ROS
- **Version Control Systems:** Git
- **Linux Distros:** Ubuntu

❗References, further information, and proofs are available upon request.