

# Ali Behdarnejad

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## Skills & Abilities

- **Programing Language:** Advanced with Python and familiar with C, C++, Java, and GO.
- **Experience with AI libraries such as** Pytorch, Torchvision, OpenCV, Sklearn, NumPy, pandas, hugging-face, hydra and spark.
- **AI algorithms and concepts:** Deep Learning, NLP, Deep reinforcement learning, Computer Vision, Machin learning, Big Data and GanAI.
- **Tools:** git, Ducker, anaconda, Gitlab, Elasticsearch, Django, OpenStack, VScode, Linux

## About me

Friendly and engaging team player with nice creativity and ability to work independently. I pay good attention to my work because I love my career. I like to experience new things, so I have a good knowledge of state-of-the-art AI as well as classic AI.

## Experience

### **RoIAA lab / AI and robotic researcher**

*Sep 2024\_Jan 2026 - 1 year and 4 months*

- As a robotic researcher, I worked on vision language action models (VLAMs) for generalist robots in manipulation tasks and added RL to them to learn new tasks that weren't in their training dataset. I also improved it to do more complex tasks for a longer time and added thinking ability to them. I used cutting-edge VLAMs from leading researchers from MIT and Stanford, like HPT.

### **Sahand advance technology / Software developer**

*Jol 2023\_Sep 2023 – 3 months*

- I worked in the company as a software developer to write Java programs on Android OS for POS devices and repair customer POS with software problems. It was a great experience in a big company, but I didn't continue to follow my interests in AI.

### **Iranian data support / Cloud admin and developer**

*Mar 2023\_Jol 2023 - 6 months*

- As an intern, my responsibility in the company was running OpenStack on the server and creating virtual machines for the customer and researching NoSQL databases. I also worked on a Django website in this company.

## Education

### **Master of AI and robotic engineering / Shahid Beheshti university (SBU)**

Sep 2023 – Dec 2025

I learned a lot about AI. At the M.Sc., I have more than 20 project implementations and 7 article implementations from different topics of AI, such as deep learning, deep RL, NLP, LLMs, VLMs, computer vision, and image processing, some of which are available at my GitHub.

## ***Bachelor of computer science / Qom university***

Sep 2019 – Sep 2023

In this university I learned a lot about the fundamentals of CS such as programing, algorithms, compiler, OS, network and software engineering.

## ***Publication***

***P-Explo: Periodic Exploration before Convergence in Deep Reinforcement Learning.*** In this work we suppose if we make exploration of an agent like a period of learning (exploitation) and exploration, it could lead to better generalization. We run 48 experiments in different settings to have a fair comparison, and our method outperforms non-periodic exploration 3.5 times. We use DQNs and inject periodic exploration E-greedy and Boltzmann action selection strategies to test our hypothesis.

## ***Highlight Projects***

***Reinforcement fine-tuning vision language action models***—in this project I'm working on state-of-the-art technology in our field, like VLAs and VLMs, to create generalist robots that can learn like humans and improve themselves. In this project I'm using GitLab, Docker, Genesis, Torch, Transformer, and TRL, and I would be so happy to share technical details as soon as its paper is published.

***Agentic RAG with Elasticsearch***—was a project in which I learned a lot of forms. I had 2 challenges: the first one was my big dataset, and the second one was the accuracy of retrieval, and it had to be local without internet. I addressed the first one by chunking my dataset and using a JSON file. Also, I added important information to the dataset in QA format. For the second problem, I not only used cosine similarity of the embeddings, but I also compared lexical similarity to cover the weakness of only embedding similarity. After this, the accuracy of the model improved by 145 percent.

***Mavc2 Object Detection***—In this project I used classic computer vision algorithms to preprocess the image for a CNN to classify images and detect some objects in a Webots simulator.

## ***Languages***

***Advance English*** with 127 Duolingo unofficial test score and ***native Persian*** speaker

## ***Activities and Interests***

Football, Psychology, futsal, swimming, gaming, traveling, talking with people and learning new things, art, hiking, and of course AI.