

# Mohammad Javad Rajabi

Full Legal Name: MohammadJavad RajabiKhoozani

BACHELOR STUDENT OF COMPUTER ENGINEERING AT AMIRKABIR UNIVERSITY OF TECHNOLOGY (AUT)

✉mj.rajabi2001@gmail.com | 🌐rajabi2001.github.io | 📧rajabi2001 | 📺rajabi2001 | 🐦@rajabi2001

## Research Interests

Computer Vision, Machine Learning, Image Processing, Trustworthy ML, Healthcare

## Education

### Amirkabir University of Technology (Tehran Polytechnic)

Tehran, Iran

B.S. IN COMPUTER ENGINEERING (MAJOR IN ARTIFICIAL INTELLIGENCE)

September 2019 – PRESENT

- Total GPA: **3.88/4 (18.25/20)**
- GPA over the final year: **4/4 (19.4/20)**
- Supervisor: **Prof. Ahmad Nickabadi**

### Shahid Ejei High School (SAMPAD)

Isfahan, Iran

DIPLOMA, MATHEMATICS AND PHYSICS

September 2016 – July 2019

- National Organization for Development of Exceptional Talents (NODET).

## Publications & Submissions

### *DisCrossFormer: A Deep Light-weight Image Super Resolution Network using Correlated Cross-attention*

preprint

ALIREZA ESMAEILZEHI, MOHAMMAD JAVAD RAJABI, HOSSEIN ZARENDAR, M. OMAIR AHMAD

December 2023

- **Under review**, IEEE International Conference on Multimedia and Expo (ICME 2024)

### Enhancing Landmark Detection in Cluttered Real-World Scenarios with Vision Transformers

Arxiv (preprint)

MOHAMMAD JAVAD RAJABI, MORTEZA MIRZAI, AHMAD NICKABADI

August 2023

### Mitigating Bias: Enhancing Image Classification by Improving Model Explanations

ACML 2023

RAHA AHMADI\*, MOHAMMAD JAVAD RAJABI\*, MOHAMMAD KHALOOIE, MOHAMMAD SABOKROU

July 2023

- **Accepted** to Asian Conference on Machine Learning (ACML) 2023

## Presentations & Talks

December 2023 **More Efficient Vision Transformers By Token Reduction**, AAIS 2023

October 2023 **Token Merging**, Prof. Babak Taati's Journal Club

## Research Experience

### Contributor to Collaborative Research Projects

UNDER THE SUPERVISION OF **DR. ALIREZA ESMAEILZEHI**

March 2023 – Now

- Working on a video-to-video translation project with a primary emphasis on enhancing temporal and spatial consistency through the utilization of optical flow techniques.
- Collaborated in implementing an image super-resolution network leveraging segmentation and using transformers with correlated cross-attention architecture to restore high-quality images from low-quality images.
- Paper: **DisCrossFormer: A Deep Light-weight Image Super Resolution Network using Correlated Cross-attention**

### Research Assistant At Amirkabir University of Technology, SML Lab

Tehran, Iran

UNDER THE SUPERVISION OF **PROF. AHMAD NICKABADI**

October 2022 – Now

- Worked on an alternative strategy to mitigate the detrimental impact caused by irrelevant objects, such as humans and cars, in landmark images. Our research concentrated on evaluating the efficacy of vision transformers in tackling the issue of occluded objects in visual place recognition tasks.
- Paper: **Enhancing Landmark Detection in Cluttered Real-World Scenarios with Vision Transformers**

### Research Intern At Institute for Research in Fundamental Sciences (IPM)

Tehran, Iran

UNDER THE SUPERVISION OF **DR. SABOKROU**

June 2022 – September 2023

- Proposed a novel approach that encourages the model to focus on the primary object of the image and mitigates biases in image classification. This approach leads to an improvement in classification accuracy and reduced sensitivity to background noise.
- Paper: **Mitigating Bias: Enhancing Image Classification by Improving Model Explanations**

## Teaching Experiences

---

Spring 2023	<b>Information Retrieval</b> , Prof. Ahmad Nikabadi	<i>Tehran, Iran</i>
Spring 2023	<b>Robotics</b> , Prof. Mahdi Javanmardi	<i>Tehran, Iran</i>
Spring 2023	<b>Principles of Cloud Computing</b> , Prof. S.Ahmad Javadi	<i>Tehran, Iran</i>
Fall 2022	<b>Information Retrieval</b> , Prof. Ahmad Nikabadi	<i>Tehran, Iran</i>
Fall 2021	<b>Algorithm Design</b> , Prof. Alireza Bagheri	<i>Tehran, Iran</i>
Fall 2021	<b>Logic Circuits</b> , Prof. Morteza Saheb Zamani	<i>Tehran, Iran</i>
Fall 2020	<b>Fundamentals of Computer Programming</b> , Prof. Hossein Zeinali	<i>Tehran, Iran</i>

## Projects

---

- Video-To-Video Translation On Viper Dataset
- RealSR (An ongoing project about leveraging the Teacher-Student knowledge distillation approach in order to improve the task of Real Image Super Resolution)
- Search Engine (Information Retrieval, Indexing & Tokenizing)
- Projects And Assignments Of Robotics Course Based On ROS
- Projects And Assignments Of Computational Intelligence Course
- Mario Solver (A Genetic Algorithm To Pass A Level Of Super Mario Game)
- AI Search Algorithms
- XV6 Scheduling (OS Project)

## Skills

---

<b>Programming</b>	Python, JAVA, C/C++, LaTeX
<b>Machine Learning Tools</b>	PyTorch, OpenCV, scikit-learn, NumPy, pandas, matplotlib, Tensorflow
<b>Web Development</b>	HTML, CSS, Django, Flask
<b>Distribution and Deployment Tools</b>	Kubernetes, Docker
<b>Languages</b>	Persian (native), English (advanced)

## Relevant Coursework

---

September 2023	<b>Probabilistic Graphical Models (PGM)</b> , Daphne Koller, Stanford University	<i>ongoing</i>
August 2022	<b>Generative Adversarial Networks (GANs) Specialization</b> , Sharon Zhou, DeepLearning.AI	<i>Certificate</i>
August 2022	<b>Machine Learning Specialization</b> , Andrew Ng, DeepLearning.AI	<i>Certificate</i>
July 2022	<b>Deep Learning Specialization</b> , Andrew Ng, DeepLearning.AI	<i>Certificate</i>
April 2022	<b>ROS Comprehensive Training Course</b> , Department of Mathematics and Computer Science, AUT	<i>Certificate</i>

## Volunteer Experiences

---

### Amirkabir Artificial Intelligence Competitions (AAIC)

HEAD OF THE EXECUTIVE TEAM UNDER THE SUPERVISION OF PROF. AHMAD NICKABAD

*May 2023*

### Comprehensive Engineering Events Of Department of Computer Engineering

RESPONSIBLE FOR EVENT COORDINATION AND GUEST INVITATIONS

*july 2021 - June 2022*

### Amirkabir Artificial Intelligence Summer Summit(AAISS)

MEMBER OF THE SCIENTIFIC GROUP AND STAFF OF THE EVENT

*August 2021*

## References

---

### Prof. Ahmad Nickabadi, Assistant Professor

DEPARTMENT OF COMPUTER ENGINEERING, AMIRKABIR UNIVERSITY OF TECHNOLOGY (AUT)

- Email: [nickabadi@aut.ac.ir](mailto:nickabadi@aut.ac.ir)

### Dr. Mohammad Sabokrou, Staff Scientist (AI researcher and consultant)

OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY

- Email: [mohammad.sabokrou@oist.jp](mailto:mohammad.sabokrou@oist.jp)

### Dr. Alireza Esmaeilzahi, Postdoctoral Fellow

UNIVERSITY OF TORONTO (U OF T)

- Email: [alireza.esmaeilzahi@utoronto.ca](mailto:alireza.esmaeilzahi@utoronto.ca)