

# Mojtaba Nafez

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## RESEARCH INTERESTS

Explainable and Responsible Machine Learning  
Natural Language Processing

Computer Vision  
Out-of-Distribution Detection

Trustworthy & Safty in AI  
Self-Supervised Learning

## EDUCATION

### Sharif University of Technology

*M.Sc. in Computer Engineering / Software Engineering*

Iran, Tehran

*Aug. 2022 – Present*

- GPA: 4/4 (18.86/20)
- Thesis: Robust anomaly detection through from-scratch training under adversarial attacks
- Advisor: Prof. Mohammad Hossein Rohban

### Iran University of Science & Technology

*B.Sc. in Computer Engineering*

Iran, Tehran

*Sep. 2017 – Feb 2022*

- GPA: 3.95/4 (18.37/20)
- Ranked among the top 5% of students
- Thesis: Weakly-supervised defect detection using deep neural networks
- Advisor: Prof. Mohammad Reza Mohammadi

## PUBLICATIONS

### Universal Novelty Detection Through Adaptive Contrastive Learning

Accepted

*Hossein Mirzaei, **Mojtaba Nafez**, Mohammad Azizmalayeri, Mohammad Jafari, Mohammad Bagher Soltani, Jafar Habibi, Mohammad Sabokrou, Mohammad Hossein Rohban **CVPR 2024** ([Link](#))*

### Scanning Trojaned Models Using Out-of-Distribution Samples

Accepted

*Hossein Mirzaei, Ali Ansari, Bahar Nia, **Mojtaba Nafez**, Moein Madadi, Sepehr Rezaee, Zeinab Taghavi, Arad Maleki, Kian Shamsaie, Hajjalilue, Jafar Habibi, Mohammad Sabokrou, Mohammad Hossein Rohban **NeurIPS 2024** ([Link](#))*

### Adversarially Robust Anomaly Detection through Spurious Negative Pair Mitigation

Submitted

***Mojtaba Nafez**<sup>\*</sup>, Hossein Mirzaei<sup>\*</sup>, Jafar Habibi, Mohammad Sabokrou, Mohammad Hossein Rohban **ICLR 2025** ([Link](#))*

### Toward Robust Novelty Detection Under Style Shifts

Submitted

*Hossein Mirzaei, **Mojtaba Nafez**, Moein Madadi, Arad Maleki, Mahdi Hajjalilue, Zeinab Sadat Taghavi, Sepehr Rezaee, Ali Ansari, Bahar Dibaei Nia, Kian Shamsaie, Mohammadreza Salehi, Jafar Habibi, Mackenzie W Mathis, Mahdieh Soleymani Baghshah, Mohammad Sabokrou, Mohammad Hossein Rohban **ICLR 2025** ([Link](#))*

### Unsupervised Out-of-Distribution Detection: From Low to High Inlier Variation

Under Preparation

*Hossein Mirzaei, **Mojtaba Nafez**, Mohammad Jafari, Mohammad Bagher Soltani, Jafar Habibi, Mohammad Sabokrou, Mohammad Hossein Rohban **CVPR 2025** ([Link](#))*

### Adversarially Robust Anomaly Segmentation Through Fine-Grained Attention Models

Under Preparation

***Mojtaba Nafez**, Amirhossein Koochakian, Jafar Habibi, Mohammad Hossein Rohban **ICLM 2025** ([Link](#))*

## EXPERIENCE

### Research Assistant

Oct 2022 – Present

*RIML Lab, Sharif University of Technology*

*Iran, Tehran*

- Machine Learning, Computer Vision, Deep Learning, Explainable and Responsible AI, Anomaly Detection, Adversarial Robustness, Out of Distribution Detection, Contrastive Learning
- Conducted research under the supervision of Prof. Rohban, and in collaboration with Prof. Solaymani and Prof. Sabokrou
- Contributed to research papers submitted to CVPR2024, NeurIP2024, and ICLR2025, highlighting the lab's interdisciplinary research activities
- Gained valuable experience in research, mentorship, collaboration, and teamwork while significantly enhancing technical skills and expanding expertise in deep learning

## Teaching Assistant

Sep 2019 – Present

*Sharif University of Technology - Iran University of Science & Technology*

*Iran, Tehran*

- Deep Learning (By Prof. Hamid Beigy), Deep Learning (By Prof. MohammadReza Mohammadi), Head of Artificial Intelligent (By Prof. MohammadHossein Rohban), Head of Artificial Intelligent (By Prof. Behrouz Minaei), Fundamental Programming (By Prof. Zeinab movahedi), Compiler Design (By Prof. Saeed Parsa), Operating System (By Prof. Reza Entezari-Maleki)
- Led and managed a team of over 40 teaching assistants (Link)
- Designing homework, grading, and mentoring

## Machine Learning Internship

Jul 2021 – Jan 2022

*AIMedic*

*Iran, Tehran*

- Explored and developed deep learning-based 2D and 3D semantic segmentation methods using PyTorch and Keras
- Developed an MRI brain tumor 3D segmentation system
- Developed a cell segmentation system and a semantic segmentation-based skull stripping method

## Undergraduate Research Assistant

Jul 2021 – May 2022

*CVLab IUST, Iran University of Science & Technology*

*Iran, Tehran*

- Researched and developed a tile surface defect detection system using a weakly-supervised approach with the Keras library
- Conducted research under the supervision of Prof. Mohammad Reza Mohammadi

## HIGHLIGHTED COURSES

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Deep Learning (19.7/20), Computer Vision (20.0/20), Data Mining (20.0/20), Natural Language Processing (19.8/20), Computational Intelligence (19/20), Artificial intelligence (19.11/20), Digital Signal Processing (19.25/20), Operating System (20.0/20), Data Structures (20/20), Advanced Programming (19.5/20), Software Engineer 1 (20.0/20), Wireless Networks (20.0/20), Internet of Things (20.0/20), Compiler Design (19.0/20), Algorithm on Graph Coursera (Audited), Algorithm on String Coursera (Audited)

## HIGHLIGHTED PROJECTS

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### Universal Novelty Detection Through Adaptive Contrastive Learning

*CVPR 2024*

- Pytorch, Anomaly Detection, Contrastive Learning, Self-Supervised Learning

### A persian poem recommendation system based on a Persian/English text/image

*NLP Course*

- Pytorch, CLIP, Language Models, Contrastive Learning
- Image-text retrieval, text-text retrieval

### Pargar: A Consultants Online Platform

*Software Engineer Course*

- Software Engineering, Backend, Django, Nginx, Docker, Socket Programming

### Cell segmentation system and a semantic segmentation

*AIMedic Internship (Course Final Project)*

- Keras, Semantic Segmentation Models, Deep Learning,

## SKILLS

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**Programming Languages:** Python, Java, C/C++, LATEX

**Machine Learning Tools:** PyTorch, TensorFlow, Keras, OpenCV, NumPy, pandas, scikit

**Frameworks & Developer Tools:** Linux, Django, Docker, VS Code, Git, ReactJS

**Languages:** English (Fluent, scheduled to take TOEFL on November 9), Persian (Native)

## REFERENCES

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**Prof. Mohammad Hossein Rohban:** rohban@sharif.edu

**Prof. Mohammad Sabokrou:** mohammad.sabokrou@oist.jp

**Prof. Mohammad Reza Mohammadi:** mrmohammadi@iust.ac.ir