

Mojtaba Nafez

✉ Email | G Scholar | LinkedIn | Website

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 (Iran's #1 University)

Iran, Tehran

M.Sc. in Computer Engineering / Software Engineering

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 (Iran's #3 University)

Iran, Tehran

B.Sc. in Computer Engineering

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

- I kindly ask your attention to my Google Scholar Profile for the finalized status of my 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, Hajialilue, Jafar Habibi, Mohammad Sabokrou, Mohammad Hossein Rohban *NeurIPS 2024 (Link)*

Adversarially Robust Anomaly Detection through Spurious Negative Pair Mitigation

Submitted

Mojtaba Nafez*, Hossein Mirzaei*, 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 Hajialilue, 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 with 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

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

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

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

Prof. Mohammad Hossein Rohban: rohban@sharif.edu
Prof. Mohammad Sabokrou: mohammad.sabokrou@oist.jp
Prof. Mohammad Reza Mohammadi: mrmohammadi@iust.ac.ir