

# AMJAD SEYEDI

## Graduate Research Assistant

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 Representation Learning Lab (222), Computer Engineering Department, Engineering Faculty, University of Kurdistan, Sanandaj, Iran

### BRIEFLY

As a graduate research assistant at the University of Kurdistan, I work on representation learning with a focus on robustness and generalization. I also lead the Algebraic Machine Learning Team (AML team), a group that explores fundamental methods in unsupervised machine learning and representation theory. I have a Master's degree in Artificial Intelligence from the same university, where I worked with Dr. Parham Moradi and Dr. Fardin Akhlaghian on matrix factorization and low-rank approximation for various applications such as semi-supervised learning, recommendation systems, and multi-label classification. I also have an Associate and a Bachelor's degree in Software Engineering.

### RESEARCH INTERESTS

- Machine learning, Representation learning, Numerical Linear Algebra
- Generalization, Low-rank approximation, Adversarial training
- Deep Learning, Self-supervised/Semi-supervised learning
- Robustness, Fairness, Interpretability, Explainability

### EXPERIENCE

Thesis Advisor	<b>Artificial Intelligence (graduate), UNIVERSITY OF KURDISTAN, SANANDAJ, IRAN, (Sep 2020 - Present)</b> <ul style="list-style-type: none"><li>➢ eight students have graduated. I am currently advising three master's students.</li><li>➢ Topics : representation learning, deep learning, matrix factorization, semi-supervised learning, self-supervised learning, robust learning, and sparse coding.</li><li>➢ problems : data representation, data clustering, graph clustering, recommendation systems, link prediction, and feature selection.</li></ul>
Research Assist.	<b>Representation Learning, UNIVERSITY OF KURDISTAN, SANANDAJ, IRAN, (Sep 2019 – Present)</b> <ul style="list-style-type: none"><li>➢ Topics : matrix factorization, distributionally robust learning, generalization, and adversarial training</li><li>➢ applications : image inpainting and recommendation systems.</li></ul>
Teaching Assist.	<b>Artificial Intelligence (graduate), UNIVERSITY OF KURDISTAN, (Jan 2019 – Present)</b> <ul style="list-style-type: none"><li>➢ Advanced Concepts in Artificial Intelligence (Graduate), Spring 2023, Fall 2023</li><li>➢ Nonnegative Matrix Factorization for Machine Learning (Graduate), Fall 2022</li><li>➢ Pattern Recognition (Graduate), Spring 2019 – Spring 2023</li><li>➢ Special Topics in Artificial Intelligence (Graduate), Fall 2021</li><li>➢ lectures : Semi-supervised learning, Modern Machine Learning Paradigms, Nonnegative matrix factorizations, Transformer Networks</li></ul>
Lab Instructor	<b>Computer Lab (undergraduate), UNIVERSITY OF KURDISTAN, SANANDAJ, IRAN, (Fall 2019)</b> <ul style="list-style-type: none"><li>➢ I had two 14-person classes on computer basics.</li></ul>

### EDUCATION

Master	<b>Artificial Intelligence, UNIVERSITY OF KURDISTAN, SANANDAJ, IRAN, (Sep 2015 – Feb 2018)</b> <ul style="list-style-type: none"><li>➢ Thesis title : A Graph-based Semi-Supervised Learning Approach for Multi-Label Classification.</li><li>➢ Advisors : Dr. Parham Moradi and Dr. Fardin Akhlaghian.</li><li>➢ Courses : machine learning, statistical pattern recognition, neural networks, advanced artificial intelligence, computer vision, digital image processing, distributed systems, and fuzzy sets &amp; systems.</li></ul>
Bachelor	<b>Software Engineering, AMIRKABIR TECHNICAL COLLEGE, ARAK, IRAN, (Jan 2012 – Jun 2014)</b> <ul style="list-style-type: none"><li>➢ Project title : Manufacturing and Setting up a Video Conferencing Software.</li></ul>
Associate	<b>Computer Software, TABRIZ TECHNICAL COLLEGE, TABRIZ, IRAN, (Jan 2009 – Jun 2011)</b> <ul style="list-style-type: none"><li>➢ Supplementary courses in computer science and software engineering.</li></ul>
TechSchool	<b>Computer, TALEGHANI HIGH SCHOOL, SANANDAJ, IRAN, (Sep 2005 - Jun 2007)</b> <ul style="list-style-type: none"><li>➢ A two-year education in basic computer science</li></ul>

- Revised** | **Orthogonal Encoder-Decoder Factorization for Unsupervised Feature Selection**  
M. Mozafari, **S. A. Seyedi**, R. Pirmohamadiani, and F. Akhlaghian.  
*Information Sciences* [3rd Revision], Jan 2024.
- A Bi-level Deep Human Action Representation based on the Sequence of Action Segments**  
F. Akhlaghian, M. Ramezani, H. Afshoon, **S. A. Seyedi**, and A. Moradiani  
*Neural Computing and Applications* [3rd Revision], Feb 2023.
- 2024** | **Multi-Label Feature Selection with Global and Local Label Correlation**  
M. Faraji, **S. A. Seyedi**, F. Akhlaghian, and R. Mahmoodi.  
*Expert Systems with Applications*, volume 246, 2024, pp. 123198.
- Deep Asymmetric Nonnegative Matrix Factorization for Graph Clustering**  
A. Hajiveisheh, **S. A. Seyedi**, and F. Akhlaghian.  
*Pattern Recognition*, volume 148, 2024, pp. 110179.
- 2023** | **Link Prediction by Adversarial Nonnegative Matrix Factorization**  
R. Mahmoodi, **S. A. Seyedi**, F. Akhlaghian, and A. Abdollahpour.  
*Knowledge-based Systems*, volume 280, 2023, pp. 110998.
- Self-Supervised Semi-Supervised Nonnegative Matrix Factorization for Data Clustering**  
J. Chavoshinejad, **S. A. Seyedi**, and F. Akhlaghian.  
*Pattern Recognition*, volume 137, 2023, pp. 109282.
- Adversarial Elastic Deep Nonnegative Matrix Factorization for Matrix Completion**  
**S. A. Seyedi**, F. Akhlaghian, A. Lotfi, N. Salahian, and J. Chavoshinejad  
*Information Sciences*, volume 621, 2023, pp. 562-579.
- Deep Autoencoder-Like NMF with Contrastive Regularization and Feature Relationship Preservation**  
N. Salahian, F. Akhlaghian, **S. A. Seyedi**, and J. Chavoshinejad  
*Expert Systems with Applications*, volume 214, 2023, pp. 119051.
- 2020** | **Asymmetric Semi-Nonnegative Matrix Factorization for Directed Graph Clustering**  
R. Abdollahi, **S. A. Seyedi**, and M. R. Noorimehr  
*IEEE International Conference on Computer and Knowledge Engineering (ICCKE)*, 2020, pp. 323-328.
- 2019** | **Self-Paced Multi-Label Learning with Diversity**  
**S. A. Seyedi**, S. S. Ghodsi, F. Akhlaghian Tab, M. Jalili, and P. Moradi  
*Asian Conference on Machine Learning (ACML)*, 2019, pp. 790-805.
- 2018** | **Dynamic Graph-based Label Propagation for Density Peaks Clustering**  
**S. A. Seyedi**, A. Lotfi, P. Moradi, and N. N. Qader  
*Expert Systems with Applications*, Volume 115, 2019, pp. 314-328.
- 2017** | **A Weakly-Supervised Factorization Method with Dynamic Graph Embedding**  
**S. A. Seyedi**, P. Moradi, and F. Akhlaghian Tab  
*IEEE Artificial Intelligence and Signal Processing Conference (AISP)*, 2017, pp. 213-218.
- A Clustering-based Matrix Factorization Method to Improve the Accuracy of Recommendation Systems**  
Z. Shajarian, **S. A. Seyedi**, and P. Moradi  
*IEEE Iranian Conference on Electrical Engineering (ICEE)*, 2017, pp. 2241-2246.
- 2016** | **An Improved Density Peaks Method for Data Clustering**  
A. Lotfi, **S. A. Seyedi**, and P. Moradi  
*IEEE International Conference on Computer and Knowledge Engineering (ICCKE)*, 2016, pp. 263-268.

## COMPUTER SKILLS

Operationg Systems	Microsoft Windows and Linux (ubuntu, CentOS, Fedora, and RedHat distributions)
Word processing & Presentation	Office suites and <del>LaTeX</del> Manim (animation engine for explanatory math videos)
Vector and raster softwares	Adobe Illustrator, CorelDRAW, Inkscape, Adobe Photoshop, and GIMP
Development Tools	Pycharm, Jupyter Notebook, Colab, Visual Studio, IntelliJ Idea, and Eclipse
Web design	HTML, CSS, ASP.NET, and JavaScript

## PROGRAMMING LANGUAGES

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2019 – present	<b>Python</b> , PyTorch, NumPy, and scikit-learn
2015 – 2020	<b>MATLAB</b> , linear algebra and visualization
2012 – 2015	<b>JAVA</b> , object-oriented software engineering and web development
2009 – 2015	<b>C++   C#</b> , Software Engineering and Web development
2007 – 2009	<b>Basic   Visual Basic</b> , Software Engineering

## REFERENCES

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**Fardin Akhlaghian**, *Associate Professor*  
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