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, Linear algebra**
- Deep Learning, Self-supervised/Semi-supervised learning
- Generalization, Adversarial training, Robust learning

EXPERIENCE

Thesis Advisor
Present

Artificial Intelligence (graduate), University of Kurdistan, sanandaj, iran, (Sep 2020 - Present)
- Five students have graduated. I am currently advising six master's students.
- Topics : representation learning, deep learning, matrix factorization, semi-supervised learning, self-supervised learning, robust learning, and sparse coding.
- problems : data representation, data clustering, graph clustering, recommendation systems, link prediction, and feature selection.

Research Assist.
Present

Representation Learning, University of Kurdistan, sanandaj, iran, (Sep 2019 – Present)
- Topics : matrix factorization, distributionally robust learning, generalization, and adversarial training
- applications : image inpainting and recommendation systems.

Teaching Assist.
Present

Artificial Intelligence (graduate), University of Kurdistan,
- Advanced Concepts in Artificial Intelligence (Graduate), Spring 2023
- Nonnegative Matrix Factorization for Machine Learning (Graduate), Fall 2022
- Pattern Recognition (Graduate), Spring 2019 – Spring 2023
- Special Topics in Artificial Intelligence (Graduate), Fall 2021
- lectures : Semi-supervised learning, Modern Machine Learning Paradigms, Nonnegative matrix factorizations, Transformer Networks

Lab Instructor
2019

Computer Lab (undergraduate), University of Kurdistan, sanandaj, iran, (Fall 2019)
- I had two 14-person classes on computer basics.

EDUCATION

Master

Artificial Intelligence, University of Kurdistan, sanandaj, iran, (Sep 2015 – Feb 2018)
- Thesis title : A Graph-based Semi-Supervised Learning Approach for Multi-Label Classification.
- Advisors : Dr. Parham Moradi and Dr. Fardin Akhlaghian.
- Courses : machine learning, statistical pattern recognition, neural networks, advanced artificial intelligence, computer vision, digital image processing, distributed systems, and fuzzy sets & systems.

Bachelor

Sofware Engineering, Amirkabir Technical College, arak, iran, (Jan 2012 – Jun 2014)
- Project title : Manufacturing and Setting up a Video Conferencing Software.

Associate

Computer Software, Tabriz Technical College, tabriz, iran, (Jan 2009 – Jun 2011)
- Supplementary courses in computer science and software engineering.

TechSchool

Computer, Taleghani High School, sanandaj, iran, (Sep 2005 - Jun 2007)
- A two-year education in basic computer science

PUBLICATIONS

Under Review

Diverse Joint Nonnegative Matrix Factorization for Attributed Graph Clustering
A. Mohammadi, **S. A. Seyedi**, F. Akhlaghian, and R. Pirmohamadiani.
Applied Soft Computing [Under review], November 2023.

Semantic Encoder-Decoder Nonnegative Matrix Factorization with Kullback-Leibler Divergence
S. Soleymanbeigi, **S. A. Seyedi**, F. Daneshfar, and F. Akhlaghian.
Neural Networks [Under review], October 2023.

Mutli-Label Feature Selection with Global and Local Label Correlation
M. Faraji, **S. A. Seyedi**, F. Akhlaghian, and R. Mahmoodi.
Expert Systems with Applications [Under review], September 2023.

Deep Adversarial Nonnegative Matrix Factorization for Link Prediction
R. Mahmoodi, **S. A. Seyedi**, A. Abdollahpouri, and F. Akhlaghian.
Expert Systems with Applications [Under review], September 2023.

Orthogonal Encoder-Decoder Factorization for Unsupervised Feature Selection
M. Mozafari, **S. A. Seyedi**, R. Pirmohamadiani, and F. Akhlaghian.
Information Sciences [Under review], August 2023.

Fairness-aware Nonnegative Matrix Factorization : Clustering from a Fairness-Cohesion Perspective
S. Ghodsi, **S. A. Seyedi**, T. Le Quy, F. Karimi, and E. Ntoutsi.
AAAI2024 [Awaiting Decision], August 2023.

Self-paced Elastic Nonnegative Matrix Factorization
S. Mohammadi, **S. A. Seyedi**, N. Salahian, and F. Akhlaghian.
IEEE Trans. on Neural Networks and Learning Systems [Under review], August 2023.

Deep Asymmetric Nonnegative Matrix Factorization for Graph Clustering
A. Hajiveiseh, **S. A. Seyedi**, and F. Akhlaghian.
Pattern Recognition [First Revision], September 2023.

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 [2nd Revision], Feb 2023.

2023

Link Prediction by Adversarial Nonnegative Matrix Factorization
R. Mahmoodi, **S. A. Seyedi**, F. Akhlaghian, and A. Abdollahpouri.
Knowledge-based Systems [Accepted], September 2023.

Self-Supervised Semi-Supervised Nonnegative Matrix Factorization for Data Clustering
J. Chavoshinejad, **S. A. Seyedi**, and F. Akhlaghian.
Pattern Recognition, volume 137, 2023, 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, 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.

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.

In Prep | **Instance-wise Distributionally Robust Nonnegative Matrix Factorization**
W. Barkhoda, **S. A. Seyedi**, and F. Akhlaghian.

Multi-label Feature Selection by Deep Matrix Factorization
M. Faraji, **S. A. Seyedi**, and F. Akhlaghian.

COMPUTER SKILLS

Operationg Systems	**Microsoft Windows** and **Linux** (ubuntu, centOS, fedora, and RedHat distributions)
Word processing & Presentation	Offce suites and LaTeX, 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

2019 – present	**Python**, PyTorch, NumPy, and scikit-learn
2015 – 2020	**MATLAB**, linear algebra and visulaziation
2012 – 2015	**JAVA**, object-oriented software engineeing and web development
2009 – 2015	**C++ | C#**, Software Ebgineering and Web development
2007 – 2009	**Basic | Visual Basic**, Software Engineering

REFERENCES

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