PERSONAL INFORMATION

Zahra Asghari Varzaneh

Address (departmental)	Telephone (work)	Email (work)
Malmö University	0722052356	Zahra.asghari-varzaneh@mau.se
Address (home)	**Telephone (private)**	**Email (private)**
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Children	**Parental leave**	**Website**
0	0	https://zahra-asghari.github.io/

RESEARCH INTERESTS

Machine learning, Deep learning, Computer Vision, Trustworthy ML, Explainable AI (XAI), Natural Language Processing (NLP), Optimization

EDUCATION

PhD in Computer Science (Artificial Intelligence) Oct 2020- Sept 2023
Shahid Bahonar University of Kerman (UK), Iran, GPA: 4/4
Title Thesis: "Effective feature selection for network intrusion detection using improved metaheuristic algorithms".

MSC in Computer Science (Artificial Intelligence) Sept 2011-July 2013
Shahid Bahonar University of Kerman (UK), Iran, GPA: 3.8/4
Title Thesis: "Proposing a new Data mining method for network Intrusion Detection".

EXPERIENCE

- Postdoctoral researcher -Malmö University 2025- current
  - Project: *Enhancing In Vitro Fertilization with Environment Optimization Utilizing Artificial Intelligence (EIVF-AI)*

- Payame Noor University of Esfahan, Esfahan, Iran
  Lecturer in Computer Engineering 2013 – 2019

- Abadan University of Medical Sciences, Iran
  AI Researcher 2020 –2024
  - Project name: *Using machine learning algorithms to predict successful aging: comparing basic vs ensemble techniques*
  - Project name: *Using Adaptive Neuro-Fuzzy Inference System for Predicting Successful Aging*
  - Project name: *Comparing the effect of pre-anesthesia clonidine and tranexamic acid on intraoperative bleeding volume in rhinoplasty: a machine learning approach*

- Barez Rubber Company 2022
  NLP Researcher
  - Project name: *Deep text clustering using stacked Autoencoder*

- Ministry of Education, Iran
  High school Lecturer /Management 2015 – 2024

FORMAL PEDAGOGIC TRAINING

- Scholarship of University Teaching, Malmö University — January 2026
- Generative AI in Teaching and Examination in Higher Education — April 2026

HONORS AND ACTIVITIES

Awards

- Best Faculty Researcher Prize at Shahid Bahonar University of Kerman — Nov 2013
- Best Faculty Researcher Prize at Shahid Bahonar University of Kerman — Nov 2024
- First-ranked student in MSc
- First-ranked student in Ph. D

Professional Associations and Membership — Feb 2024

- AI Researcher at Abadan University of Medical Sciences
- Member of the International Association of Engineers (IAENG)
- Member of IAENG Society of Artificial Intelligence
- Member of IAENG Society of Data Mining
- Member of IAENG Society of Computer Scienc

Reviewer for:

- Peer reviewer for scientific journals

KEY SKILLS

Programming (Python, Matlab)	Data Analytic	Machine Learning
Natural Language Processing (NLP)	AI libraries	Deep learning

COURSES AND CERTIFICATIONS

- **Advanced Computer Vision with TensorFlow**
- **Data Analysis with Python**
- **Machine Learning with Python**
- **Deep Learning**
  - Neural Networks and Deep Learning
  - Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization
  - Convolutional Neural Networks
  - Structuring Machine Learning Projects
  - Sequence Models
- **Machine learning**
  - Supervised Machine Learning: Regression and Classification
  - Advanced Learning Algorithms
  - Unsupervised Learning, Recommenders, Reinforcement Learning
- **SQL**
- **Python Development**
- **Web Development**

PUBLICATIONS

1. Zamani, H., **Asghari Varzaneh, Z.** & Nadimi-Shahraki, M. Deep Convolutional Neural Networks in Neurological Disorders Diagnosis: Comprehensive Review of Cutting-Edge Architectures, Challenges, and Future Directions. Arch Computat Methods Eng (2025). https://doi.org/10.1007/s11831-025-10435-0
2. **Varzaneh, Zahra Asghari**, Seyyed Mohammad Mousavi, Reza Khoshkangini, and Sayyed Mostafa Moosavi Khaliji. "An ensemble model based on transfer learning for the early detection of Alzheimer's disease." *Scientific Reports* 15, no. 1 (2025): 34634. https://doi.org/10.1038/s41598-025-22025-y
3. **Asghari Varzaneh, Zahra**, Akram Hemmatipour, and Hadi Kazemi-Arpanahi. "Comparing the effect of pre-anesthesia clonidine and tranexamic acid on intraoperative bleeding volume in rhinoplasty: a machine learning approach." *Scientific Reports* 15, no. 1 (2025): 30062. https://doi.org/10.1038/s41598-025-07450-3
4. **Asgari Varzaneh, Zahra**, and Soodeh Hosseini. "An Enhanced Sine Cosine Algorithm for Feature Selection in Network Intrusion Detection." *Computer and Knowledge Engineering* 7, no. 2 (2024): 17-26. 10.22067/cke.2024.83460.1097
5. **Varzaneh, Zahra Asghari**, and Soodeh Hosseini. "An improved equilibrium optimization algorithm for feature selection problem in network intrusion detection." *Scientific Reports* 14, no. 1 (2024): 18696. https://doi.org/10.1038/s41598-024-67488-7
6. Nadimi-Shahraki, Mohammad H., Hoda Zamani, **Zahra Asghari Varzaneh**, Ali Safaa Sadiq, and Seyedali Mirjalili. "A systematic review of applying grey wolf optimizer, its variants, and its developments in different Internet of Things applications." *Internet of Things* 26 (2024): 101135. https://doi.org/10.1016/j.iot.2024.101135
7. Nadimi-Shahraki, Mohammad H., Hoda Zamani, **Zahra Asghari Varzaneh**, and Seyedali Mirjalili. "A systematic review of the whale optimization algorithm: theoretical foundation, improvements, and hybridizations." *Archives of Computational Methods in Engineering* 30, no. 7 (2023): 4113-4159. DOI: https://doi.org/10.1007/s11831-023-09928-7
8. **Asghari Varzaneh, Zahra**, Soodeh Hosseini, and Mohammad Masoud Javidi. "A novel binary horse herd optimization algorithm for feature selection problem." *Multimedia Tools and Applications* 82, no. 26 (2023): 40309-40343. https://doi.org/10.1007/s11042-023-15023-7
9. Mirzaeian, Razieh, Raoof Nopour, **Zahra Asghari Varzaneh**, Mohsen Shafiee, Mostafa Shanbehzadeh, and Hadi Kazemi-Arpanahi. "Which are best for successful aging prediction? Bagging, boosting, or simple machine learning algorithms?" *Biomedical engineering online* 22, no. 1 (2023): 85. https://doi.org/10.1186/s12938-023-01140-9
10. **Asghari Varzaneh, Zahra**, and Soodeh Hosseini. "An Intelligent Fuzzy System for Diabetes Disease Detection using Harris Hawks Optimization." *Journal of AI and Data Mining* 11, no. 2 (2023): 187-194. 10.22044/jadm.2023.12383.2383
11. **Asghari Varzaneh, Zahra**, Mostafa Shanbehzadeh, and Hadi Kazemi-Arpanahi. "Prediction of successful aging using ensemble machine learning algorithms." *BMC Medical Informatics and Decision Making* 22, no. 1 (2022): 258. https://doi.org/10.1186/s12911-022-02001-6
12. Nadimi-Shahraki, Mohammad H., **Zahra Asghari Varzaneh**, Hoda Zamani, and Seyedali Mirjalili. "Binary starling murmuration optimizer algorithm to select effective features from medical data." *Applied Sciences* 13, no. 1 (2022): 564. https://doi.org/10.3390/app13010564
13. **Varzaneh, Zahra Asghari**, Azam Orooji, Leila Erfannia, and Mostafa Shanbehzadeh. "A new COVID-19 intubation prediction strategy using an intelligent feature selection and K-NN method." *Informatics in medicine unlocked* 28 (2022): 100825. https://doi.org/10.1016/j.imu.2021.100825

14. **Varzaneh, Zahra Asghari**, Soodeh Hossein, Sepehr Ebrahimi Mood, and Mohammad Masoud Javidi. "A new hybrid feature selection based on Improved Equilibrium Optimization." *Chemometrics and Intelligent Laboratory Systems* 228 (2022): 104618. https://doi.org/10.1016/j.chemolab.2022.104618
15. Hosseini, Soodeh, and **Zahra Asghari Varzaneh**. "Deep text clustering using stacked AutoEncoder." *Multimedia tools and applications* 81, no. 8 (2022): 10861-10881. https://doi.org/10.1007/s11042-022-12155-0
16. Hosseini, Soodeh, and **Zahra Asghari Varzaneh**. "The impact of preprocessing techniques for Covid-19 mortality prediction." *Computer and Knowledge Engineering* 5, no. 2 (2022): 57-66. 10.22067/cke.2022.77664.1062
17. **Varzaneh, Zahra Asghari**, and Marjan Kuchaki Rafsanjani. "Intrusion detection system using a new fuzzy rule-based classification system based on genetic algorithm." *Intelligent Decision Technologies* 15, no. 2 (2021): 231-237. https://doi.org/10.3233/IDT-200036
18. Rafsanjani, MarjanKuchaki, and **Zahra Asghari Varzaneh**. "Edge detection in digital images using Ant Colony Optimization." *Computer Science Journal of Moldova* 69, no. 3 (2015): 343-359. 519.677:004.932
19. Rafsanjani, Marjan Kuchaki, and **Zahra Asghari Varzaneh**. "Intrusion detection by data mining algorithms: a review." *Journal of New Results in Science* 2, no. 2 (2013): 76-91.
20. Rafsanjani, M. Kuchaki, **Z. Asghari Varzaneh**, and N. Emami Chukanlo. "A survey of hierarchical clustering algorithms." *The Journal of Mathematics and Computer Science* 5, no. 3 (2012): 229-240. http://dx.doi.org/10.22436/jmcs.05.03.11

21. **Conference paper:**
    Zahra Asghari Varzaneh, Niclas Wölner-Hanssen, Reza Khoshkangini. " A Lightweight Transformer Approach for Predicting Blastocyst Formation on Limited Embryo Images", *International Conference on Visual Communications and Image Processing (VCIP). 2025.* 10.1109/VCIP67698.2025.11396800

Submitted manuscripts:

22. **Zahra Asghari Varzaneh**, Niclas Wölner-Hanssen, Reza Khoshkangini, Thomas Ebner, Magnus Johnsson "Predicting Blastocyst Formation in IVF: Integrating DINOv2 and Attention-Based LSTM on Time-Lapse Embryo Images. ", *Computer Methods and Programs in Biomedicine,* 2025.

23. Niclas Wölner-Hanssen, **Zahra Asghari Varzaneh**, Reza Khoshkangini, Thomas Ebner, Gated Transformer for Blastocyst Formation Prediction, The Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2026), 2026.

24. Nahid Khoshk Angabini, Mohsen Tajgardan, Mahesh Madhavan, **Zahra Asghari Varzaneh**, Reza Khoshkangini, Thomas Ebner, Multitasking Embedding for Embryo Blastocyst Grading Prediction (MEmEBG), The Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2026), 2026.

REFERENCES

Reza Khoshkangini (Docent), Associate Professor
Malmö university, Sweden
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National Yunlin University of Science and Technology, Taiwan
Relationship: Research Collaborator

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Dr. Magnus Johnsson, Professor
Kristianstad University, Sweden
Relationship: Research Collaborator (EIVF-AI project)

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