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CONTACT INFORMATION

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RESEARCH INTEREST

- Explainable Artificial Intelligence (XAI)
- Interpretable Machine Learning using Evolutionary Computation
- Big Data Mining in Medicine and Bioinformatics
- Image Processing and Machine Vision in Medicine
- Evolutionary Algorithms and Swarm Intelligence for Knowledge Discovery
- Deep Learning

ACADEMIC POSITIONS

- Associate Professor of Computer Engineering, Faculty of Electrical and Computer Engineering, Tarbiat Modares University, 2015-Present
- Assistant Professor of Computer Engineering, Faculty of Electrical and Computer Engineering, Tarbiat Modares University, 2009-2015

EDUCATION

- **Ph.D.,** Computer Engineering (Artificial Intelligence),
  February 2008, Sharif University of Technology

- **M.Sc.,** Computer Engineering (Artificial Intelligence),
  March 2003, Iran University of Science and Technology

- **B.Sc.,** Computer Engineering (Software),
  July 2001, Isfahan University of Technology

PATENTS

1. R. Alizadehsani, **M. Saniee Abadeh**, S. M. Hosseini, Z. Alizadehsani, "Device and System for Determining the Need for Angiography For People with Symptoms of Coronary Heart Disease," Patent No. 77131, October, 2012.

BOOKS

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2. **M. Saniee Abadeh**, S. Mahmoudi, M. Taherparvar, "Applied Data Mining", 520 pages, Niaz Danesh Inc., 2012.

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JOURNAL PAPERS

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2. F. Behrad, and **M. Saniee Abadeh**, "Evolutionary convolutional neural network for efficient brain tumor segmentation and overall survival prediction", Expert Systems with Applications, Elsevier Science, Vol. 213, No. 1, 2023.

3. A. Mansouri, M. Noei, **M. Saniee Abadeh,** "A hybrid machine learning approach for early mortality prediction of ICU patients", Progress in Artificial Intelligence, Springer, Vol. 11, pp. 333–347, 2022.

4. M. Ordikhani, **M. Saniee Abadeh**, C. Prugger, R. Hassannejad, N. Mohammadifard, and N. Sarrafzadegan, "An evolutionary machine learning algorithm for cardiovascular disease risk prediction", PLOS ONE, Vol. 17, No. 7, 2022.

5. F. Behrad, and **M. Saniee Abadeh**, "An overview of deep learning methods for multimodal medical data mining", Expert Systems with Applications, Elsevier Science, Vol. 200, No. 1, 2022.

6. Z. Momeni, and **M. Saniee Abadeh**, "Adaptive feature selection framework for DNA methylation-based age prediction", Soft Computing, Vol. 26, No. 8, 2022.

7. N. S. Jaddi, and **M. Saniee Abadeh**, "Cell separation algorithm with enhanced search behaviour in miRNA feature selection for cancer diagnosis", Information Systems, Elsevier Science, Vol. 104, 2022.

8. N. Bagheri, **M. Saniee Abadeh**, S. Sarbazi-Azad, and N. S. Jaddi, "Cancer miRNA Biomarkers Classification Using a New Representation Algorithm and Evolutionary Deep Learning", Springer, Soft Computing, 2021.

9. N. S. Jaddi, and **M. Saniee Abadeh**, "Gene selection of non-small cell lung cancer data for adjuvant chemotherapy decision using cell separation algorithm", Applied Intelligence, Springer, Vol. 50, 2020.

10. Z. Momeni, E. Hassanzadeh, **M. Saniee Abadeh**, and R. Bellazzi, "A survey on single and multi omics data mining methods in cancer data classification", Journal of Biomedical Informatics, Elsevier Science, Vol. 107, 2020.

11. H. Shahamat, and **M. Saniee Abadeh**, "Brain MRI analysis using a deep learning based evolutionary approach", Neural Networks, Elsevier Science, Vol. 126, 2020.

12. N. S. Jaddi, and **M. Saniee Abadeh**, "DNA methylation-based age prediction using cell separation algorithm", Computers in Biology and Medicine, Elsevier Science, Vol. 121, 2020.

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17. M. Almasi, and **M. Saniee Abadeh**, "A new MapReduce associative classifier based on a new storage format for large-scale imbalanced data", Cluster Computing, Springer, Vol. 21, No. 4, pp. 1821-1847, 2018.

18. M.R. Ebrahimi, M.A. Riahi, and **M. Saniee Abadeh**, "Nonlinear crosshole traveltime tomography using hybridizing particle swarm optimization with linearized least squares algorithm", Bollettino di Geofisica Teorica ed Applicata, Vol. 59, No. 3, 2018.

19. W. Ibrahim, and **M. Saniee Abadeh**, "Extracting features from protein sequences to improve deep extreme learning machine for protein fold recognition", Journal of Theoretical Biology, Elsevier Science, Vol. 421, pp. 1-15, May 2017.

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21. R. Esmaeili Naftchali, and **M. Saniee Abadeh**, "A multi-layered incremental feature selection algorithm for adjuvant chemotherapy effectiveness/futileness assessment in non-small cell lung cancer", Biocybernetics and Biomedical Engineering, Elsevier Science, Vol. 37, pp. 477-488, 2017.

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23. I. Khodadi, and **M. Saniee Abadeh**, "Genetic Programming-based feature learning for Question Answering", Information Processing and Management, Elsevier Science, Vol. 52, March 2016.

24. A. Mohammadi, and **M. Saniee Abadeh**, "Robust, Interpretable and High Quality Fuzzy Rule Set Discovery Using Krill Herd Algorithm", Journal of Intelligent & Fuzzy Systems, Vol. 30, pp. 1601-1612, March 2016.

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28. A. Zibakhsh, **M. Saniee Abadeh**, "Gene Selection for Cancer Tumor Detection using a Novel Memetic Algorithm with a Multi-View Fitness Function", International Scientific Journal Engineering Applications of Artificial Intelligence, Elsevier Science, 2013.

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38. S. Ghanadbashi, M. Khanbabaei, **M. Saniee Abadeh**, "Applying data mining techniques to business process reengineering based on simultaneous use of two novel proposed approaches", Int. J. Business Process Integration and Management, Vol. 6, No. 3, 2013.

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50. S. Khazaee, **M. Saniee Abadeh**, "A Hybrid Model Based on Feature Extraction for Network Intrusion Detection", Journal of Computing, pp. 65-72, Vol. 3, No. 9, September 2011.

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2. Z. Jahanshiri, **M. Saniee Abadeh**, H. Sajedi, "Brain Age Estimation based on Brain MRI by an Ensemble of Deep Networks", 2021 15th International Conference on Ubiquitous Information Management and Communication (IMCOM), Seoul, Korea, January 04-06, 2021.

3. A. Mansouri, **M. Saniee Abadeh,** "Predicting Hospital Length of Stay of Neonates Admitted to the NICU Using Data Mining Techniques", 10th International Conference on Computer and Knowledge Engineering (ICCKE 2020), Mashhad, Iran, October 29-30, 2020.

4. N. Bagheri, **M. Saniee Abadeh,** "A Hybrid Feature Selection and Deep Learning Algorithm for Cancer Disease Classification", ICADLT 2020: 14. International Conference on Advances in Deep Learning Technologies, Istanbul, Turkey, February 13-14, 2020.

5. A. Mansouri, M. Ordikhani, **M. Saniee Abadeh,** M. Tajdini, "Predicting Serious Outcomes in Syncope Patients Using Data Mining Techniques", 9th International Conference on Computer and Knowledge Engineering (ICCKE 2019), Mashhad, Iran, October 24-25, 2019.

6. M. Noei, **M. Saniee Abadeh,** "A Genetic Asexual Reproduction Optimization Algorithm for Imputing Missing Values", 9th International Conference on Computer and Knowledge Engineering (ICCKE 2019), Mashhad, Iran, October 24-25, 2019.

7. S. Sarbazi-Azad, **M. Saniee Abadeh**, "Gene Selection for Cancer Classification from Microarray Data Using Data Overlap Measure", 25th National and 3rd International Iranian Conference on Biomedical Engineering, Qom, Iran, 29 November – 1 December, 2018.

8. S Sarbazi-Azad, **M. Saniee Abadeh**, M. IN. Abadi, "Feature Selection in Microarray Gene Expression Data Using Fisher Discriminant Ratio", 8th International Conference on Computer and Knowledge Engineering, Mashhad, Iran, 25 October, 2018.

9. M. E. Mowlaei, **M. Saniee Abadeh**, and H. Keshavarz, "A Lexicon Generation Method for Aspect-Based Opinion Mining", 2018 IEEE 22nd International Conference on Intelligent Engineering Systems (INES) Las Palmas de Gran Canaria, Spain, June 21-23, 2018.

10. M. E. Mowlaei, **M. Saniee Abadeh**, and H. Keshavarz, "Lexicon Generation Using Genetic Algorithm for Aspect-Based Sentiment Analysis", 2018 IEEE 22nd International Conference on Intelligent Engineering Systems (INES) Las Palmas de Gran Canaria, Spain, June 21-23, 2018.

11. H. Keshavarz, **M. Saniee Abadeh**, and Mehrdad Almasi, "A New Lexicon Learning Algorithm for Sentiment Analysis of Big Data", SISY 2017, IEEE 15th International Symposium on Intelligent Systems and Informatics, Subotica, Serbia, 14-16 September, 2017.

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13. A. Sabri Alvar, **M. Saniee Abadeh**, "Efficient instance selection algorithm for classification based on fuzzy frequent patterns",CINTI 2016 17th IEEE International Symposium on Computational Intelligence and Informatics, Budapest, Hungary, pp. 319-324, 17–19 November, , 2016.

14. A. Hosseini, **M. Saniee Abadeh**, "Emotion Detection from Text using Hybridization of Semantic and Grammatical Features", 24th Iranian Conference on Electrical Engineering, (In Persian), Shiraz, Iran, 11 - 13 May, 2016.

15. M. Mahboob, **M. Saniee Abadeh**, "Strength detection in social networks with meta-level features", 24th Iranian Conference on Electrical Engineering, (In Persian), Shiraz, Iran, 11 - 13 May, 2016.

16. S. Paylakhi, S. Ozgoli, and **M. Saniee Abadeh**, "A feature selection method using filter and wrapper approaches for identification of Alzheimer s disease causing genes", The second Iranian international conference on systems biology, Tehran, Iran, 23-24 December, 2015.

17. I. Kahvazadeh, **M. Saniee Abadeh**, "MOCANAR: A Multi-Objective Cuckoo Search Algorithm for Numeric Association Rule Discovery", Fourth International Conference on Advanced Information Technologies and Applications, Dubai, United Arab Emirates, pp 99-113, 06 - 07 November, 2015.

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25. Elmira Rahmani, **M. Saniee Abadeh**, F. Rezaei, "Stock Price Prediction Using EGARCH Model and Fusion of Neural Network with Culture Algorithms", 12th Iranian Conference on Intelligent Systems Higher Education Complex of Bam, Bam, Iran, 04-06 February, 2014.

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36. H. Kasiri, **M. Saniee Abadeh**, H. Momeni, A. R. Motavalian, "Fuzzy Rule Extraction from a Trained Artificial Neural Network using Genetic Algorithm for WECS Control and Parameter Estimation", 2011 Eighth International Conference on Fuzzy Systems and Knowledge Discovery (FSKD), pp. 635-639, China, 2011.

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58. **M. Saniee Abadeh**, Jafar Habibi, Emad Soroush, "Induction of Fuzzy Classification Systems Using Evolutionary ACO-Based Algorithms", First Asia International Conference on Modelling & Simulation AMS2007 Asia Modelling Symposium, Phuket, Thailand, March 27-30, 2007.

59. H. Mohammadi, J. Habibi, **M. Saniee Abadeh**, H. Saadi, "Extracting fuzzy rules using Simulated Annealing based fuzzy classifier", 12th Annual Computer Society of Iran Computer Conference, Shahid Beheshti University, Tehran, Iran, February 20-22, 2007.

60. **M. Saniee Abadeh**, J. Habibi, Z. Barzegar, M. Sergi, "A Parallel Genetic Local Search Algorithm for Computer Intrusion Detection", 12th Annual Computer Society of Iran Computer Conference, Shahid Beheshti University, Tehran, Iran, February 20-22, 2007.

61. **M. Saniee Abadeh**, J. Habibi, S. Aliari, "Using a Particle Swarm Optimization Approach for Evolutionary Fuzzy Rule Learning: A Case Study of Intrusion Detection", Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU), Paris, France, July 2-7, 2006.

62. S. V. Jazayeri, J. Habibi, **M. Saniee Abadeh**, P. Pirzadeh, "Network Intrusion Rule Extraction Using a Hybridization of Michigan and Pittsburgh Approaches", 11th Annual Computer Society of Iran Computer Conference, School of Computer Science, Institute for studies in Theorical Physics and Mathematics (IPM), Tehran, Iran, January 24-26, 2006.

63. A. Ranjbar, J. Habibi, **M. Saniee Abadeh**, A. Hamidi, "Network Intrusion Detection Using a Boosting Evolutionary Fuzzy Algorithm", 11th Annual Computer Society of Iran Computer

Conference, School of Computer Science, Institute for studies in Theorical Physics and Mathematics (IPM), Tehran, Iran, January 24-26, 2006.

64. E. Soroush, J. Habibi, **M. Saniee Abadeh**, "Intrusion Detection Using a Boosting Ant-Colony-Based Data Miner", 11th Annual Computer Society of Iran Computer Conference, School of Computer Science, Institute for studies in Theorical Physics and Mathematics (IPM), Tehran, Iran, 24-26 January 2006.

65. **M. Saniee Abadeh**, J. Habibi, C. Lucas, "Designing a Compact Fuzzy Classification System Using a Genetics-Based Learning Algorithm", 10th Annual Computer Society of Iran Computer Conference, Iran Telecommunication Research Center, Tehran, Iran, February 15-17, 2005.

66. **M. Saniee Abadeh**, G.R. Ghasemsani, J. Habibi, "Accelerating Partial Order Planners Using a Fuzzy Genetics-Based Leaning Algorithm", 10th Annual Computer Society of Iran Computer Conference, Iran Telecommunication Research Center, Tehran, Iran, February 15-17, 2005.

67. **M. Saniee Abadeh**, M. Jamzad, J.Habibi, "A Real-Time and Robust Algorithm for Calculation of Time to Lane Crossing", IAV2004 5th IFAC/EURON Symposium on Intelligent Autonomous Vehicles Instituto Superior Técnico, Lisboa, Portugal July 5-7, 2004.

68. **M. Saniee Abadeh**, J. Habibi, "A Fuzzy Ranking Method for Automated Highway Driving", IEEE Intelligent Vehicles Symposium, Parma, Italy, June 14-17, 2004.

69. **M. Saniee Abadeh**, M. Jamzad, J. Habibi, "A Real-Time Collision Warning System Based on TLC Computation", Ninth Annual Computer Society of Iran Conference, Department of Computer Engineering, Sharif University of Technology Tehran, Iran, February 17-19, 2004.

70. **M. Saniee Abadeh**, S.H. Davarpanah, J. Habibi, "Designing and Developing an Adaptive Expert System for Fault Detection and Diagnosis", Ninth Annual Computer Society of Iran Conference, Department of Computer Engineering, Sharif University of Technology Tehran, Iran, February 17-19, 2004.

71. S.H. Mousavi, A. Bahrami, **M. Saniee Abadeh**, A. Varahram, J. Habibi, H. Hosseyniyan, "Prediction of mechanical property of forjed stainless steel Din 1.4962 using Artificial Neural Networks", Steel Sympoosium 82, Steel and Mineral Materials, Bafgh, Yazd, Iran, February 17-18, 2004.

72. **M. Saniee Abadeh**, J. Habibi, M. Fathi, A. Rahmani, "Using A Fuzzy Ranking Method for an Adaptive Cruise Control System", 5th Conference on Intelligent Systems, Mashhad, Iran, October 14-16, 2003.

73. **M. Saniee Abadeh**, J. Habibi, M. Fathi, A. Rahmani, "Automated Highway Driving System Using Fuzzy Logic", 5th Conference on Intelligent Systems, Mashhad, Iran, October 14-16, 2003.

74. **M. Saniee Abadeh**, M. Fathi, A. Rahmani, "A Novel Fuzzy Guidance System For Automated Highway Driving", International Conference on Artificial Intelligence (IC-AI'03), Monte Carlo Resort, Las Vegas, Nevada, USA, June 23 - 26, 2003.

75. **M. Saniee Abadeh**, M. Fathi, A. Rahmani, "Developing a Novel Adaptive Cruise Control System Using Fuzzy Logic", International Conference on Artificial Intelligence (IC-AI'03), Monte Carlo Resort, Las Vegas, Nevada, USA, June 23 - 26, 2003.

76. S. H. Davarpanah, **M. Saniee Abadeh**, M. R. Kangavari, "A Novel Method for Fault Detection in Industrial Systems Using an Adaptive Expert System", First Mechatronic Conference, ICME, Qazvin, Iran (In Persian), May 27-28, 2003.

PROFESSIONAL ACTIVITIES AND POSITIONS

- **Visiting Scholar**
  o Barcelona Super Computing Center, May and June 2022.
  o Istanbul Sehir University, Istanbul, Turkey, March, 2018.
  o University of Pavia, Italy, March and April 2015.

- **Invited Talks and Webinars**

  o "Evolutionary XAI in Biomedicine", Research Group of Dr. Marius George Linguraru, Children's National Hospital in Washington, D.C., USA, 28 July, 2022.
  o "Data Mining using Evolutionary XAI", Research Group of Prof. Alfonso Valencia, Barcelona Super Computing Center, Spain, 3 June, 2022.
  o "Evolutionary XAI for Medical Image Analysis", Research Group of Prof. Simon Keith Warfield, Department of Radiology at Boston Children's Hospital, Computational Radiology Laboratory, Harvard University, USA, 20 October, 2021.
  o "Gene Expression Microarray Data Mining: Recent Trends and Future Directions", Department of Computer Science, Orhantepe Mahallesi, Istanbul Sehir University, Turkey, March, 2018.
  o "Medical Knowledge Discovery via Evolutionary Fuzzy Systems", Research Lab of Prof. Riccardo Bellazzi, Biomedical Informatics Laboratory "Mario Stefanelli", University of Pavia, Pavia, Italy, March, 2015.

- **Journal Referee (more than 200 refereed ISI journal papers)**

  o Information Sciences, Elsevier Science, Since 2011.
  o Knowledge-Based Systems, Elsevier Science, Since 2013.
  o Neurocomputing, Elsevier Science, Since 2011.
  o Energy, Elsevier Science, Since 2012.
  o Soft Computing, Springer, Since 2016.
  o Expert Systems with Applications, Elsevier Science, Since 2021.
  o Artificial Intelligence in Medicine, Elsevier Science, Since 2017.
  o Applied Soft Computing, Elsevier Science, Since 2021.
  o Applied Energy, Elsevier Science, Since 2020.
  o Computers in Biology and Medicine, Elsevier Science, Since 2016.
  o Journal of Biomedical Informatics, Elsevier Science, Since 2015.
  o Engineering Applications of Artificial Intelligence, Elsevier Science, Since 2022.
  o Information Processing and Management, Elsevier Science, Since 2021.
  o IEEE Transactions on NanoBioscience, IEEE, Since 2018.
  o IEEE ACCESS, IEEE, Since 2018.
  o IEEE Transactions on Cybernetics, IEEE, Since 2017.

- o Knowledge and Information Systems, Springer, Since 2017.
- o Biocybernetics and Biomedical Engineering, Elsevier Science, Since 2016.
- o IEEE Transactions on Industrial Electronics, IEEE, Since 2013.
- o Medical & Biological Engineering & Computing, Springer, Since 2012.
- o Computer Methods and Programs in Bio-Medicine, Elsevier Science, Since 2012.

RESEARCH PROJECTS

1. "Genomes Data Analysis using Data Mining Techniques", School of Computer Science, Institute for Research in Fundamental Sciences (IPM), Finished on March 2019.
2. **"**Persian Text Analysis and Opinion Mining System", Vice Presidential Department of Science and Technology, Finished on March 2018.
3. "Diabetes Disease Detection System Using Advanced Artificial Intelligence Techniques", Vice Presidential Department of Science and Technology, Finished on May 2014.

TEACHING EXPERIENCES

1. "Data Mining in Bioinformatics", Faculty of Biosciences, Tarbiat Modares University, January 2018 (Master of Science Course).
2. "Advanced Data Mining", Faculty of Electrical and Computer Engineering, Tarbiat Modares University, January 2018 (Master of Science Course).
3. "Swarm Intelligence", Faculty of Electrical and Computer Engineering, Tarbiat Modares University, January 2018 (Master of Science Course).
4. "Artificial Intelligence in Biomedicine", School of Medical Sciences, University of Tehran, September 2017 (Ph.D. Course).
5. "Evolutionary Computation", Faculty of Electrical and Computer Engineering, Tarbiat Modares University, September 2017 (Master of Science Course).
6. "Data Mining", Faculty of Electrical and Computer Engineering, Tarbiat Modares University, Since January 2010, September 2008 to January 2010 (Master of Science Course).
7. "Advanced Database", Faculty of Electrical and Computer Engineering, Tarbiat Modares University, Since January 2009 (Master of Science Course).
8. "Data Mining", Department of Computer Engineering, Sharif University of Technology, January 2011 to September 2012 (Master of Science Course).
9. "Data Mining", Faculty of Electrical, Computer and IT Engineering, Qazvin Islamic Azad University, September 2008 to January 2010 (Master of Science Course).
10. "Expert Systems", Faculty of Electrical, Computer and IT Engineering, Qazvin Islamic Azad University, September 2008 to January 2010 (Master of Science Course).
11. "Evolutionary Computation", Faculty of Electrical, Computer and IT Engineering, Qazvin Islamic Azad University, September 2008 to January 2010 (Master of Science Course).
12. "Project Management", Department of Computer Engineering, Sharif University of Technology, January 2008 (Bachelor of Science Course).
13. "System Analysis and Design", Department of Computer Engineering, Sharif University of Technology, Kish International Pardis, January 2008 (Bachelor of Science Course).

14. "Fundamentals of Programming", Department of Computer Engineering, Sharif University of Technology, Kish International Pardis, January 2008 (Bachelor of Science Course).