ELHAM **PASHAEI**

POSTDOCTORAL RESEARCHER. DEPARTMENT OF MEDICAL & MOLECULAR GENETICS, INDIANA UNIVERSITY SCHOOL OF MEDICINE

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EDUCATION

Yildiz Technical University — *Istanbul, Türkey*
Ph.D. in Computer Science and Engineering — *September 2012 - August 2017*
Ph.D. Thesis – Splice Site Prediction using Machine Learning
Concentrations: Bioinformatics, Machine learning, and Data Mining
Grade Point Average: 3.3 (out of 4.0)

Qazvin Islamic Azad University — *Qazvin, Iran*
M.Sc. in Computer Science and Software Engineering — *September 2010 – December 2012*
MS Thesis – Using Skeleton of Polygon on Euclidean Steiner Tree Problem
Concentrations: Algorithm, Graph theory
Grade Point Average: 3.4 (out of 4.0)

Khoy Islamic Azad University — *Khoy, Iran*
B.Sc. in Computer Science and Software Engineering — *September 2004 - July 2009*
Concentrations: implementation of e-commerce website
Grade Point Average: 3.3 (out of 4.0)

ACADEMIC POSITIONS

IU School of Medicine, Department of Medical & Molecular Genetics — *Indianapolis, USA*
Postdoctoral researcher — *October 2024-Present*

Istanbul Gelisim University, Department of Software Engineering — *Istanbul, Türkey*
Associate Professor — *April 2023-October 2024*

Istanbul Gelisim University, Department of Computer Engineering — *Istanbul, Türkey*
Assistant Professor — *February 2019–March 2023*

Istanbul Gelisim University, Department of Software Engineering — *Istanbul, Türkey*
Vice-Head of Department — *February 2022–September 2024*

Istanbul Gelisim University, Department of Software and Computer Engineering — *Istanbul, Türkey*
Erasmus Coordinator — *January 2021–September 2024*

FOREIGN LANGUAGES

English, B2 Upper-Intermediate
Turkish, C1 Advanced

RESEARCH AREAS

Bioinformatics, Computational Biology, Computer Sciences, Meta-heuristic Optimization Algorithms, Computer Vision, Data Structures, Artificial Intelligence, Deep Learning, Computer Learning and Pattern Recognition

JOURNAL ARTICLES (SCI, SCI-E)

[J1] **Elham Pashaei** (2022). "Mutation-based Binary Aquila optimizer for gene selection in cancer classification". *Computational Biology and Chemistry,* 101, 1-16 .Doi: https://doi.org/10.1016/j.compbiolchem.2022.107767.

[J2] Elnaz Pashaei, **Elham Pashaei,** Seyedali Mirjalili (2025). **"**Binary Hiking Optimization for Gene Selection: Insights from HNSCC RNA-Seq Data". *Expert Systems with Applications*, 268, 126404, Doi: https://doi.org/10.1016/j.eswa.2025.126404.

[J3] **Elham Pashaei**, Elnaz Pashaei (2022). "Hybrid binary arithmetic optimization algorithm with simulated annealing for feature selection in high-dimensional biomedical data". *The Journal of Supercomputing*, 78(13), 15598-15637. Doi: https://doi.org/10.1007/s11227-022-04507-2.

[J4] **Elham Pashaei**, Elnaz Pashaei (2021). "Training Feedforward Neural Network Using Enhanced Black Hole Algorithm: A Case Study on COVID-19 Related ACE2 Gene Expression Classification". *Arabian Journal for Science and Engineering*, 46(4), 3807-3828. Doi: https://doi.org/10.1007/s13369-020-05217-8.

[J5] **Elham Pashaei**, Nizamettin Aydin (2018). "Markovian encoding models in human splice site recognition using SVM". *Computational Biology and Chemistry*, 73, 159-170. Doi: https://doi.org/10.1016/j.compbiolchem.2018.02.005.

[J6] Elnaz Pashaei, **Elham Pashaei** (2023). "Hybrid binary COOT algorithm with simulated annealing for feature selection in high-dimensional microarray data". *Neural Computing and Applications*, 35(1), 353-374. Doi: https://doi.org/10.1007/s00521-022-07780-7.

[J7] Elnaz Pashaei, **Elham Pashaei** (2023). "Gaussian quantum arithmetic optimization-based histogram equalization for medical image enhancement". *Multimedia Tools and Applications*, 82 (22), 34725–34748. Doi: https://doi.org/10.1007/s11042-023-15025-5.

[J8] Elnaz Pashaei, **Elham Pashaei** (2023). "A fusion approach based on black hole algorithm and particle swarm optimization for image enhancement". *Multimedia Tools and Applications*, 82(3), 297-325. Doi: https://doi.org/10.1007/s11042-022-13275-3.

[J9] Elnaz Pashaei, **Elham Pashaei** (2022). "An efficient binary chimp optimization algorithm for feature selection in biomedical data classification". *Neural Computing and Applications*, 34(8), 6427-6451. Doi: https://doi.org/10.1007/s00521-021-06775-0.

[J10] Fahrettin Kuran, Gülüm Tanırcan, **Elham Pashaei** (2023). "Performance evaluation of machine learning techniques in predicting cumulative absolute velocity". *Soil Dynamics and Earthquake Engineering*, 174, 108175. Doi: https://doi.org/10.1016/j.soildyn.2023.108175.

[J11] Elnaz Pashaei, **Elham Pashaei** (2021). "Gene selection using hybrid dragonfly black hole algorithm: A case study on RNA-seq COVID-19 data". *Analytical Biochemistry*, 627, 1-22. Doi: https://doi.org/10.1016/j.ab.2021.114242.

[J12] Elnaz Pashaei, **Elham Pashaei**, Nizamettin Aydin (2019). "Gene selection using hybrid binary black hole algorithm and modified binary particle swarm optimization". *Genomics,* 111(4), 669-686. Doi: https://doi.org/10.1016/j.ygeno.2018.04.004.

[J13] Elnaz Pashaei**, Elham Pashaei**, Maryam Ahmady, Mustafa Ozen, Nizamettin Aydin (2017). "Meta-analysis of miRNA expression profiles for prostate cancer recurrence following radical prostatectomy". *PLOS ONE*, 12(6), 1-23. Doi: https://doi.org/10.1371/journal.pone.0179543.

[J14] Fahrettin Kuran, Gülüm Tanırcan, **Elham Pashaei** (2024). "Developing machine learning-based ground motion models to predict peak ground velocity in Turkiye". *Journal of Seismology*, 28, 1183–1204. Doi: https://doi.org/10.1007/s10950-024-10239-y.

[J15] Elnaz Pashaei, **Elham Pashaei**, Nizamettin Aydin (2025). "Biomarker Identification for Alzheimer's Disease Using Multi-Filter Gene Selection Approach". *International Journal of Molecular Sciences*, 26(5), 1816. Doi: https://doi.org/10.3390/ijms26051816

JOURNAL ARTICLES (SCOPUS)

[J18] **Elham Pashaei**, Mustafa Ozen, Nizamettin Aydin (2016). "Splice site identification in the human genome using random forest". *Health and Technology*, 7(1), 141-152. Doi: https://doi.org/10.1007/s12553-016-0157-z

[J19] Mustafa Tunay, Elnaz Pashaei, **Elham Pashaei** (2022). "Hybrid Hypercube Optimization Search Algorithm and Multilayer Perceptron Neural Network for Medical Data Classification". *Computational Intelligence and Neuroscience*, 2022, 1-16. Doi: https://doi.org/10.1155/2022/1612468.

PEER-REVIEWED CONFERENCE PAPERS

[C1] **Elham Pashaei**, "Medical Image Enhancement using Guided Filtering and Chaotic Inertia Weight Black Hole Algorithm", 5th International Symposium on Multidisciplinary Studies and Innovative Technologies (ISMSIT). Ankara, Turkey. 21-23 October 2021. **IEEE Press**. pp. 37-42. Doi: 10.1109/ISMSIT52890.2021.9604701.

[C2] **Elham Pashaei**, Elnaz Pashaei. "Gene Selection using Intelligent Dynamic Genetic Algorithm and Random Forest", 2019 11th International Conference on Electrical and Electronics Engineering (ELECO), Bursa, Turkey. 28-30 November 2019. **IEEE Press**. pp. 470-474. Doi: 10.23919/ELECO47770.2019.8990557.

[C3] Elnaz Pashaei, **Elham Pashaei**. "Gene Selection for Cancer Classification using a New Hybrid of Binary Black Hole Algorithm", 2020 28th Signal Processing and Communications Applications Conference (SIU), Gaziantep, Turkey. 05-07 October 2020, **IEEE Press**. pp. 1-4, Doi: 10.1109/SIU49456.2020. 9302351

[C4] Elnaz Pashaei**, Elham Pashaei**, Nizamettin Aydin, "Hybrid Krill Herd Algorithm with Particle Swarm Optimization for Image Enhancement", International Conference on Intelligent and Fuzzy Systems (INFUS 2020), Izmir, Turkey. 21-23 July 2020. **Springer**. pp. 1431-1439, Doi: https://doi.org/10.1007/978-3-030-51156-2_166.

[C5] **Elham Pashaei**, Nizamettin Aydin, "Frequency difference based DNA encoding methods in human splice site recognition", 2017 International Conference on Computer Science and Engineering (UBMK), Antalya, Turkey, 2017, **IEEE Press**. pp. 586-591, Dio: 10.1109/UBMK.2017.8093471.

[C6] **Elham Pashaei**, Alper Yilmaz, Nizamettin Aydin, "A combined SVM and Markov model approach for splice site identification", 2016 6th International Conference on Computer and Knowledge Engineering (ICCKE), Mashhad, Iran, 2016, **IEEE Press**. pp. 200-204, Doi: 10.1109/ICCKE.2016.7802140.

[C7] **Elham Pashaei**, Alper Yilmaz, Mustafa Ozen, Nizamettin Aydin, "Prediction of splice site using AdaBoost with a new sequence encoding approach", 2016 IEEE International Conference on Systems, Man, and Cybernetics (SMC), Budapest, Hungary, 2016, **IEEE Press**. pp. 003853-003858, Doi: 10.1109/SMC.2016.7844835.

[C8] **Elham Pashaei**, Alper Yilmaz, Mustafa Ozen, and Nizamettin Aydin, "A novel method for splice sites prediction using sequence component and hidden Markov model", 2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Orlando, FL, USA, 2016, **IEEE Press**. pp. 3076-3079, Doi: 10.1109/EMBC.2016.7591379.

[C9] **Elham Pashaei**, Mustafa Ozen, Nizamettin Aydin, "Random Forest in Splice Site Prediction of Human Genome", XIV Mediterranean Conference on Medical and Biological Engineering and Computing (MEDICON), Paphos, Cyprus, 2016, **Springer**. pp 518–523, Doi: 10.1007/978-3-319-32703-7_100.

[C10] **Elham Pashaei,** Mustafa Ozen, Nizamettin Aydin, "Splice sites prediction of the human genome using AdaBoost", 2016 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI), Las Vegas, NV, USA, 2016, **IEEE Press**. pp. 300-303, Doi: 10.1109/BHI.2016.7455894.

[C11] **Elham Pashaei**, Ali Nourollah, Ali reza Bagheri, "A heuristic algorithm for Euclidean Steiner Minimal Tree inside simple polygon", 2012 IEEE International Conference on Computer Science and Automation Engineering (CSAE), Zhangjiajie, China, 2012, **IEEE Press**. pp. 76-80, Doi: 10.1109/CSAE.2012.6272552

[C12] Ahmet Nail Taştan, Serkan Gönen, Mehmet Ali Barışkan, Cemallettin Kubat, Derya Yıltaş Kaplan, **Elham Pashaei**, "Detection of Man-in-the-Middle Attack Through Artificial Intelligence Algorithm", International Symposium on Intelligent Manufacturing and Service Systems (IMSS 2023), Istanbul, Türkiye. 26-28 May 2023. Lecture Notes in Mechanical Engineering, **Springer**. Dio: https://doi.org/10.1007/978-981-99-6062-0_41.

[C13] Fahrettin Kuran, Gülüm Tanırcan, **Elham Pashaei,** "Prediction of Peak Ground Velocity (PGV) and Cumulative Absolute Velocity (CAV) of Earthquakes Using Machine Learning Techniques". Proceedings of the 7th International Conference on Earthquake Engineering and Seismology. (ICEES 2023), Antalya, Türkiye, 2023. Lecture Notes in Civil Engineering, vol 401. **Springer**, Dio: https://doi.org/10.1007/978-3-031-57357-6_3

[C14] **Elham Pashaei**, Binnur Gürül, "Enhancing Stock Price Prediction with Extreme Learning Machine and Multi-Indicator Fusion: A Comparative Study". 24th International Symposium for Production Research (ISPR2024). Budva, Montenegro. 10-12 October 2024. (Accepted, forthcoming publication)

TEACHING EXPERIENCE

BIL107- Computer programming I (C language)	*Istanbul Gelisim University*
BIL106- Computer programming II (C++ language)	*Istanbul Gelisim University*
BIL415- Machine Learning	*Istanbul Gelisim University*
BIL202 Data Structures and Algorithms	*Istanbul Gelisim University*
BIL421-Data mining	*Istanbul Gelisim University*
BIL513-Advanced Bioinformatics Algorithms	*Istanbul Gelisim University*
BIL422-Deep Learning	*Istanbul Gelisim University*
YZM201-Algorithm Analysis	*Istanbul Gelisim University*

STUDENT SUPERVISION

Fahrettin Kuran. Master Thesis, Co-Advisor, Boğaziçi University, Türkiye. **Completed on***:7 June 2024*
Title: "Prediction of strong ground motion parameters using machine learning techniques".

Zaid Al-Qazzaz. PhD Thesis, Co-Advisor, Istanbul Gelisim University. ***Status:*** *In progress*
Title: "Machine Learning for Hydrological Prediction and Water Resource Optimization"

CITATIONS

Total Citations (WOS): 425
h-index (WOS): 10

Web of Science ResearcherID: AAP-8599-2021
ORCID: 0000-0001-7401-4964

PROFESSIONAL ACTIVITIES

- **Journal Paper Review:** BMC Genomics ISSN: 1471-2164, BMC Bioinformatics ISSN: 1471-2105, Engineering Applications of Artificial Intelligence ISSN: 1873-6769, Applied Sciences ISSN: 2076-3417, The Journal of Supercomputing ISSN: 0920-8542, Genes ISSN: 2073-4425, Animals ISSN: 2076-2615, BioData Mining ISSN: 1756-0381, Neural Processing Letters ISSN: 1573-773x, Artificial intelligence in medicine ISSN: 1873-2860, Artificial intelligence review ISSN: 1573-7462, Computational and Structural Biotechnology Journal ISSN: 2001-0370, Computers and electrical engineering ISSN: 1879-0755, Evolving systems ISSN: 1868-6486, Expert systems with applications ISSN: 1873-6793, IEEE transactions on evolutionary computation ISSN: 1941-0026, Knowledge and information systems ISSN: 0219-3116, Physics and chemistry of the earth ISSN: 1873-5193, PloS one ISSN: 1932-6203, Smart science ISSN: 2308-0477, SN computer science ISSN: 2661-8907, Applied Computational Intelligence and Soft Computing ISSN: 1687-9724, Computer Methods and Programs in Biomedicine ISSN: 0169-2607, Journal of Cancer Research and Clinical Oncology ISSN: 1432-1335, Computers in Biology and Medicine ISSN: 1879-0534, Knowledge-based systems ISSN: 1872-7409 etc.
- **Academic Performance Award:**
  Istanbul Gelisim University – Certificate of Achievement, 2023
  Recognized for exceptional academic performance under the Istanbul Gelisim University Academic Performance Evaluation System (APSIS), ranking 5th in the Faculty of Engineering and Architecture.
- **Editorial Board**:
  - Biomedicines (MDPI)
  - International Journal of Complexity in Applied Science and Technology (Inderscience Publishers)
- **Editorial Review Board**:
  - Bioinformatics and Biology Insights (SAGE Journals)
- **Guest Editor:**
  - Life (MDPI): Special Issue on *Computational Approaches on Medical Data*
- **Invited Talks**
  Received multiple invitations to speak at international conferences. Although unable to attend, these invitations reflect recognition of expertise and contributions to the field:
  - **International Conference on Artificial Intelligence, Machine Learning & Data Science (AIMLDS-2025)** Osaka, Japan, June 9-11, 2025

- **11th International Conference on Material Science and Engineering**
  Dubai, UAE, November 20-21, 2024
- **International Cancer Research Conference**
  Singapore, March 24-26, 2025
- **6th Global Conclave on Neurology and Neurological Disorders (NEURO Conclave 2025)**
  Berlin, Germany, June 23-24, 2025
- **6th Global Summit on Advances in Medicinal Chemistry and Pharmacology (Adv. Med Chem 2025)**
  Amsterdam, Netherlands, April 03-04, 2025

- **Invited Committee Member:** 10th International Conference on Information Technology, Control, Chaos, Modeling and Applications (ITCCMA 2024)

DEVELOPED SOFTWARE PACKAGES

- Elham Pashaei, "Mutation-based Binary Aquila optimizer for gene selection in cancer classification", R, (https://github.com/el-pashaei/MBAO)
- Elham Pashaei, "Markovian encoding models in human splice site recognition using SVM", R (https://pashaei.shinyapps.io/mmsvm))

PROGRAMMING SKILLS

R programming, Python, MATLAB, C, C++, C#