Hajar Feizi

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RESEARCH INTERESTS

Machine learning and Deep learning, Data mining, Optimization, Water Quality, Hydrologic and Water Resource Modeling and Simulation, Water resources management, Water Resources Engineering, Climate Change, Environmental Impact Assessment, Integrated Lake/River Management

EDUCATION

Ph.D., Water Resources Engineering 2017 – 2022

- University of Tabriz, Tabriz, Iran
- **Relevant Courses**: Machine Learning, Deep learning

Master of Science, Water Resources Engineering 2015 – 2017

- University of Tabriz, Tabriz, Iran
- **Relevant Courses:** Optimization, Heuristic algorithms

Bachelor of Science, Water science and engineering 2011 – 2015

- University of Tabriz, Tabriz, Iran
- **Relevant Courses:** Artificial intelligence, data mining

LIST OF PUBLICATIONS

Journal Papers:

1. **Feizi H,** Sattari MT, Apaydin H. A comparative study of different optimization algorithms for the optimum operation of the Mahabad dam reservoir. *Results in Engineering*. 2024 Dec 12:101664. https://doi.org/10.1016/j.rineng.2023.101664**.**
2. **Feizi H**, Sattari MT, Mosaferi M, Apaydin H. An image-based deep learning model for water turbidity estimation in laboratory conditions. *International Journal of Environmental Science and Technology*. 2022 Sep 20:149-160. https://doi.org/10.1007/s13762-022-04531-y.
3. **Feizi H,** Sattari MT, Prasad R, Apaydin H. Comparative analysis of deep and machine learning approaches for daily carbon monoxide pollutant concentration estimation. *International Journal of Environmental Science and Technology*. 2022 Dec 7: 1753–1768. https://doi.org/10.1007/s13762-022-04702-x.
4. Apaydin H, **Feizi H**, Akcakoca F, Sattari MT. Daily Streamflow Modelling in the Nalli River Using Recurrent Neural Networks. *Chapter book "New Technologies, Development and Applications"* 2022 (pp. 813-822). Springer, Cham. https://doi.org/10.1007/978-3-031-05230-9_96.

5. **Feizi H**, Apaydin H, Sattari MT, Colak MS, Sibtain M. Improving reservoir inflow prediction via rolling window and deep learning-based multi-model approach: case study from Ermenek Dam, Turkey. *Stochastic Environmental Research and Risk Assessment*. 2022 Feb 16: 31493169–. https://doi.org/10.1007/s00477-022-02185-3.
6. Sattari MT, **Feizi H**, Samadianfard S, Falsafian K, Salwana E. Estimation of monthly and seasonal precipitation: A comparative study using data-driven methods versus hybrid approach. *Measurement*. 2021 Mar 1; 173:108512. https://doi.org/10.1016/j.measurement.2020.108512.
7. Moghadam SV, Sharafati A, **Feizi H,** Marjaie SM, Asadollah SB, Motta D. An efficient strategy for predicting river dissolved oxygen concentration: Application of deep recurrent neural network model. *Environmental Monitoring and Assessment*. 2021 Dec;193(12):1-8. https://doi.org/10.1007/s10661-021-09586-x
8. Sattari MT, **Feizi H**, Colak MS, Ozturk A, Ozturk F, Apaydin H. Surface water quality classification using data mining approaches: Irrigation along the Aladag River. *Irrigation and Drainage*. 2021 Dec;70(5):1227-1246. https://doi.org/10.1002/ird.2594
9. Apaydin H, **Feizi H**, Sattari MT, Colak MS, Shamshirband S, Chau K-W. Comparative Analysis of Recurrent Neural Network Architectures for Reservoir Inflow Forecasting. Water. 2020; 12(5):1500. https://doi.org/10.3390/w12051500
10. Sattari MT**, Feizi H**, Colak MS, Ozturk A, Apaydin H, Ozturk F. Estimation of sodium adsorption ratio in a river with kernel-based and decision-tree models. Environ Monit Assess 192, 575. 2020. https://doi.org/10.1007/s10661-020-08506-9.
11. **Feizi H,** Dashti R, Sattari MT, Nourani V. Application of Teaching-Learning based optimization algorithms in the operation of Eleviyan reservoir considering environmental demand. *Water and Soil Science*. 2023 Sep 23;33(3):199-216. (In persian with English abstract).
12. **Feizi H**, Sattari MT, Mosaferi M. Classification of water turbidity and depth of Secchi disk using Convolutional neural network. *Journal of Environment and water engineering*. 2022. (In persian with English abstract). DOI: 10.22034/ewe.2022.349535.1795.
13. Shirzad M, **Feizi H**, Rezaei Banafsheh M. Simulations reference evapotranspiration using artificial intelligence and comparison with experimental methods. *Scientific Journal of Geography and Planning*. 2022 Jul 23;26(80):183-71. (In persian with English abstract).
14. Rouzegari N, Sattari MT, **Feizi H**. Comparison of Hydrology and Eco Hydrology Methods in Environmental Flow Estimation of Mahabad River. *Journal of Environment Science and Technology*. 2018. (In persian with English abstract)
15. Mohammadi B, **Feizi H,** Moazenzadeh, R. Comparison of the performance of SVM and ANN to estimate water equivalent of snow height in East Azerbaijan. *Journal of Rainwater Catchment System*. 2018. (In persian with English abstract)

Manuscripts Under Review / Accepted:

1- **Feizi H,** Sattari MT, Milewski A. Improving Stage-Discharge Relationship Modeling Accuracy Using a Hybrid ViT-CNN Framework, *Scientific Reports. **Accepted**, 2025.*
2- **Feizi H,** Sattari MT. Streamflow Forecasting Based on PatchTST, LSTM, and Ensemble Learning Approaches, *Water Resources Management,* **Under Review**. 2025.

Conference Papers:

3- **Feizi H**, Sattari MT, Rouzegari N. Estimating the minimum environmental flow of the river with hydrological methods. *International conference on geographic and environmental impacts of Urmia Lake conditions*. 2016. (In persian)
4- Mousavian F, **Feizi H**, Dinpashoh Y. Investigating and determining the trend of changes in qualitative parameters using parametric and non-parametric tests .*International conference on geographic and environmental impacts of Urmia Lake conditions*. 2017. (In persian)
5- **Feizi H**, Asadi E. Evaluating the effect of changes in rainfall and reservoir level on the discharge trend of Aji-Chai River. *The second national hydrology conference of Iran*. 2017. (In persian)
6- **Feizi H**, Sattari MT. Optimum operation of the Mahabad dam reservoir using differential evolution algorithm. *The second national hydrology conference of Iran*. 2017. (In persian)

RESEARCH EXPERIENCE

Doctoral thesis research in title of "**Classification of physical parameters of water quality using images under laboratory condition** ", 2019-2022.

Master of Science thesis research in the title of "**Optimum operation of the Mahabad Dam Reservoir Using Heuristic Algorithms**", 2017.

Bachelor of Science final project in the title of "**Estimation of Sodium Adsorption Ratio (SAR) in the Baranduz River using Support Vector Regression** ", 2015.

TECHNICAL SKILLS

Programming: Matlab (Optimization algorithms), Python (Machine learning and deep learning), TensorFlow, Keras, Scikit-learn, PyTorch
Other Software: SPSS, Minitab, Weka, Statistica, ARCGIS, CropWat, MS Office

TEACHING EXPERIENCE

Teacher Assistant, Water resources management, University of Tabriz. Fall 2020.

- Providing graded assignments and exams to offer tailored feedback based on course expectations and outcomes.
- Managing the classroom during labs or exams, ensuring that students adhere to academic standards and rules.
- Offering feedback to students on their academic progress, providing guidance on study strategies, and referring students to additional resources if needed.

WORK EXPERIENCE

Researcher, YÖK Mevlana Exchange Programme, 2017-2018, Ankara university, Ankara, Turkey.

- Investigating the water quality of the Aladag River in Turkey
- Data analysis and modeling based on machine learning and deep learning methods
- Publication of 4 articles extracted from the project in international journals

CERTIFICATE

- **Neural Networks and Deep Learning,** an online course authorized by DeepLearning.AI and offered through Coursera, August 18, 2025, https://coursera.org/verify/O11T1J4VNTSZ.
- **Transformer Models and BERT Model,** an online course authorized by Google Cloud and offered through Coursera, August 18, 2025, https://coursera.org/verify/MYNCO34LZKCJ.
- **GIS for Climate Action,** an online course authorized by Esri, June 19, 2024.
- **Supervised Machine Learning: Regression and Classification,** an online course authorized by DeepLearning. AI and Stanford University and offered through Coursera, October 25, 2022, https://coursera.org/verify/UHLJFHZCNBVE.
- **Machine learning with Python,** Faculty of Electrical and Computer Engineering, university of Tabriz, 2017.

HONORS AND AWARDS

First rank in PhD. (In terms of GPA), 2017-2022.
Member of Talented student's department at university of Tabriz, 2017 – 2022.
Accepted by the Mevlana Exchange Programme, Turkey. 2017-2018.

LANGUAGES

Azerbaijani	Native (Mother tongue)
Persian	Native (Mother tongue)
English	Advanced
Turkish	Fluent
Arabic	Basic