

Erfan Abdi



Education

Ph.D. in Water Resource Management, University of Tabriz, Tabriz, Iran 2025 – ...

M.Sc. in Water Resource Management, University of Tabriz, Tabriz, Iran 2022 – 2024

“Estimating Water Levels through Smartphone-Imaged Gauges: A Comparative Analysis of ANN, DL, and CNN Models”

Supervisor: Prof. Mohammad Ali Ghorbani

B.Sc. in Water Engineering, University of Tabriz, Tabriz, Iran 2018 – 2022

Publications

Published

- 1- **Erfan Abdi**, Mumtaz Ali, Celso Augusto Guimarães Santos, Adeyemi Olusola, Mohammad Ali Ghorbani. (2024). **Enhancing groundwater level prediction accuracy using interpolation techniques in deep learning models.** *Groundwater for Sustainable Development.*
- 2- Celso Augusto Guimarães Santos, Mohammad Ali Ghorbani, **Erfan Abdi**, Utkarsh Patel, Siria Sadeddin. (2024). **Estimating Water Levels through Smartphone-Imaged Gauges: A Comparative Analysis of ANN, DL, and CNN Models.** *Water Resources Management.*
- 3- Mumtaz Ali, Jesu Vedha Nayahi, **Erfan Abdi**, Mohammad Ali Ghorbani, Farzan Mohajeri, Aitazaz Ahsan Farooque, Salman Alamery. (2024) **Improving daily reference evapotranspiration forecasts: Designing AI-enabled Recurrent Neural Networks based Long Short-Term Memory.** *Ecological Informatics.*
- 4- **Erfan Abdi**, Rasool Jani, Sabere Darbandi. (2024). **Comparing the Efficacy of Deep Learning Models and Convolutional Neural Networks for Water Level Estimation using Smartphone Image Processing.** *Journal of Iran's Water Resources Research.*
- 5- **Erfan Abdi**, Rasool Jani, Sabere Darbandi. (2024). **Dynamic Modeling of Water Level Changes Using Image Processing and Machine Learning.** *Journal of Watershed Management Research.*
- 6- **Erfan Abdi**, Esmail Asadi, Mohammad Ali Ghorbani. (2024). **Comparison of interpolation methods to improve the prediction of groundwater surface level using deep learning.** *Journal of Water and Irrigation Management.*
- 7- Milad Sharafi, **Erfan Abdi**, Mahdi Mohebbiyan, Saeed Samadianfard. (2024). **Prediction of daily evapotranspiration using the strategy of combining tree models with empirical Hargreaves method.** *Water and Soil Science.*
- 8- Aynaz Vafaei, **Erfan Abdi**, Saeed Samadianfard. (2024). **Estimating soil temperature at various climates using data-driven methods.** *Water and Soil Science.*

- 9- **Erfan Abdi**, Yagob Dinpashoh. (2025). **Forecasting monthly rainfall using time series modeling and spectral analysis with Fourier model.** *Water and soil management and modelling.*
- 10- Osama Ragab Ibrahim, Aynaz Vafaei, Sanam Ansari, **Erfan Abdi**, Maryam Sifaei & Seyed Mahdi Jafari Mohammadi. (2025). **Comparative insights into independent and hybrid modeling strategies for effective river water level prediction and management.** *Modeling Earth Systems and Environment.*
- 11- **Erfan Abdi**, Tina Vahid, Osama Ragab Ibrahim & Mousa Alizadeh. (2025). **Leveraging hybrid deep learning architectures for predicting monthly precipitation in Victoria, Australia.** *Modeling Earth Systems and Environment.*
- 12- Celso Augusto Guimarães Santos, Debasmita Misra, Sophia Ghanimeh, Adeyemi Olusola, Utkarsh Patel, Golmar Golmohammadi, **Erfan Abdi**, Vahid Karimi & Mohammad Ali Ghorbani. (2025). **Designing a deep learning-based framework for the prediction of lake surface closed curves.** *Earth Science Informatics*
- 13- **Erfan Abdi**, Mohammad Taghi Sattari, Adam Milewski, and Osama Ragab. (2025). **Advancements in Hydrological Modeling: The Role of bRNN-CNN-GRU in Predicting Dam Reservoir Inflow Patterns.** *Water (MDPI).*

Under Review

- 1- Mehdi Shalchilar, Rasoul Samei, Sanam Ansari, Osama Ragab Ibrahim, and **Erfan Abdi**. (2025). **Implementing an Integrated SVM-ANN Model to Enhance the Predictive Accuracy of Monthly Wind Power Generation in the United States.** *Modeling Earth Systems and Environment.* (Under Review)
- 2- **Erfan Abdi**, Esmaeil Asadi, Seyed Mahdi Jafari Mohammadi, Osama Ragab Ibrahim. (2025). **Evaluating the Efficacy of the Tank-SLSQP Hybrid Model in Enhancing Unit Hydrograph Extraction from Precipitation and Runoff Data.** *Ecological Modelling.* (Under Review)
- 3- **Erfan Abdi**, Mohammad Taghi Sattari and Adam Milewski. (2025). **Integrating Historical Data with a GRU-CNN-LSTM Model: A Novel Approach to Daily Dam Reservoir Release Prediction.** *Applied Water Science.* (Under Review)
- 4- **Erfan Abdi**, Mohammad Ali Ghorbani, Debasmita Misra, Adeyemi Olusola, Kehinde Adeyeye. (2025). **Increasing the performance of solar panels by combining the CNN-GRU-LSTM hybrid model and meteorological data: A case study of the world's solar parks.** *Theoretical and Applied Climatology* (Under Review)
- 5- **Erfan Abdi**, Osama Ragab Ibrahim, Jesu Vedha Nayahi, Namal Rathnayake. (2024). **Integrating AI technology with convolution neural network and deep learning models to improve air temperature forecasting.** *Acta Geophysica.* (Under Review)
- 6- **Erfan Abdi**, Esmaeil Asadi, Navid Zarrintan, Osama Ragab Ibrahim. (2025). **Spatiotemporal Modeling of Groundwater Quality Utilizing Hybrid Models in the East of Lake Urmia.** *Journal of Great Lakes Research.* (Under Review)

Research Interests

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| <ul style="list-style-type: none"> ● Hydrology ● data analysis | <ul style="list-style-type: none"> ● Remote Sensing ● Groundwater Modeling |
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- Hydrological modeling
- Image Processing
- Essay Writing
- Artificial intelligence techniques
- Deep Learning
- Teamwork

Licenses and Certifications

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|---|------------|
| ● AutoCAD course (Coursera – University of Tabriz) | 2021/11/29 |
| ● ICDL course (Coursera – University of Tabriz) | 2022/10/28 |

Hobbies and Interests

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| ● Research | ● Project Management | ● Music | ● Traveling |
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Language Skills

Turkish (Mother Tongue), Persian (Native language), English