Nasrin Fathollahzadeh Attar

Personal Information

Twitter handle: @NasrinAttar

Main Website(link to all accounts):
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Address/city/country: Via Galvani15, Padua, Italy

Nationality: Iranian

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Research gate:
https://www.researchgate.net/profile/Nasrin_Fathollahzadeh_Attar

Google Scholar:
https://scholar.google.com/citations?user=XvPkQZoAAAAJ&hl=en

CV Highlights

➢ Teacher, so in constant learning

➢ Experience working in a multi-lingual environment

➢ Demonstrated expertise with modeling and analysis in R programming language

➢ Strong writing and communication skills.

➢ Experience with data visualization

➢ Fluency in English

➢ Past experience working as part of a remote/virtual team.

➢ Experience working with GIS platform

➢ Large time-series datasets management and analysis

➢ Statistics and uncertainty analysis (probabilistic)

➢ Weather modelling (Numerical Weather Prediction)

➢ Experience in machine-learning methods

Research Experience

-15 Oct 2022-now

➢ *Qualification***:** "Post-doctoral research fellow", University of Padua, Italy

*Post-Doc Research Title***:** "Extreme Storms in the Italian North-East: frequency, impacts and projected changes"

-21 Dec 2020-21 Dec 2021

➢ *Qualification*: "Post-doctoral research fellow", University of Tabriz, Iran

Post-Doc Research Title: "Hydrometeorological Parameters Modelling Assessment using Threshold and Machine Learning Techniques"

Education

➢ **Sep. 2016-Sep. 2019**

➢ *Qualification*: Ph.D. in "Water Resources Engineering", Urmia University, Iran

Provider: Urmia university

Address: **Iran, Urmia,** Postal code: 5756151818

Ph.D. Thesis Title: "Investigation of Different Time Series and Artificial Intelligence Modeling Efficiency in Forecasting Hydrological Parameters in Iran"

Thesis Grade: 19.90 out of 20

GPA: 19.13 out of 20.00

Supervisor: Dr. Keivan Khalili and Prof. Javad Behmanesh

➢ **21 Apr. 2018-25 Oct. 2018**
➢ **Visiting Scholar: The University of Adelaide (Top 100 Universities in the world in civil and environmental engineering)**

Research period: Adelaide Australia

Supervisor: Prof. Holger Maier

Australia project in progress: An Excel Add-in for Developing Artificial Neural Network Models using State-of-the-Art Methods for Data Splitting and Input Variable Selection-- In progress

➢ **Sep. 2014-Sep. 2016**
➢ *Qualification*: M.Sc. in "Water engineering", Urmia University, Iran

Provider: Urmia university

Address: **Iran, Urmia,** Postal code: 5756151818

M. Sc. Thesis Title: "Cropping Pattern incorporating of climate change and virtual water in Urmia lake basin."

Thesis Grade: 19.5 out of 20

GPA: 18.18 out of 20.00

Supervisor: Prof. Majid Montaseri

- **Sep. 2009-Sep. 2014**
- *Qualification***:** B.S in "Water engineering", Urmia University, Iran

> *Provider***:** Urmia university

> *Address***: Iran, Urmia,** Postal code: 5756151818

> *BS Thesis Title***:** "Water quality modeling using wasp software."

Online Experiences (Invited Speaker and Volunteer works)

- ***4 December 2020****: Invited speaker to the 13th conference of ASCE woman Water nexus with the title of "Machine learning and applied data-driven methods for water resources*

- ***5-9 July 2021****: member of the useR!2021 conference team as a host* https://lnkd.in/etnMiz7

- **Technical Review Experience**

Peer reviewer; For more information: https://www.webofscience.com/wos/author/record/P-6175-2017

- **EWRI's Women-Water NEXUS(ASCE)**

Moderator and Member of book club (All books about water and water resources)

- **May 2021-present**

Rladies Urmia Founder

- **Jan 2022-Invited speaker**

Iranian committee on Large Dams

- **Feb 2022-Speaker**

Spoke for more than 20 people on "How to use Git-Hub in R" in Persian

- **March 2022-Invited Speaker**

Spoke for the Oulu university (Finland) on the application of R software in water science

Publications

ISI Papers:

1- On the Reliability of Data Mining and Artificial Intelligent Methods in the Estimation of Dew Point Temperature: The case of arid regions of Iran_ Journal of **computers and electronics in agriculture**. **2018** https://www.sciencedirect.com/science/article/pii/S0168169918303727?via%3Dihub

2- Enhancing the prediction accuracy of data-driven approaches for

monthly streamflow in Urmia Lake Basin based upon the autoregressive conditionally heteroskedastic time series model -**Applied sciences journal**, **MDPI,2020**: https://www.mdpi.com/2076-3417/10/2/571

3- Physicochemical Parameters Data Assimilation for Efficient Improvement of Water Quality Index Prediction: Comprehensive Review and Comparative Assessment-**Journal of Cleaner Production**: https://www.sciencedirect.com/science/article/abs/pii/S0959652620326238?via%3Dihub

4- Monthly Streamflow Prediction Using Hybrid models of Gene Expression Programming with Autoregressive Conditional Heteroscedasticity and Self-Exciting Threshold Autoregressive: **Engineering Applications of Computational Fluid Mechanics Journal,2020:** https://www.tandfonline.com/doi/full/10.1080/19942060.2020.1830858

5- A gradient boosting tree approach for SPEI classification and prediction in Turkey: **Hydrological Sciences journal (THSJ),2021**: https://doi.org/10.1080/02626667.2021.1962884.

6- Comprehensive review of solar radiation modeling based on artificial intelligence and optimization techniques: future concerns and considerations: **Clean Technologies and Environmental Policy,2023**: https://link.springer.com/article/10.1007/s10098-022-02434-7

7- Daily Streamflow Time Series Modeling by Using a Periodic Autoregressive Model (ARMA) Based on Fuzzy Clustering, **water2023**: https://www.mdpi.com/2073-4441/14/23/3932

8- Assessing land use changes' effect on river water quality in the Dez Basin using land change modeler: **Environmental Monitoring and Assessment 2023**: https://link.springer.com/article/10.1007/s10661-023-11265-y

9- Climate change impacts on snow cover area and snowmelt runoff in the Ajichai Basin-Iran: **International Journal of climatology 2023**: https://rmets.onlinelibrary.wiley.com/doi/abs/10.1002/joc.8130

10- GTAR: a new ensemble evolutionary autoregressive approach to model dissolved organic carbon: **AQUA-Water Infrastructure, Ecosystems and Society 2023:** https://iwaponline.com/aqua/article/72/3/381/93862/GTAR-a-new-ensemble-evolutionary-autoregressive

11- Australia project: An Excel Add-in for Developing Artificial Neural Network Models using State-of-the-Art Methods for Data Splitting and Input Variable Selection

12- A novel stochastic tree model for daily streamflow prediction based on a noise suppression hybridization algorithm and efficient uncertainty quantification: **Journal of Hydrology**: Under review

ISC papers (national publications):

13- Prediction of daily reference evapotranspiration using hybrid artificial intelligence method based on empirical mode decomposition:

http://idj.iaid.ir/article_114909_en.html

Conference papers:

International Conferences

14- Extreme windstorm hazard in northern Italy using non-asymptotic statistics-EGU 2023, Oral presentation: https://meetingorganizer.copernicus.org/EGU23/EGU23-731.html

15- On the Use of Emotional Artificial Neural Network (EANN) and Classification and Regression Tree Technique (CART) Models for Estimating of Minimum and Maximum Air Temperature in Selected Semi-Arid Stations of IRAN—Bilmes congress 7-10 November—Ankara-Turkey. www.bilmescongress.com

National Conferences

16- Introducing to virtual water and determining the pattern of cultivation by applying virtual water effect based on three economic perspectives, unit yield, and energy performance Case Study (Urmia Plain)—Published in Persian

17- Providing a solution to prevent the water crisis, virtual water, and calorie products. Case Study of Urmia Plain—Published in Persian

18- Presenting a New Cultivation Optimization Model Based on Natural Calorie Water Products in Water Management (Case Study: Urmia Plain)—Published in Persian

19- Investigation of Chlorine Dispersion in Groundwater of Urmia Lake Basin—Published in Persian

20- Accessing groundwater quality using GIS interpolation techniques (case study: Urmia plain)—Published in Persian

21- Comparison of fitting distribution functions for calculating the maximum instantaneous return flow rate (a case study of Babolroud River)—Published in Persian

22- Determination of statistical superiority distribution using PPCC for hydrologic analysis using river discharge data—Published in Persian

23- Contamination of water resources Careers Challenges and Solutions—Published in Persian

24- Investigating the capability of models, indicators and water quality equations—Published in Persian

25- Evaluation of the Performance of Nonlinear Threshold Time Series Models in Monthly Streamflow Modeling—Published in Persian

26- Investigation of water quality index of wastewater by presenting a new method (Case Study: Shahrchay River, Urmia) —Published in Persian

27- Pan Evaporation Modeling Using New Combined Time Series and Neural Network Methods in Different Climates of Iran—Published in Persian

28- Estimation of reference evapotranspiration under limited meteorological data at Khorramdareh station using experimental formula and artificial neural network(ANN)—Published in Persian

29- Ranking of Criteria for Preventing Irregular Land Development Using Fuzzy Analytic Hierarchy Process (FAHP) —Published in Persian

Thesis co-supervisor

Doctoral thesis

- *Amin Amini, Urmia University; Title:"* Surveying trends of snow cover changes in Iran*", Defended in 2023*

➢ *Master's thesis*

- *Bakhshali Hatam zadeh, Saba University; Title: "Qualitative Analysis of Urmia water treatment plant influent using WQI index", Defended in May 2019 with a high ranked conference paper*

- *Neda Asemani, Saba University, Title: "Modelling and forecasting of air pollution indexes (Case Study: Urmia city), Defended in Feb 2020*

- *Maryam Vasef, Urmia University, Title: "Land development prohibition prioritization using optimization methods", Defended in September 2020 with one high ranked conference paper*

- *Amin Amin ashayeri, Urmia University, Title: "Enhancement of the accuracy of reference evapotranspiration prediction using preprocessing and artificial intelligence methods combination", Defended in September 2020 with one national high ranked paper*

- *Leila Rezavandi, Urmia University, Title: "Investigation of Flood Routing in Roughened Prismatic Compound Channels", in progress*

- *Sajad Arbabi, Tabriz University, Title: "Precipitation modelling based on spatio-termal variation in the catchment area of Urmia lake basin using a hybrid approach of GIS and Machine learning", in progress*

- *Naghmeh Ziyafati, Urmia University, Title: "Statistical comparison between drought indicators and trend determination using ITA (Innovative Trend Analysis) method in Urmia Lake basin", in progress*

Teaching Experiences

- *Feb.2022-Oct 2022*

  Invited lecturer to Urmia University~ Course title: Water resources engineering and Water resources projects

- *Feb. 2022- Oct 2022*

  -Lecturer for B.SC students at Urmia University of Technology (UUT)~ Course title: Hydraulic Structures
  -Lecturer for B.SC students at Urmia University (UU)~ Course title: Water resources engineering
  -Lecturer for B.SC students at Urmia University (UU)~ Course title: Water resources project

- *Conducted classes During COVID-Present*

- *Free paper writing and reference management workshops for students*
- *Free Excel workshop for students*
- *Paid R software workshops for students and teachers*
- *Paid GIS software workshops for students*
- *Maintained regular contact and correspondence with students*
- *Paid SPSS software workshop for Iran water resources management company*
- **Feb. 2020 –July 2020**

Lecturer for B.SC students at Urmia University of Technology (UUT)~ Course title: Open channel Hydraulics

- **Sep 2017- Sep 2019**

Lecturer for MS.C. students at Saba university of Urmia ~Course title: Modeling the transmission and emission of pollutants in ground water for two terms

➢ **Sep.2017-Present**

Supervision of upper graduate students:

• Supervised 5 students in final projects of their master degree and doctoral project

➢ **Sep 2016-Sep. 2017**

Part time teaching experiences (TA)

- *Led weekly laboratory sessions of meteorology~35 sophomores*
- *Met with students upon requests*

➢ **Sep 2014-Sep. 2015**

Part time TEFL English teacher in Urmia Language Institute with the degree of teaching knowledge test (TKT) formatted by Cambridge English language assessment

Work History

➢ **May 2021-present**

Rladies Urmia Founder: I founded the R-Ladies Urmia as part of a larger community of R-Ladies Global "http://rladies.org/". We have very strong and talented ladies in our group. We attempt to promote gender diversity in the R community by encouraging and empowering people of genders currently underrepresented in the R community. https://www.linkedin.com/company/78608347

➢ **August 2020-December 2020**

Project manager of "Assessing the feasibility of water markets in Iran; The case of Urmia Lake Basin" with the fund of Provincial Government of west Azerbaijan, Urmia, Iran

➢ **August 2020-December 2020**

Irrigation systems Designing and consultancy in Stilla consulting group, Urmia, Iran

➢ **Sep 2019-Present**

The committee member of Urmia Lake Research Institute working on the project of "land use regulations; The case of Urmia Lake Basin "; with the fund of Urmia Lake Restoration Program http://www.ulrp.ir/en/

Awards and Honors

➢ **Innovation award** in creating a drought forecasting platform in the global AI Innovation challenge in October 2021 as a Fortune teller team.
➢ Ranked **51 in the Master entrance exam** of Iran among 10000 people
➢ An Elite student of Urmia University
➢ Ranked **5th** student among 55 people in B.Sc.
➢ Ranked **1th** student among 15 people in M.Sc.
➢ Ranked **Top Student** in Ph.D. at Urmia University (GPA: 19.13/20)
➢ Ranked **42 in the Ph.D. entrance exam** of Iran among 1500.
➢ Awarded **full scholarship** for 6 months research in **Australia**, The University of Adelaide

Research Interests

Research purpose:

Time series modeling approaches and artificial neural network modeling are known as useful tools for simulating and forecasting hydrologic variables.

1. Comparison of the Efficiency of Linear and Nonlinear Time Series Models, for modeling Hydrological Parameters in Different Climates
2. Analysis of the Efficiency of Combined Time Series Models in Each Climate
3. Time series modeling using the Artificial Neural Networks models
4. Integration of nonlinear time series models with intelligent models (new hybrid models)
5. Remote sensing techniques in water engineering

Interests:

1. Teaching
2. Looking for opportunities to work for water projects using current edge tools where acquired professional skills & education will be utilized towards the organization's growth and advancement.
3. Acquire the highest level of professionalism through constant learning.
4. Interested in the areas of statistical hydrology and water resources engineering and management, with a particular focus on modeling of environmental and water resources processes.
5. Interested in hydro informatics, Stochastic modeling
6. Interested in environmental sciences

Familiarity with Computer Systems

➢ **Engineering software**	The GIS (professional), Water-related software, Eviews, Statistica, ITSM, SAMS, Easyfit, SPSS, Stata, Minitab, HEC-packages, WEKA, Remote sensing (ENVI)
➢ **Computer Programing**	Matlab (intermediate) ,R (Advanced), Python (Beginner)

Language Proficiency

➢ **English**	Fluent
➢ **Persian(Farsi)**	Native
➢ **Azeri**	Mother tongue
➢ **Turkish**	Fluent
➢ **German**	Basic
➢ **Italian**	Basic

References

- **Prof. Holger R. Maier**

  Full Professor (The University of Adelaide, Adelaide, South Australia)

  Email: **holger.maier@adelaide.edu.au**

- **Prof. Majid Montaseri**

  Full Professor (Urmia University, Urmia, Iran)

  Email: **m.montaseri@hotmail.com**

- **Dr. Keivan Khalili**

  Associate Professor (Urmia University, Urmia, Iran)

  Email: **k.khalili2006@gmail.com**

- **Prof. Javad Behmanesh**

  Full Professor (Urmia University, Urmia, Iran)

  Email: **j.behmanesh@urmia.ac.ir**

- **Prof. Francesco Marra**

  Assistance Professor (University of Padua, Italy)

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Updated: 8 February, 2024

Nasrin Fathollahzadeh Attar