



Ruhollah Taghizadeh

POSTDOC RESEARCHER

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About me

My primary research interest is in **Pedometrics** with a particular focus on **Digital Soil Mapping**. The core of the pedometric approach integrates soil system knowledge with **Machine Learning**, advanced statistical methods, **Geospatial Data Analysis**, and **Remote Sensing**. I apply the most recent technology in spatial data analysis to model and predict various environmental metrics such as soils, water, vegetation, and climate.

Experience

Department of Geosciences, University of Tübingen, Germany Postdoc Researcher	2017-Present
Department of Plant Science, South Dakota State University, USA Postdoc Researcher (<i>three months</i>)	2016
Faculty of Agriculture, Ardakan University, Iran Assistant Professor	2013-2017
Department of Soil and Water, Agricultural Research Center, Iran Geospatial Consultant	2010-2011

Education

Faculty of Agricultural Engineering and Technology, University of Tehran, Iran Doctor of Philosophy in Agricultural Engineering-Soil Science	2012
Sydney Institute of Agriculture, The University of Sydney, Australia Postgraduate Visiting Scholar in Digital Soil Mapping (<i>six months</i>)	2012
Faculty of Agricultural Engineering and Technology, University of Tehran, Iran Master of Science in Agricultural Engineering-Soil Science	2008
Faculty of Agriculture, SB University of Kerman, Iran Bachelor of Science in Agricultural Engineering-Soil Science	2005

Projects

German Research Foundation Sensitivity and Response of Himalayan Timberline Ecotones to Global Warming (<i>Collaborator</i>)	2022
German Research Foundation Transferability of Machine Learning for Soil Mapping (<i>Collaborator</i>)	2020
Iranian Agricultural Research, Education & Extension Organization Digital Soil Mapping in Kurdistan (<i>Collaborator</i>)	2019
Alexander von Humboldt Foundation Digital Soil Mapping with Limited Data (<i>Principal Investigator</i>)	2017

Research Interests

Pedology; Digital Soil Mapping, Remote and Proximal Sensing, Geographic Information System, Geospatial Data Analysis, Data Science, Machine Learning, Statistical Inference, Soil Health, Climate Change, Precision Agriculture

Teaching

Teaching Assistant at University of Tübingen, Germany


- Spatial Pedology and Geomorphology
- Statistics

2020-Present

GS

UGS

Workshop Lecturer

- An introduction to Spatial Analysis in QGIS, University of Tübingen (*two hours-online*) 2022
- An introduction to GIS, University of Tübingen (*two hours-online*) 2022
- Spatial Data Analysis in R, Iranian Soil & Water Research Institute  (*seven days-online*) 2021
- Digital Soil Mapping in R, Iranian Soil & Water Research Institute (*two days*) 2016
- Data Mining in Soil Sciences, Iranian Soil & Water Research Institute (*two days*) 2016

Fellowships, Honors, Awards

- Five Nominated Pedometrics Best Paper 2020
- Alexander von Humboldt Postdoctoral Fellowship 2017
- Lecturer Award at Ardakan University 2017

Professional Services

- Award Committee Member of the Pedometrics Commission 2022-Present
- Executive Board Member of International Soil Modeling Consortium 2022-Present
- Associate Editor of Frontiers in Soil Science/Pedometrics 2022-Present
- Webmaster of Pedometrics Homepage 2022-Present

Professional Training

- Associate Data Scientist, DataCamp 2023
- Data Scientist with R, DataCamp 2023
- Open Source Solutions for Earth System Data, OpenGeoHub 2022
- Oxford Machine Learning Summer School, AI for Global Goals 2022
- Science Communication, University of Tübingen 2022
- Agile Project Management for Research, University of Tübingen 2022
- Spatial Sampling, Wageningen University & Research 2021
- Leading Virtual Teams, University of Tübingen 2021
- Uncertainty Propagation in Spatial Modelling, Wageningen University & Research 2020
- Geostatistics, Wageningen University & Research 2019
- GEOSTAT Summer School, OpenGeoHub 2018
- Digital Soil Mapping, ISRIC 2018
- Digital Soil Mapping with R, The University of Sydney 2012

Technical Skills

Programming

- R ★★★★★☆
- R Markdown ★★☆☆☆☆
- Python ★☆☆☆☆☆

Spatial Data Analysis

- QGIS ★★★★★★
- ArcMap ★★★★★★
- Google Earth Engine ★★★★★☆

Statistics

- JMP ★★★★★★
- SPSS ★★★★★☆
- Minitab ★★★★★☆

Microsoft Office

- Word, Excel, PowerPoint ★★★★★★

Field Work

Soil Sampling, Soil Survey, Geophysical Surveys, Soil Erosion Surveys
Soil Sampling, Soil Survey, Land Evaluation
Soil Sampling

Iran
Kenya
USA

Research Impacts

Publications

Peer Reviewed Journals	87
- First Author	21
- Co-First Author	3
- Last Author	18
- Corresponding Author	25
Book Chapters	3
Book Editor (in Persian)	1
Presentations	17

H-Index

Google Scholar	29
Scopus	25
Web of Science	25

Citation

Google Scholar	2756
Scopus	2072
Web of Science	1821

Publications

SELECTED PAPERS (* INDICATES CORRESPONDING AUTHOR)

1. **Taghizadeh-Mehrjardi, R.***; Sheikhpour, R.; Zeraatpisheh, M.; Amirian-Chakan, A.; Toomanian, N.; Kerry, R.; Scholten, T. *Semi-Supervised Learning for the Spatial Extrapolation of Soil Information*. Geoderma 2022, 426, 116094, doi:10.1016/j.geoderma.2022.116094.
2. **Taghizadeh-Mehrjardi, R.***; Schmidt, K.; Toomanian, N.; Heung, B.; Behrens, T.; Mosavi, A.; S. Band, S.; Amirian-Chakan, A.; Fathabadi, A.; Scholten, T. *Improving the Spatial Prediction of Soil Salinity in Arid Regions Using Wavelet Transformation and Support Vector Regression Models*. Geoderma 2021, 383, 114793, doi:10.1016/j.geoderma.2020.114793.
3. **Taghizadeh-Mehrjardi, R.**; Hamzehpour, N.; Hassanzadeh, M.; Heung, B.; Ghebleh Goydaragh, M.; Schmidt, K.; Scholten, T. *Enhancing the Accuracy of Machine Learning Models Using the Super Learner Technique in Digital Soil Mapping*. Geoderma 2021, 399, 115108, doi:10.1016/j.geoderma.2021.115108.
4. **Taghizadeh-Mehrjardi, R.***; Mahdianpari, M.; Mohammadimanesh, F.; Behrens, T.; Toomanian, N.; Scholten, T.; Schmidt, K. *Multi-Task Convolutional Neural Networks Outperformed Random Forest for Mapping Soil Particle Size Fractions in Central Iran*. Geoderma 2020, 376, 114552, doi:10.1016/j.geoderma.2020.114552.
5. **Taghizadeh-Mehrjardi, R.***; Nabiollahi, K.; Minasny, B.; Triantafyllis, J. *Comparing Data Mining Classifiers to Predict Spatial Distribution of USDA-Family Soil Groups in Baneh Region, Iran*. Geoderma 2015, 253–254, 67–77, doi:10.1016/j.geoderma.2015.04.008.

All Papers → Google Scholar  and ResearchGate 