



Ruhollah Taghizadeh

POSTDOC RESEARCHER

Department of Geosciences, University of Tübingen

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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 advanced statistical methods, **Machine Learning**, geoinformatics, 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	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	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; Spatial Data Analysis; 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
- An introduction to GIS, University of Tübingen
- Spatial Data in R, Iranian Soil & Water Research Institute 
- Digital Soil Mapping in R, Iranian Soil & Water Research Institute
- Data Mining in Soil Sciences, Iranian Soil & Water Research Institute

2013-Present

2 hrs.-2022

2 hrs.-2022

7 days online-2022

2 days-2016

2 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

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

R

R Markdown

Python

Git/GitHub

QGIS

ArcMap

SAGA GIS

Google Earth Engine

ENVI

JMP

RapidMiner, Weka

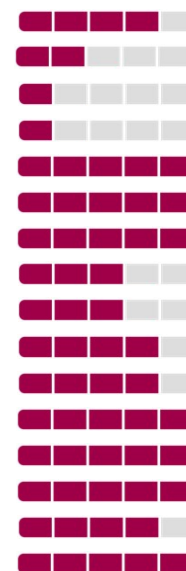
Office (Word, Excel, PowerPoint)

Digital Soil mapping

Soil Chemical and Physical Analysis

Soil Mineralogical and Micromorphological Analysis

Description, Classification and Interpretation of Soils in the Field



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	85
- <i>First Author</i>	21
- <i>Co-First Author</i>	3
- <i>Last Author</i>	17
- <i>Corresponding Author</i>	25
Book Chapters	3
Book Editor (<i>in Persian</i>)	1
Presentations	17

H-Index

Google Scholar	28
Scopus	25
Web of Science	24

Citation

Google Scholar	2692
Scopus	2006
Web of Science	1769

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 