

Ruhollah Taghizadeh

POSTDOC RESEARCHER

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About me_

My primary research interest is in Pedometrics with a particular focus on remote/proximal soil sensing and Digital Soil Mapping. The core of the pedometric approach integrates soil system knowledge with applied statistics, 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 (Collaborator)	2022
German Research Foundation Transferability of Machine Learning for Soil Mapping (Collaborator)	2020
Iranian Agricultural Research, Education & Extension Organization Digital Soil Mapping in Kurdistan (Collaborator)	2019
Alexander von Humboldt Foundation Digital Soil Mapping with Limited Data (Principal Investigator)	2017
Decease la la terresta	

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
Assistant Professor at Ardakan University, Iran - Soil Genesis and Classification - Soil Erosion and Conservation - Fundamentals of Soil Science - Saline Soil Management	2013-2020 UGS UGS UGS GS
Guest Lecturer at Yazd University, Iran - Soil Mapping - Land Evaluation	2013-2017 GS GS
Guest Lecturer at Shahid Sadoughi University of Medical Sciences, Iran - Geographic Information System	2009-2011 UGS, UG
Guest Lecturer at Khorramshahr University of Marine Science and Technology, Iran - Fundamentals of Soil Science	2009-2011 UGS
Teaching Assistant at University of Tehran, Iran - Fundamentals of Soil Science (Lab)	2009-2011 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 - Modelling in Soil Sciences, Iranian Soil Science Congress	2013-Present 2 hrs2022 2 hrs2022 7 days online-2022 2 days-2016 2 days-2016 4 hrs2014

Supervising Experience

2013-Present

- Co-supervising 4 and advising 15 Ph.D. students
- Supervising 5 and advising 16 M.Sc. students
- Supervising 5 B.Sc. students

Fellowships, Honors, Awards _____

Top 2% Scientists: List Developed by a Standford-Elsevier	2022
Workshop Grant Award: A European Civic University	2022
Top 2% Scientists: List Developed by a Standford-Elsevier	2021
Top Paper: Five Nominated Pedometrics Best Paper	2020
Travel Grant Award: 14 Conferences, University of Tübingen	2017-Present
Postdoctoral Fellowship: Alexander von Humboldt Foundation	2017
Top Research Grant Award: Ardakan University (20,000\$)	2013-Present
Top Lecturer Award: Ardakan University	2017
Top Researcher Award: Ardakan University	2016
Top Ph.D. Student: GPA of 18/20, University of Tehran	2012
Visiting Fellowship: IR Ministry of Science, Research & Technology	2011
Member: Iran's National Elites Foundation	2010
Postgraduate Fellowship: IR Ministry of Science, Research & Technology	2009
Top Student Researcher Award: University of Tehran	2009
Top M.Sc. Student: GPA of 18/20, University of Tehran	2008
Top B.Sc. Student: GPA of 17/20, SB University of Kerman	2005
Top %0.8: Iranian National University Entrance Exam	2001

Professional Services

Professional Services (continued) -> _____

Executive Board Members of ISMC	2022-Present
Associate Editor of Frontiers in Soil Science/Pedometrics	2022-Present
Webmaster of Pedometrics Homepage	2022-Present
Editorial Board of Soil Studies	2022-Present
Editorial Board of Levantine Journal of Applied Sciences	2022-Present
The Organizer of Cabon4Green Workshop Funded by A European Civic University	2022
Guest Editor of Frontiers in Environmental Science	2022-Present
The Organizer of Scientific Workshops, S-Project, SFB 1070, University of Tübingen	2021-Present
Guest Editor of Frontiers in Soil Science	2021-Present
Guest Editor of Agronomy	2020-Present
Member of European Geosciences Union	2017-Present
Member of German Soil Science Society	2017-Present
Head of Department Horticultural Science, Ardakan University	2017
Executive Chairman of 1th Conference of Agriculture, Ardakan University	2017
The Organizer of Workshops, Ardakan University	2013-2017
Review Panel for National Salinity Research Center	2013-2017
Reviewed >200 papers from >20 journals	2013-Present

Professional Training ______

Open Source Solutions for Earth System Data, OpenGeoHub	2022
Modeling Water Fluxes in the Soil-Plant System, UCLouvain	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
Research Funding from Industry, University of Tübingen	2021
Leading Virtual Teams, University of Tübingen	2021
Grant Proposal Writing, 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
Ph.D. Supervision Process, University of Tübingen	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

Languages_

English German Persian



Research Impacts_

Publications	
- Peer Reviewed Journals	85
- First Author	21
- Co-First Author	3
- Last Author	17
- Corresponding Author	25
- Book Chapters	3
- Book Editor (in Persian)	1
- Presentations	17
H-Index	
- Google Scholar	28
- Scopus	25
- Web of Science	24
Citation	
- Google Scholar	2665
- Scopus	1985
- Web of Science	1764

Publications

SELECTED PAPERS (* INDICATES CORRESPONDING AUTHOR; ^ INDICATES CO-FIRST 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.
- 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.; Triantafilis, 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

1. Zolfaghari Nia, M.; Moradi, M.; Moradi, G.; **Taghizadeh-Mehrjardi, R***. Machine Learning Models for Prediction of Soil Properties in the Riparian Forests. Land 2023, 12, 32, doi:10.3390/land12010032.

- Zeraatpisheh, M.; Garosi, Y.; Reza Owliaie, H.; Ayoubi, S.; Taghizadeh-Mehrjardi, R.; Scholten, T.; Xu, M. Improving the Spatial Prediction of Soil Organic Carbon Using Environmental Covariates Selection: A Comparison of a Group of Environmental Covariates. CATENA 2022, 208, 105723, doi:10.1016/j.catena.2021. 105723.
- 3. Zeraatpisheh, M.; Bottega, E.L.; Bakhshandeh, E.; Owliaie, H.R.; **Taghizadeh-Mehrjardi, R.**; Kerry, R.; Scholten, T.; Xu, M. Spatial Variability of Soil Quality within Management Zones: Homogeneity and Purity of Delineated Zones. CATENA 2022, 209, 105835, doi:10.1016/j.catena.2021.105835.
- 4. **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.
- 5. **Taghizadeh-Mehrjardi, R.**; Khademi, H.; Khayamim, F.; Zeraatpisheh, M.; Heung, B.; Scholten, T. A Comparison of Model Averaging Techniques to Predict the Spatial Distribution of Soil Properties. Remote Sensing 2022, 14, 472, doi:10.3390/rs14030472.
- 6. Taghipour, K.; Heydari, M.; Kooch, Y.; Fathizad, H.; Heung, B.; **Taghizadeh-Mehrjardi, R**. Assessing Changes in Soil Quality between Protected and Degraded Forests Using Digital Soil Mapping for Semiarid Oak Forests, Iran. CATENA 2022, 213, 106204, doi:10.1016/j.catena.2022.106204.
- 7. Sohrabizadeh, Z.; Sodaeizadeh, H.; Hakimzadeh, M.A.; **Taghizadeh-Mehrjardi, R.**; Ghanei Bafghi, M.J. A Statistical Approach to Study the Spatial Heavy Metal Distribution in Soils in the Kushk Mine, Iran. Geoscience Data Journal 2022, doi:10.1002/gdj3.175.
- 8. Shirzadi, A.; Shahabi, H.; Nabiollahi, K.; **Taghizadeh-Mehrjardi, R.**; Lizaga, I.; Clague, J.J.; Singh, S.K.; Golmohamadi, F.; Ahmad, A. Towards Robust Smart Data-Driven Soil Erodibility Index Prediction under Different Scenarios. Geocarto International 2022, 0, 1–34, doi:10.1080/10106049.2022.2076918.
- Shahabi, A.; Nabiollahi, K.; Davari, M.; Zeraatpisheh, M.; Heung, B.; Scholten, T.; Taghizadeh-Mehrjardi, R. Spatial Prediction of Soil Properties through Hybridized Random Forest Model and Combination of Reflectance Spectroscopy and Environmental Covariates. Geocarto International 2022, 0, 1–24, doi:10.1080/10106049.2022.2138565.
- 10. Mirzaeitalarposhti, R.; Shafizadeh-Moghadam, H.; **Taghizadeh-Mehrjardi, R.**; Demyan, M.S. Digital Soil Texture Mapping and Spatial Transferability of Machine Learning Models Using Sentinel-1, Sentinel-2, and Terrain-Derived Covariates. Remote Sensing 2022, 14, 5909, doi:10.3390/rs14235909.
- 11. Mallah, S.; Delsouz Khaki, B.; Davatgar, N.; Scholten, T.; Amirian-Chakan, A.; Emadi, M.; Kerry, R.; Mosavi, A.H.; **Taghizadeh-Mehrjardi, R***. Predicting Soil Textural Classes Using Random Forest Models: Learning from Imbalanced Dataset. Agronomy 2022, 12, 2613, doi:10.3390/agronomy12112613.
- 12. Mahmoudzadeh, H.; Matinfar, H.R.; Kerry, R.; Eskandari, S.; Ebrahimi-Khusfi, Z.; **Taghizadeh-Mehrjardi, R.** New Hybrid Evolutionary Models for Spatial Prediction of Soil Properties in Kurdistan. Soil Use and Management 2022, 38, 191–211, doi:10.1111/sum.12753.
- 13. Fathizad, H.; **Taghizadeh-Mehrjardi, R.***; Hakimzadeh Ardakani, M.A.; Zeraatpisheh, M.; Heung, B.; Scholten, T. Spatiotemporal Assessment of Soil Organic Carbon Change Using Machine-Learning in Arid Regions. Agronomy 2022, 12, 628, doi:10.3390/agronomy12030628.
- 14. Emami, S.; Alikhani, H.A.; Pourbabaee, A.A.; Etesami, H.; Sarmadian, F.; Motesharezadeh, B.; **Taghizadeh-Mehrjardi, R**. Performance Evaluation of Phosphate-Solubilizing Fluorescent Pseudomonads in Minimizing Phosphorus Fertilizer Use and Improving Wheat Productivity: A Two-Year Field Study. J Soil Sci Plant Nutr 2022, 22, 1224–1237, doi:10.1007/s42729-021-00726-3.
- 15. Cheshmberah, F.; Zolfaghari, A.A.; **Taghizadeh-Mehrjardi, R.**; Scholten, T. Evaluation of Mathematical Models for Predicting Particle Size Distribution Using Digital Soil Mapping in Semiarid Agricultural Lands. Geocarto International 2022, 0, 1–23, doi:10.1080/10106049.2022.2076911.
- 16. **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.

- 17. **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.
- 18. **Taghizadeh-Mehrjardi, R.***; Fathizad, H.; Ali Hakimzadeh Ardakani, M.; Sodaiezadeh, H.; Kerry, R.; Heung, B.; Scholten, T. Spatio-Temporal Analysis of Heavy Metals in Arid Soils at the Catchment Scale Using Digital Soil Assessment and a Random Forest Model. Remote Sensing 2021, 13, 1698, doi:10.3390/rs13091698.
- 19. **Taghizadeh-Mehrjardi, R.***; Emadi, M.; Cherati, A.; Heung, B.; Mosavi, A.; Scholten, T. Bio-Inspired Hybridization of Artificial Neural Networks: An Application for Mapping the Spatial Distribution of Soil Texture Fractions. Remote Sensing 2021, 13, 1025, doi:10.3390/rs13051025.
- 20. Soltani-Gerdefaramarzi, S.; **Taghizadeh-Mehrjardi, R.**; Kerry, R.; Shirmardi, M. Effect of Interceptor Drainage on Phosphorus Transport and Soil Chemical Characteristics under Different Cultivation Conditions. Paddy Water Environ 2021, 19, 585–594, doi:10.1007/s10333-021-00856-5.
- 21. Rostaminia, M.; Rahmani, A.; Mousavi, S.R.; **Taghizadeh-Mehrjardi, R.**; Maghsodi, Z. Spatial Prediction of Soil Organic Carbon Stocks in an Arid Rangeland Using Machine Learning Algorithms. Environ Monit Assess 2021, 193, 815, doi:10.1007/s10661-021-09543-8.
- 22. Poppiel, R.R.; Demattê, J.A.M.; Rosin, N.A.; Campos, L.R.; Tayebi, M.; Bonfatti, B.R.; Ayoubi, S.; Tajik, S.; Afshar, F.A.; Jafari, A.; et al. High Resolution Middle Eastern Soil Attributes Mapping via Open Data and Cloud Computing. Geoderma 2021, 385, 114890, doi:10.1016/j.geoderma.2020.114890.
- 23. Nabiollahi, K.; **Taghizadeh-Mehrjardi, R.**^; Shahabi, A.; Heung, B.; Amirian-Chakan, A.; Davari, M.; Scholten, T. Assessing Agricultural Salt-Affected Land Using Digital Soil Mapping and Hybridized Random Forests. Geoderma 2021, 385, 114858, doi:10.1016/j.geoderma.2020.114858.
- 24. Nabiollahi, K.; Shahlaee, S.; Zahedi, S.; **Taghizadeh-Mehrjardi, R.**; Kerry, R.; Scholten, T. Land Use and Soil Organic Carbon Stocks—Change Detection over Time Using Digital Soil Assessment: A Case Study from Kamyaran Region, Iran (1988–2018). Agronomy 2021, 11, 597, doi:10.3390/agronomy11030597.
- 25. Morsy, M.; **Taghizadeh-Mehrjardi, R.**; Michaelides, S.; Scholten, T.; Dietrich, P.; Schmidt, K. Optimization of Rain Gauge Networks for Arid Regions Based on Remote Sensing Data. Remote Sensing 2021, 13, 4243, doi: 10.3390/rs13214243.
- 26. Khojasteh, D.N.; Goudarzi, G.; **Taghizadeh-Mehrjardi, R.**; Asumadu-Sakyi, A.B.; Fehresti-Sani, M. Long-Term Effects of Outdoor Air Pollution on Mortality and Morbidity–Prediction Using Nonlinear Autoregressive and Artificial Neural Networks Models. Atmospheric Pollution Research 2021, 12, 46–56, doi:10.1016/j.apr. 2020.10.007.
- 27. IbrahimPour, S.; KhavaninZadeh, A.R.; **Taghizadeh-Mehrjardi, R.**; De Boeck, H.J.; Gul, A. Dust-Related Impacts of Mining Operations on Rangeland Vegetation and Soil: A Case Study in Yazd Province, Iran. Environ Earth Sci 2021, 80, 467, doi:10.1007/s12665-021-09758-5.
- 28. Goydaragh, M.G.; **Taghizadeh-Mehrjardi**, **R.***; Jafarzadeh, A.A.; Triantafilis, J.; Lado, M. Using Environmental Variables and Fourier Transform Infrared Spectroscopy to Predict Soil Organic Carbon. CATENA 2021, 202, 105280, doi:10.1016/j.catena.2021.105280.
- 29. Ghebleh Goydaragh, M.; **Taghizadeh-Mehrjardi, R.**; Golchin, A.; Asghar Jafarzadeh, A.; Lado, M. Predicting Weathering Indices in Soils Using FTIR Spectra and Random Forest Models. CATENA 2021, 204, 105437, doi: 10.1016/j.catena.2021.105437.
- 30. Ebrahimi-Khusfi, Z.; **Taghizadeh-Mehrjardi, R.**; Roustaei, F.; Ebrahimi-Khusfi, M.; Mosavi, A.H.; Heung, B.; Soleimani-Sardo, M.; Scholten, T. Determining the Contribution of Environmental Factors in Controlling Dust Pollution during Cold and Warm Months of Western Iran Using Different Data Mining Algorithms and Game Theory. Ecological Indicators 2021, 132, 108287, doi:10.1016/j.ecolind.2021.108287.
- 31. Ebrahimi-Khusfi, Z.; **Taghizadeh-Mehrjardi, R.***^; Nafarzadegan, A.R. Accuracy, Uncertainty, and Interpretability Assessments of ANFIS Models to Predict Dust Concentration in Semi-Arid Regions. Environ Sci Pollut Res 2021, 28, 6796–6810, doi:10.1007/s11356-020-10957-z.
- 32. Ebrahimi-Khusfi, Z.; **Taghizadeh-Mehrjardi, R.***; Mirakbari, M. Evaluation of Machine Learning Models for Predicting the Temporal Variations of Dust Storm Index in Arid Regions of Iran. Atmospheric Pollution Research

- 2021, 12, 134-147, doi:10.1016/j.apr.2020.08.029.
- 33. Ebrahimi-Khusfi, Z.; **Taghizadeh-Mehrjardi, R.***\, Kazemi, M.; Nafarzadegan, A.R. Predicting the Ground-Level Pollutants Concentrations and Identifying the Influencing Factors Using Machine Learning, Wavelet Transformation, and Remote Sensing Techniques. Atmospheric Pollution Research 2021, 12, 101064, doi: 10.1016/j.apr.2021.101064.
- 34. Asadi, M.; Fathzadeh, A.; Kerry, R.; Ebrahimi-Khusfi, Z.; **Taghizadeh-Mehrjardi, R**. Prediction of River Suspended Sediment Load Using Machine Learning Models and Geo-Morphometric Parameters. Arab J Geosci 2021, 14, 1926, doi:10.1007/s12517-021-07922-6.
- 35. Abedi, F.; Amirian-Chakan, A.; Faraji, M.; **Taghizadeh-Mehrjardi, R.**; Kerry, R.; Razmjoue, D.; Scholten, T. Salt Dome Related Soil Salinity in Southern Iran: Prediction and Mapping with Averaging Machine Learning Models. Land Degradation & Development 2021, 32, 1540–1554, doi:10.1002/ldr.3811.
- 36. Zolfaghari, A.A.; Abolkheiryan, M.; Soltani-Toularoud, A.A.; **Taghizadeh-Mehrjardi, R.**; Weldeyohannes, A.O. Prediction of Soil Macronutrients Using Fractal Parameters and Artificial Intelligence Methods. Spanish Journal of Agricultural Research 2020, 18, e1104–e1104, doi:10.5424/sjar/2020182-15460.
- 37. Zeraatpisheh, M.; Jafari, A.; Bagheri Bodaghabadi, M.; Ayoubi, S.; **Taghizadeh-Mehrjardi, R.**; Toomanian, N.; Kerry, R.; Xu, M. Conventional and Digital Soil Mapping in Iran: Past, Present, and Future. CATENA 2020, 188, 104424, doi:10.1016/j.catena.2019.104424.
- 38. **Taghizadeh-Mehrjardi, R.***; Schmidt, K.; Eftekhari, K.; Behrens, T.; Jamshidi, M.; Davatgar, N.; Toomanian, N.; Scholten, T. Synthetic Resampling Strategies and Machine Learning for Digital Soil Mapping in Iran. European Journal of Soil Science 2020, 71, 352–368, doi:10.1111/ejss.12893.
- 39. **Taghizadeh-Mehrjardi, R.**; Schmidt, K.; Amirian-Chakan, A.; Rentschler, T.; Zeraatpisheh, M.; Sarmadian, F.; Valavi, R.; Davatgar, N.; Behrens, T.; Scholten, T. Improving the Spatial Prediction of Soil Organic Carbon Content in Two Contrasting Climatic Regions by Stacking Machine Learning Models and Rescanning Covariate Space. Remote Sensing 2020, 12, 1095, doi:10.3390/rs12071095.
- 40. **Taghizadeh-Mehrjardi, R.**; Nabiollahi, K.; Rasoli, L.; Kerry, R.; Scholten, T. Land Suitability Assessment and Agricultural Production Sustainability Using Machine Learning Models. Agronomy 2020, 10, 573, doi:10. 3390/agronomy10040573.
- 41. **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.
- 42. Seifi, M.; Ahmadi, A.; Neyshabouri, M.-R.; **Taghizadeh-Mehrjardi, R.**; Bahrami, H.-A. Remote and Vis-NIR Spectra Sensing Potential for Soil Salinization Estimation in the Eastern Coast of Urmia Hyper Saline Lake, Iran. Remote Sensing Applications: Society and Environment 2020, 20, 100398, doi:10.1016/j.rsase. 2020.100398.
- 43. Nabiollahi, K.; Heshmat, E.; Mosavi, A.; Kerry, R.; Zeraatpisheh, M.; **Taghizadeh-Mehrjardi, R**. Assessing the Influence of Soil Quality on Rainfed Wheat Yield. Agriculture 2020, 10, 469, doi:10.3390/agriculture10100469.
- 44. Mahmoudzadeh, H.; Matinfar, H.R.; **Taghizadeh-Mehrjardi, R.**; Kerry, R. Spatial Prediction of Soil Organic Carbon Using Machine Learning Techniques in Western Iran. Geoderma Regional 2020, 21, e00260, doi:10.1016/j.geodrs.2020.e00260.
- 45. Forogh Nasab, M.; Moradi, M.; Moradi, Gh.; **Taghizadeh-Mehrjardi, R**. Topsoil Carbon Stock and Soil Physicochemical Properties in Riparian Forests and Agricultural Lands of Southwestern Iran. Eurasian Soil Sc. 2020, 53, 1389–1395, doi:10.1134/S1064229320100075.
- 46. Fathizad, H.; Ardakani, M.A.H.; Heung, B.; Sodaiezadeh, H.; Rahmani, A.; Fathabadi, A.; Scholten, T.; Taghizadeh-Mehrjardi, R*. Spatio-Temporal Dynamic of Soil Quality in the Central Iranian Desert Modeled with Machine Learning and Digital Soil Assessment Techniques. Ecological Indicators 2020, 118, 106736, doi:10.1016/j.ecolind.2020.106736.
- 47. Fathizad, H.; Ali Hakimzadeh Ardakani, M.; Sodaiezadeh, H.; Kerry, R.; **Taghizadeh-Mehrjardi, R**. Investigation of the Spatial and Temporal Variation of Soil Salinity Using Random Forests in the Central Desert of Iran. Geoderma 2020, 365, 114233, doi:10.1016/j.geoderma.2020.114233.

- 48. Emadi, M.; **Taghizadeh-Mehrjardi, R.**; Cherati, A.; Danesh, M.; Mosavi, A.; Scholten, T. Predicting and Mapping of Soil Organic Carbon Using Machine Learning Algorithms in Northern Iran. Remote Sensing 2020, 12, 2234, doi:10.3390/rs12142234.
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Presentations

TALKS (* INDICATES PRESENTER)

- Taghizadeh-Mehrjardi, R.*, Rentschler, T., Schmidt, K., Cheshmberah, F., Scholten, T. 2022. Improving the spatial prediction of soil texture fractions using semi-supervised machine learning in Germany. Jahrestagung der Deutschen Bodenkundlichen Gesellschaft 2022, Trier, Germany. [Talk]
- 2. **Taghizadeh-Mehrjardi, R.***, Scholten, T. 2022. Semi-supervised learning for predicting soil properties at a national scale of Germany. 22nd World Congress of Soil Science. [Poster]
- 3. **Taghizadeh-Mehrjardi, R.***, Scholten, T. 2022. Explainable deep neural networks for exploring spatial variability of soil properties in Germany. EGU General Assembly Conference Abstracts. [Talk]
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- 5. **Taghizadeh-Mehrjardi, R***. 2021. Digital Soil Mapping. Schahid-Tschamran-Universität. [vTalk] (Webinar)
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- 7. **Taghizadeh-Mehrjardi, R.***, Sheikhpour, R., Toomanian, N., Scholten, T., 2021. Semi-supervised learning for increasing transferability of machine learning in digital soil mapping. 3th ISMC Conference ☑ Advances in Modeling Soil Systems. [vTalk]
- 8. **Taghizadeh-Mehrjardi, R.***, Hamzehpour, N., Hassanzadeh, M., Schmidt, K., Scholten. 2021. Enhancing accuracy and interpretability of machine learning models using super learning and permutation feature importance techniques in digital soil mapping. EGU General Assembly Conference Abstracts. [vPICO]
- Taghizadeh-Mehrjardi, R.*, Toomanian, N., Shamshirband, S., Mosavi, A., Behrens, T., Schmidt, K., Scholten, T. 2020. Predicting and mapping of soil salinity using machine learning algorithms in central arid regions of Iran. EGU General Assembly Conference Abstracts. [vTalk]
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