CURRICULUM-VITAE

Ruhollah Taghizadeh-Mehrjardi

Pedology, Pedometrics, Digital Soil Mapping, Machine Learning; Spatial Data Analysis
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ORCID; ResearcherID; Google Scholar; Home Page; Github;

PROFESSIONAL EXPERIENCE

11.2023 – Date	**Senior Data Scientist** Analytic and Agronomic Modelling, R&D Yara International, Germany
07.2017 – 10.2023	**Senior Soil Researcher (Humboldt Research Fellow)** Department of Geosciences, Tübingen University, Germany
05.2016 – 08.2016	**Postdoctoral Researcher (sabbatical leave)** Department of Plant Science, South Dakota State University, USA
02.2013 – 06.2017	**Assistant Professor of Soil Science** Faculty of Agriculture & Natural Resources, Ardakan University, Iran

EDUCATION

09.2008 – 12.2012	**Ph.D. Soil Science**, University of Tehran, Iran
01.2012 – 07.2012	**Visiting Scholar,** The University of Sydney, Australia
09.2005 – 02.2008	**M.Sc. Soil Science**, University of Tehran, Iran
08.2001 – 08.2005	**B.Sc. Soil Science**, SB University of Kerman, Iran

PROJECTS

2022	**Collaborator**: Sensitivity and Response of Himalayan Timberline Ecotones to Global Warming, Funded by German Research Foundation
2020	**Collaborator**: Transferability of Machine Learning for Soil Mapping, Funded by German Research Foundation
2019	**Co-Principal Investigator:** Digital Soil Mapping in Kurdistan, Funded by Iranian Agricultural Research, Education & Extension Organization
2017	**Principal Investigator**: Digital Soil Mapping with Limited Data, Funded by Alexander von Humboldt Foundation
2017	**Collaborator**: Study of limiting factors of plant establishment in the barren lands of Nayband Gulf, Funded by Pars Economic Energy Zone
2016	**Principal Investigator**: Optimization of Spatial Sampling Design, Funded by Ardakan University
2016	**Principal Investigator**: Digital Soil Mapping in Ardakan-Yazd Regions, Funded by Ardakan University

RECOGNITION/AWARDS

2025	**Top Paper:** Five Nominated Pedometrics Best Paper 2024
2024	**Top 2% Scientists:** List Developed by a Standford-Elsevier
2023	**Top 2% Scientists:** List Developed by a Standford-Elsevier
2022	**Top 2% Scientists:** List Developed by a Standford-Elsevier
2021	**Top 2% Scientists:** List Developed by a Standford-Elsevier
2021	**Workshop Grant Award:** A European Civic University
2020	**Top Paper:** Five Nominated Pedometrics Best Paper 2020
2017 - 2023	**Travel Grant Award**: 14 Conferences, University of Tübingen
2017	**Postdoctoral Fellowship**: Alexander von Humboldt Foundation
2017	**Top Lecturer Award**: Ardakan University
2016	**Top Researcher Award**: Ardakan University
2012	**Top Ph.D. Student**: GPA of 18/20, University of Tehran
2010	**Member**: Iran's National Elites Foundation
2009	**Top Student Researcher Award**: University of Tehran
2008	**Top M.Sc. Student**: GPA of 18/20, University of Tehran
2005	**Top B.Sc. Student**: GPA of 17/20, SB University of Kerman

TEACHING EXPERIENCE

2017 - 2023	**Teaching Assistant at University of Tübingen**
	— Spatial Pedology and Geomorphology (GEO-76)
	— Statistics (GEO-25)
2013 - 2017	**Assistant Professor at Ardakan University**
	— Soil Genesis and Classification
	— Soil Erosion and Conservation
	— Fundamentals of Soil Science
	— Saline Soil Management
2013 - 2017	**Guest Lecture at Yazd University**
	— Soil Mapping
	— Land Evaluation
2009 - 2011	**Teaching Assistant at University of Tehran**
	— Fundamentals of Soil Science (Lab)

WORKSHOP LECTURER

2025	Soil Mapping using R, Falahat Academy, University Tehran
2024	Spatial Data Analysis in R, Iranian Soil & Water Research Institute
2023	Statistical Programming with R, University of Tübingen
2022	An introduction to Spatial Analysis in QGIS, University of Tübingen
2020	Spatial Data in R, Iranian Soil & Water Research Institute
2016	Digital Soil Mapping in R, Iranian Soil & Water Research Institute
2015	Data Mining in Soil Sciences, Iranian Soil & Water Research Institute

ADVISING/SUPERVISION

2013 - Date	Co-supervising 4 and advising 15 Ph.D. students
2013 - Date	Supervising 5 and advising 16 M.Sc. students
2013 - Date	Supervising 5 B.Sc. students

PROFESSIONAL SERVICE

2023 - Date	Associate Editor: Soil Use and Management
2022 - Date	Member: Award Committee for the Pedometrics Commission
2022 - Date	Member: Executive board members of ISMC
2022	The Organizer of Cabon4Green Workshop: A European Civic University
2022 - Date	Editorial Board: Soil Studies; Levantine Journal of Applied Sciences
2022 - Date	Associate Editor: Frontiers in Soil Science/Pedometrics
2021 - Date	The Organizer of Scientific Workshops: SFB 1070, University of Tübingen
2021 - Date	Guest Editor: Frontiers in Environmental Sci/ Frontiers in Soil Sci
2020 - Date	Guest Editor: Agronomy
2017 - Date	Member: European Geosciences Union
2017 - Date	Member: German Soil Science Society
2017	Head of Department: Ardakan University
2017	Executive Chairman: 1th Conference of Agriculture, Ardakan University
2013 - 2017	The Organizer of Workshops: Ardakan University
2013 - 2017	Review Panel for National Salinity Research Center
2013 - Date	Reviewed >200 papers from >20 journals

PROFESSIONAL TRAINING

2025	Anaconda Python for Data Science Professional Certificate, LinkedIn
2024	Google Data Analytics Professional Certificate, Coursera
2024	Data Visualization & Dashboarding with R, Coursera
2024	Data Science Specialization, Coursera
2024	Machine Learning Specialization, Coursera
2024	Statistical Modeling for Data Science Applications, Coursera
2023	Professional Data Scientist, DataCamp
2023	Processing and Visualizing Large Geospatial Data, OpenGeoHub
2022	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 and Media Competence, University of Tübingen
2022	Leadership in Academia, Industry & Society, University of Tübingen
2021	Spatial Sampling, Wageningen University
2020	Uncertainty Propagation in Spatial Modelling, Wageningen University
2019	Geostatistics, Wageningen University
2018	GEOSTAT Summer School, IBOT
2018	Digital Soil Mapping with R, ISRIC and The University of Sydney

TECHNICAL SKILLS

Programming	R and Python
Machine Learning	RapidMiner, and Weka
GIS and RS	ArcGIS, QGIS, SAGA, ENVI, and Google Earth Engine
Soil Analysis	Soil Chemical, Physical, Mineralogical, and Micro-morphological analysis
Soil Survey	Description, Classification, and Interpretation of Soils in the Field

FIELDWORK

Iran	Soil Sampling, Soil Survey, Geophysical Surveys, Soil Erosion Surveys
Kenya	Soil Sampling, Soil Survey, Land Evaluation
USA, Germany	Soil Sampling

LANGUAGES

English	Good: Reading, Listening, Writing, and Speaking
German	Intermediate: Reading, Listening, Writing, and Speaking
Arabic	Basic: Reading, Listening, Writing, and Speaking
Persian	Native

RESEARCH FOCI

Pedology, Digital Soil Mapping, Pedometrics, Digital Soil Morphometrics
Soil carbon, Climate Change, Precision Agriculture, Soil health
Data Analytics, Machine Learning, Digital Agriculture
Soil-landscape modeling, GIS and Remote Sensing, Soil spectroscopy
Soil Information System and Soil Database, Soil Data harmonization

RESEARCH IMPACTS

Google Scholar	Total Citation: 6,367; H-Index: 42
Scopus	Total Citation: 4,624; H-Index: 37
Web of Science	Total Citation: 4,054; H-Index: 36
Total Publications	120 ISI Journals (*First Author: 25; Corresponding Author: 27*)
	3 Peer-Reviewed Book Chapters
	1 Editor of Book (*In Persian*)
	>20 Presentations at conferences
	In Persian: >70 Peer-Reviewed Journals and >50 conferences

ALL PUBLICATION LIST

-Journals

1. Kakhani, N., **Taghizadeh**, **R**., Omarzadeh, D; Ryo, M; Heiden, U; Scholten, T. 2025. Towards Explainable AI: Interpreting Soil Organic Carbon Prediction Models Using a Learning-Based Explanation Method. In: European Journal of Soil Science, 76, e70071. https://doi.org/10.1111/ejss.70071
2. Bellat, M., Figueroa, J., Reeves, J., **Taghizadeh**, **R**., Tennie, C., Scholten, T. 2025. Machine learning applications in archaeological practices: a review. In: arXiv preprint. doi: arXiv:2501.03840
3. **Taghizadeh, R.**, Nabiollahi, K., Kebonye, N. M., Kakhani, N., Ghebleh-Goydaragh, M., Heung, B., Amirian-Chakan, A., Hossaini, S. M. T., Scholten, T., 2024. High-performance soil class delineation via UMAP coupled with machine learning in Kurdistan Province, Iran. In: Geoderma Regional, 36, e00754. doi: 10.1016/j.geodrs.2024.e00754
4. Zamanian, K., **Taghizadeh, R.**, Tao, J., Fan, L., Raza, S., Guggenberger, G., Kuzyakov, Y., 2024. Acidification of European croplands by nitrogen fertilization: Consequences for carbonate losses, and soil health. In: Science of The Total Environment, 171631. doi: 10.1016/j.scitotenv.2024.171631
5. Sakhaee, A., Scholten, T., **Taghizadeh**, **R**., Ließ, M. and Don, A., 2024. Spatial Prediction of Organic Matter Quality in German Agricultural Topsoils. Agriculture, 14(8), p.1298. https://doi.org/10.3390/agriculture14081298
6. Mirzaei, F., Amirian-Chakan, A., **Taghizadeh, R**., Matinfar, H. and Kerry, R., 2024. Soil Textural Class Modeling Using Digital Soil Mapping Approaches: Effect of Resampling Strategies on an Imbalanced Dataset Predictions. Geoderma Regional e00821. https://doi.org/10.1016/j.geodrs.2024.e00821
7. Mirzaee, S., Nafchi, A.M., Ostovari, Y., Seifi, M., Ghorbani-Dashtaki, S., Khodaverdiloo, H., Chakherlou, S., **Taghizadeh**, **R**. and Raei, B., 2024. Monitoring and assessment of spatiotemporal soil salinization in the Lake Urmia region. Environmental Monitoring and Assessment, 196(10), p.958. https://doi.org/10.1007/s10661-024-13055-6
8. Hosseinpour-Zarnaq, M., Moshiri, F., Jamshidi, M., **Taghizadeh**, **R**., Tehrani, M.M. and Ebrahimi Meymand, F., 2024. Monitoring changes in soil organic carbon using satellite-based variables and machine learning algorithms in arid and semi-arid regions. Environmental Earth Sciences, 83(20), pp.1-15. https://doi.org/10.1007/s12665-024-11876-9
9. Nabiollahi, K., Kebonye, N.M., Molani, F., Tahari-Mehrjardi, M.H., **Taghizadeh, R.,** Shokati, H. and Scholten, T., 2024. Assessment of Land Suitability Potential Using Ensemble Approaches of Advanced Multi-Criteria Decision Models and Machine Learning for Wheat Cultivation. Remote Sensing, 16(14). https://doi.org/10.3390/rs16142566
10. Barikloo, A., Alamdari, P., Rezapour, S., **Taghizadeh**, **R**., 2024. Digital mapping of soil quality index to evaluate orchard fields using random forest models. Modeling Earth Systems and Environment, pp.1-17. https://doi.org/10.1007/s40808-024-02145-6
11. Shokati, H., Mashal, M., Noroozi, A., Abkar, A.A., Mirzaei, S., Mohammadi-Doqozloo, Z., **Taghizadeh, R**., Khosravani, P., Nabiollahi, K. and Scholten, T., 2024. Random Forest-Based Soil Moisture Estimation Using Sentinel-2, Landsat-8/9, and UAV-Based Hyperspectral Data. Remote Sensing, 16(11), p.1962. https://doi.org/10.3390/rs16111962
12. Amoli, M., Hasanlou, M., **Taghizadeh, R**. and Samadzadegan, F., 2024. Exploring the Potential of PRISMA Satellite Hyperspectral Image for Estimating Soil Organic Carbon in Marvdasht Region, Southern Iran. Remote Sensing, 16(12), p.2149. https://doi.org/10.3390/rs16122149
13. Khosravani, P., Baghernejad, M., **Taghizadeh, R**., Mousavi, S.R., Moosavi, A.A., Fallah Shamsi, S.R., Shokati, H., Kebonye, N.M. and Scholten, T., 2024. Assessing the role of environmental covariates and pixel size in soil property prediction: a comparative study of various areas in Southwest Iran. Land, 13(8), p.1309. https://doi: 10.3390/land13081309
14. Broeg, T., Don, A., Gocht, A., Scholten, T., **Taghizadeh, R**., Erasmi, S. 2024. Using local ensemble models and Landsat bare soil composites for large-scale soil organic carbon maps in cropland. *Geoderma*, 444, 116850. doi: 10.1016/j.geoderma.2024.116850
15. Wang, N., Chen, S., Huang, J., Frappart, F., **Taghizadeh, R.**, Zhang, X., Wigneron, J.-P., Xue, J., Xiao, Y., Peng, J. and Shi, Z. (2024). Global Soil Salinity Estimation at 10 m Using Multi-source Remote Sensing. *Journal of Remote Sensing*, 0130. doi: 10.34133/remotesensing.0130
16. Lotfollahi, L., Delavar, M.A., Biswas, A., Jamshidi, M., Fatehi, S., **Taghizadeh, R.**, 2023. Spatial prediction and uncertainty estimation of crucial GlobalSoilMap properties-A contextual study in the semi-arid area of western Iran. Geoderma Regional, e00713. doi: 10.1016/j.geodrs.2023.e00713
17. Bouasria, A., Bouslihim, Y., Gupta, S., **Taghizadeh, R.**, Hengl, T., 2023. Predictive performance of machine learning model with varying sampling designs, sample sizes, and spatial extents. Ecological Informatics, 78,102294. doi: 10.1016/j.ecoinf.2023.102294
18. Bogaert, P., **Taghizadeh, R.,** Hamzehpour, N., 2023. Model averaging of machine learning algorithms for digital soil mapping: A minimum variance framework. Geoderma, 437, 116604. doi: 10.1016/j.geoderma.2023.116604
19. Webber, C. L., Bremer, U. F., **Taghizadeh, R.**, Weber, B., Rosa, A., Scholten, T., Seitz, S. 2023- Biological soil crusts as a major ecosystem component in sandization areas of the Brazilian Pampa. In: Geoderma Regional, e00682. doi: 10.1016/j.geodrs.2023.e00682

20. Ghotbi, M., **Taghizadeh, R.**, Knief, C., Ghotbi, M., Horwath, W.R. 2023. The Patchiness of Soil 13c Versus the Uniformity of 15n Distribution with Geomorphic Position Provides Evidence of Erosion and Accelerated Organic Matter Turnover. Agriculture, Ecosystems, and Environment 356, 108616. doi: 10.1016/j.agee.2023.108616
21. Mousavi, A., Karimi, A., Maleki, S., Safari, T., **Taghizadeh, R.** 2023. Digital mapping of selected soil properties using machine learning and geostatistical techniques in Mashhad plain, northeastern Iran. In: Environmental, 82, 234.
22. Lotfollahi, L., Delavar, A., Biswas, A., Jamshidi, M., **Taghizadeh, R.** 2023. Modeling the spatial variation of calcium carbonate equivalent to depth using machine learning techniques. Environmental Monitoring and Assessment, 195, 607.
23. Broeg, T., Blaschek, M., Seitz, S., **Taghizadeh, R.**, Zepp, S., Scholten, T., 2023. Transferability of Covariates to Predict Soil Organic Carbon in Cropland Soils. Remote Sensing, 15, 876. doi: 10.3390/rs15040876
24. Maleki R, Karimi, A., Mousavi, A., Kerry, R., **Taghizadeh, R.**, 2023. Delineation of Soil Management Zone Maps at the Regional Scale Using Machine Learning. Agronomy, 13, 445. doi: 10.3390/agronomy13020445
25. Zolfaghari Nia, M., Moradi, M., Moradi, G., **Taghizadeh, R.,** 2023. Machine Learning Models for Prediction of Soil Properties in the Riparian Forests. In: Land, Jg. 12, H. 1, S. 32. doi: 10.3390/land12010032
26. Shahabi, A., Nabiollahi, K., Davari, M., Zeraatpisheh, M., Heung, B., Scholten, T., **Taghizadeh, R.**, 2022. Spatial prediction of soil properties through hybridized random forest model and combination of reflectance spectroscopy and environmental covariates. Geocarto International, pp.1-24. doi: 10.1080/10106049.2022.2138565
27. Mallah, S., Delsouz Khaki, B., Davatgar, N., Scholten, T., Amirian-Chakan, A., Emadi, M., Kerry, R., Mosavi, A.H., **Taghizadeh, R.**, 2022. Predicting Soil Textural Classes Using Random Forest Models: Learning from Imbalanced Dataset. Agronomy, 12(11), p.2613. doi: 10.3390/agronomy12112613
28. Sohrabizadeh, Z., Sodaeizadeh, H., Hakimzadeh, M.A., **Taghizadeh, R.**, Ghanei Bafghi, M.J., 2022 A statistical approach to study the spatial heavy metal distribution in soils in the Kushk Mine, Iran. Geoscience Data Journal. doi: 10.1002/gdj3.175
29. **Taghizadeh, R.**, Sheikhpour, R., Zeraatpisheh, M., Amirian-Chakan, A., Toomanian, N., Kerry, R., Scholten, T. 2022. Semi-supervised learning for the spatial extrapolation of soil information. Geoderma, 426, 116094. doi: 10.1016/j.geoderma.2022.116094
30. Cheshmberah, F., Zolfaghari, A., **Taghizadeh, R.**, Scholten, T. 2022. Evaluation of mathematical models for predicting particle size distribution using digital soil mapping in semiarid agricultural lands. Geocarto International. doi: 10.1080/10106049.2022.2076911.
31. Shirzadi, A., Shahabi, H., Nabiollahi, K., **Taghizadeh, R.**, Lizaga, L., Clague, J., Singh, S., Golmohamadi, F., Ahmad, A. 2022. Towards Robust Smart Data-Driven Soil Erodibility Index Prediction under Different Scenarios. Geocarto International. doi: 10.1080/10106049.2022.2076918.
32. Taghipour, K., Heydari, M., Kooch, Y., Fathizad, H., Heung, B., **Taghizadeh, R.** 2022. Assessing changes in soil quality between protected and degraded forests using digital soil mapping for semiarid oak forests, Iran. Catena, 213, 106204. doi: 10.1016/j.catena.2022.106204
33. Fathizad, H., **Taghizadeh, R.**, Hakimzadeh, M., Zeraatpisheh, M., Heung, B., Scholten, T. 2022. Spatiotemporal Assessment of Soil Organic Carbon Change Using Machine-Learning in Arid Regions. Agronomy, 12(3), 628. doi: 10.3390/agronomy12030628
34. **Taghizadeh, R.**, Khademi, H., Khayamim, F., Zaraatpisheh, M., Heung, B., Scholten, T. 2022. A comparison of model averaging techniques to predict the spatial distribution of soil properties. Remote Sensing, 14, 472, doi: 10.3390/rs14030472
35. Emami, S., Alikhani, A., Pourbabi, A., Eatesami, H., Sarmadian, F., Motesharezadeh, B., **Taghizadeh, R.** 2022. Performance evaluation of phosphate-solubilizing fluorescent pseudomonads in minimizing phosphorus fertilizer use and improving wheat productivity: A two-year field study. Journal of Soil Science and Plant Nutrition. doi: 10.1007/s42729-021-00726-3
36. Zeraatpisheh, M., Bottega, E., Bakhshandeh, E., Owliaie, H., **Taghizadeh, R.**, Kerry, R., Scholten, T., Xu, M. 2022. Spatial variability of soil quality within management zones: Homogeneity and purity of delineated zones. Catena, 209, 105835, doi: 10.1016/j.catena.2021.105835
37. Zeraatpisheh, M., Garosi, Y., Owliaie, H., Ayoubi, S., **Taghizadeh, R.**, Scholten, T., Xu, M. 2022. Improving the spatial prediction of soil organic carbon using environmental covariates selection: A comparison of a group of environmental covariates. Catena, 208, 105723, doi: 10.1016/j.catena.2021.105723
38. **Taghizadeh, R**., Schmidt, K., Toomanian, N., Heung, B., Behrens, T., Mosavi, A., S. Band, S., Amirian-Chakan, A., Fathabadi, A., Scholten, T. (2021): Improving the spatial prediction of soil salinity in arid regions using wavelet transformation and support vector regression models. In: Geoderma, Jg. 383, S. 114793. doi: 10.1016/j.geoderma.2020.114793
39. Rostaminia, M., Rahmani, A., Mousavi, S., **Taghizadeh, R.**, Maghsodi, Z. 2021. Spatial prediction of soil organic carbon stocks in arid rangeland using machine learning algorithms. Environmental Monitoring and Assessment, 193, 815, doi: 10.1007/s10661-021-09543-8

40. Morsy, M., **Taghizadeh, R.**, Michaelides, S., Scholten, T., Dietrich, P., Schmidt, K. 2021. Optimization of Rain Gauge Networks for Arid Regions Based on Remote Sensing Data. Remote Sensing, 13, 4243. doi: 10.3390/rs13214243
41. Ebrahimi, Z., **Taghizadeh, R.**, Roustaei, F., Ebrahimi, M., Mosavi, A., Heung, B., Scholten, T. 2021. 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, 132, 108287. doi: 10.1016/j.ecolind.2021.108287
42. Asadi, M., Fathzadeh, A., Kerry, R., Ebrahimi, Z., **Taghizadeh, R.**, 2021. Prediction of river suspended sediment load using machine learning models and geo-morphometric parameters. Arabian Journal of Geosciences, 14(18), 1-14. doi: 10.1007/s12517-021-07922-6
43. Mahmoudzadeh, M., Matinfar, M., Kerry, R., Ebrahimi, Z., **Taghizadeh, R.** 2021. New hybrid evolutionary models for spatial prediction of soil properties in Kurdistan. Soil Use and Management. doi: 10.1111/sum.12753
44. Ghebleh, M., **Taghizadeh, R.**, Golchin, A., Jafarzadeh, A., Lado, M. 2021. Predicting weathering indices in soils using FTIR spectra and random forest models. Catena, 204, 105437. doi: 10.1016/j.catena.2021.105437
45. **Taghizadeh, R.**, Fathizad, H., Hakimzadeh, A., Mohammad, S., Hamid, Kerry, R., Heung, B., Scholten, T. 2021. Spatio-Temporal Analysis of Heavy Metals in Arid Soils at the Catchment Scale Using Digital Soil Assessment and a Random Forest Model. Remote Sensing, 13, no. 9: 1698. doi: 10.3390/rs13091698
46. Ebrahimi, Z., **Taghizadeh, R.**, Kazemi, M., Nafarzadegan, AR. 2021. Predicting the Ground-Level Pollutants Concentrations and Identifying the influencing Factors Using Machine Learning, Wavelet Transformation, and Remote Sensing Techniques. Atmospheric Pollution Research. doi: 10.1016/j.apr.2021.101064
47. **Taghizadeh, R.**, Hamzehpour, N., Hassanzadeh, M., Heung, B., Ghebleh, M., Schmidt, K., Scholten, T. 2021. Enhancing the accuracy of machine learning models using the super learner technique in digital soil mapping. Geoderma 399, 115108. doi: 10.1016/j.geoderma.2021.115108
48. Nabiollahi, K., Shahlaee, S., Zahedi, S., **Taghizadeh, R.**, Kerry, R., Scholten, T. 2021. 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 11, no. 3: 597. doi: 10.3390/agronomy11030597
49. Ghebleh, M., **Taghizadeh, R.**, Jafarzadeha, A.A., Triantafilis, J., Ladoe, M. 2021. Using environmental variables and Fourier Transform Infrared Spectroscopy to predict soil organic carbon. Catena. 202, 105280. doi: 10.1016/j.catena.2021.105280
50. **Taghizadeh, R.**, Emadi, M., Cherati, A., Heung, B., Mosavi, A., Scholten, T. 2021. Bio-Inspired Hybridization of Artificial Neural Networks: An Application for Mapping the Spatial Distribution of Soil Texture Fractions. Remote Sensing. 13(5):1025. doi: 10.3390/rs13051025
51. Namdar, D., Goudarzi, G.R., **Taghizadeh, R.**, Asumadu, A., Fehresti, M. 2021. Long-term effects of outdoor air pollution on mortality and morbidity–prediction using nonlinear autoregressive and artificial neural networks models. Atmospheric Pollution Research 12, S. 46-56. doi: 10.1016/j.apr.2020.10.007
52. Ibrahimpour, S., Khavaninzadeh, A., **Taghizadeh, R.**, De Boeck, H., Gul, A., 2021. Dust-related impacts of mining operations on rangeland vegetation and soil: a case study in Yazd province, Iran. Environmental Earth Sciences, 80: 467. doi: 10.1007/s12665-021-09758-5
53. Ebrahimi, Z., **Taghizadeh, R.**, Mirakbari, M. 2021. Evaluation of machine learning models for predicting the temporal variations of dust storm index in arid regions of Iran. Atmospheric Pollution Research. doi: 10.1016/j.apr.2020.08.029
54. Abedi, F., Amirian, A., Faraji, M, **Taghizadeh, R.**, Kerry, R., Razmjoue, D., Scholten, T. 2021. Salt dome induced soil salinity in southern Iran –prediction and mapping with averaging machine learning models. Land Degradation and Development. doi: 10.1002/ldr.3811
55. Ebrahimi, Z., **Taghizadeh, R.**, Nafarzadegan, A.R. 2021. Accuracy, uncertainty, and interpretability assessments of ANFIS models to predict dust concentration in semi-arid regions. Environmental Science and Pollution Research, 28, 6, 6796–6810. doi: 10.1007/s11356-020-10957-z
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1) **Taghizadeh, R.,** Zeraatpisheh, M., Amirian Chakan, A., Scholten, T. 2023. A Brief Review of Digital Soil Mapping in Iran. In: Melesse, A.M., Rahamati, O. und Khsoravi, R. (Hrsg.): Remote Sensing of Soil and Land Surface Processes. Amsterdam.
2) Maleki, S., Fathizad, H., Karimi, A., **Taghizadeh-Mehrjardi, R**., Pourghasemi, HR. 2022. Monitoring of spatiotemporal changes of soil salinity and alkalinity in eastern and central parts of Iran, Editor(s): Pourghasemi, HR., *Computers in Earth and Environmental Sciences*, Elsevier, 547-561. https://doi:10.1016/B978-0-323-89861-4.00011-7.
3) **Taghizadeh-Mehrjardi, R**., Minasny, B., McBratney, A.B., Triantafilis, J., Sarmadian, F., Toomanian, N. 2012. Digital soil mapping of soil classes using decision trees in central Iran. *Digital Soil Assessments and Beyond*, Edited by B. Minasny, B.P. Malone, A.B. McBratney, 07/2012: pages 197-202; Taylor & Francis Group., ISBN: 978-0-415-62155-7. https://doi:10.1201/b12728-40

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1) **Taghizadeh-Mehrjardi, R**. 2016. Modern Concepts in Soil Science (Pedometrics). 388 pages; Ardakan University Press., ISBN: 978-600-9406-08-1.

-Selected Conferences

1) **Taghizadeh-Mehrjardi, R**., Kerry Ruth, Flint Elisa A, Svedin Jeffrey D, Hansen Neil C, Hopkins Bryan G, Jensen Ryan R. 2024. Mapping Volumetric Water Content at Multiple Depths to Inform Variable Rate Irrigation Using Drone and Yield Monitor Data with Random Forests. ASA, CSSA, SSSA International Annual Meeting. [Talk]
2) **Taghizadeh-Mehrjardi, R**., Heuvelink Gerard B.M, Scholten Thomas. 2023. Quantification of uncertainty using artificial neural networks for mapping of soil properties in Germany. EGU General Assembly Conference Abstracts. [Poster]
3) **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]
4) **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]
5) **Taghizadeh-Mehrjardi, R**, 2021. Digital soil mapping: definition, applications, and challenges. 17th Iranian Soil Science Society Congress. [vTalk] (***Keynote Speaker***)
6) **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]
7) **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]
8) **Taghizadeh-Mehrjardi, R**., Mahdianpari, M., Mohammadimanesh, F., Toomanian, Behrens, T., Scholten, T., Schmidt, K. 2019. A novel convolutional neural network for digital soil mapping. EGU General Assembly Conference Abstracts. 21: 3890. [Talk]
9) **Taghizadeh-Mehrjardi, R**., Schmidt, K., Eftekhari, K., Rentschler, T., Scholten, T. 2018. Updating the categorical soil map of Iran using limited soil legacy data. 21st World Congress of Soil Science. [Poster]
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