CV

Personal Information

Mohammad Radad, Ph.D.
Assistant Professor
Faculty of Mining, Petroleum and Geophysics Engineering
Shahrood University of Technology, Shahrood, Iran
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Educational Records

2015 Ph.D. in Geophysics (Exploration Seismology)
Institute of Geophysics, University of Tehran, Iran.
Thesis subject: "Improving the time – frequency resolution of the *S*-transform based on sparse regularization and its application for seismic deconvolution and denoising".
Supervisors: Prof. Ali Gholami, University of Tehran
Prof. Hamid Reza Siahkoohi, University of Tehran

2009 M. Sc. in Geophysics (Exploration Seismology)
Institute of Geophysics, University of Tehran, Iran.
Thesis subject: "Study on efficiency of seismic time-frequency spectral decomposition by matching pursuit decomposition to detect thin layers".
Supervisors: Prof. Abdolrahim Javaherian, University of Tehran
Prof. Babak Najjar Araabi, University of Tehran

2005 B. Sc. in Applied Physics
Faculty of Physics, Shahrood University of Technology, Iran.

Teaching Experiences

Courses for B. S. and M.Sc. students in Mining Engineering, Geophysics and Petroleum Exploration Engineering	
Level	**Course Title**
Undergraduate (B. S.)	Mathematics, Engineering Mathematics, Engineering Statistics and Probability, Exploration Geophysics, Research Method
Graduate (M.Sc. & Ph.D.)	Advanced Engineering Mathematics, Exploration Seismology, Seismic Data Processing, Seismic Data Interpretation, Seismic Methods in Engineering, Seismic Attributes, Advanced Exploration Geophysics, Advanced Geophysical Data Analysis

Research Records

Publications
Hosseini Jonbazi, S. S., Radad, M. and Roshandel Kahoo, A., 2026. Developing an Automatic Algorithm for Salt Dome Detection Based on Seismic Attributes and Mathematical Morphology Operators, *Journal of Research on Applied Geophysics*, In Press. https://doi.org/10.22044/jrag.2026.17088.1377
Mousani Nezhad, M. R., Roshandel Kahoo, A., Radad, M., 2026. Introducing a new texture attribute based on the anisotropy index,, case study: Salt dome, *Journal of Research on Applied Geophysics*, **12**, 25-37. https://doi.org/10.22044/jrag.2025.16431.1372
Shirazi, M., Roshandel Kahoo, A., Radad, M., Yu, G. and Hafezy, S., 2025. Multisynchrosqueezing optimized S-transform and its application in gas reservoir identification, *Acta Geophysica*, **73**, 5719–5737. https://doi.org/10.1007/s11600-025-01707-1
Mousani Nezhad, M. R., Roshandel Kahoo, A., Radad, M., 2025. Improving the eigen-structure seismic attribute in identifying seismic discontinuities using eigenvectors, *Journal of Research on Applied Geophysics*, **11**, 119-130. https://doi.org/10.22044/jrag.2025.15905.1368
Barabadi, M., Radad, M. and Roshandel Kahoo, A., 2024. Seismic data AVO analysis in time frequency domain using synchroextracting transform. *Journal of Applied Geophysics*, ***224***, p.105364. https://doi.org/10.1016/j.jappgeo.2024.105364
Atashgahi, Z., Radad, M. and Roshandel Kahoo, A., 2024. Swell noise attenuation on marine seismic data using variational mode decomposition in an automatic approach. *Iranian Journal of Geophysics*, 18(5), 83-100. https://doi.org/10.30499/ijg.2024.447761.1584
Shirazi, M., Roshandel Kahoo, A., Radad, M. and Yu, G., 2023. Detecting Shallow Gas Reservoir in the F3 Block, the Netherlands, Using Offshore Seismic Data and High-Resolution Multi-Synchrosqueezing Transform. *Natural Resources Research*, ***32***(5), pp.2007-2035. https://doi.org/10.1007/s11053-023-10229-w
Paksima, S., Radad, M., Roshandel Kahoo, A. Soleimani Monfared, M., 2023, Identification of thin gas reservoir in reflection seismic data by synchrosqueezing S-transform in time-frequency representation. *Arab J Geosci* **16**, 376. https://doi.org/10.1007/s12517-023-11464-4.
Shirazi, M., Roshandel Kahoo, A., Radad, M., and Yu, G., 2023, Time-frequency analysis of Seismic data by Time-reassigned Multi-Synchrosqueezing Transform to detect low frequency shadows: *Journal of Research on Applied Geophysics*, ***8***, 161-172. https://doi.org/10.22044/jrag.2023.12276.1341
Mousavi, J., Radad, M., Soleimani Monfared, M. Roshandel Kahoo, A., 2022. Fault Enhancement in Seismic Images by Introducing a Novel Strategy Integrating Attributes and Image Analysis Techniques. *Pure Appl. Geophys*, ***179***, pages 1645–1660. https://doi.org/10.1007/s00024-022-03014-y
Mafakheri, J., Kahoo, A. R., Anvari, R., Mohammadi, M., Radad M., and Monfared, M. S., 2022, Expand Dimensional of Seismic Data and Random Noise Attenuation Using Low-Rank Estimation, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, ***15***, pp. 2773-2781. https://doi.org/10.1109/JSTARS.2022.3162763
Khasraji-Nejad, H., Roshandel Kahoo, A., Soleimani Monfared, M., Radad, M. and Khayer, K., 2021, Proposing a new strategy in multi-seismic attribute combination for identification of buried channel. *Mar Geophys Res* ***42***, 35. https://doi.org/10.1007/s11001-021-09458-6
Mahdavi, A., Roshandel Kahoo, A., Radad, M. and Soleimani Monfared, M., 2021, Application of the local maximum synchrosqueezing transform for seismic data: *Digital Signal Processing*, ***110***. https://doi.org/10.1016/j.dsp.2020.102934.
Roshandel Kahoo, A., Soleimani Monfared, M. and Radad M., 2021 Identification and modelling of salt dome in seismic data using three-dimensional texture gradient: *Iranian*

Journal of Geophysics, ***15***(1), 19-33. https://dx.doi.org/10.30499/ijg.2020.242349.1285
Hoseinzadegan, M., Roshandel Kahoo, A., Radad M., 2021, Power Line Noise Attenuation in Seismic Data Using by Spectral Interpolation: *Journal of Research on Applied Geophysics*, ***7***(1), 103-112. https://dx.doi.org/10.22044/jrag.2020.9862.1290
Baniamerian, J., Radad, M. and Mohammadi Vizheh, M., 2020, Interpretation of magnetic and gravity anomalies by using extended Euler deconvolution method: *Journal of Analytical and Numerical Methods in Mining Engineering*, ***10***(23), 159-171. 10.29252/anm.2020.13510.1433
Ariyan Nezhad, A., Radad, M. and Hadiloo, S., 2020, Unsupervised Seismic Data Classification Using Gaussian Mixture Models: *Journal of Petroleum Research*, ***30***(99-3), 129-144. https://dx.doi.org/10.22078/pr.2020.3923.2786
Radad, M., 2018, Time Frequency Analysis of Seismic Data by Reassigned S-Transform to Detect Low Frequency Shadows: *Journal of Research on Applied Geophysics*, ***5***(2), 283-293. https://dx.doi.org/10.22044/jrag.2018.7581.1215
Radad, M., 2018, Application of Single Frequency Time Space Filtering Technique for Seismic Ground Roll and Random Noise Attenuation: *Journal of the Earth and Space Physics*, ***44***(4), 41-51. https://dx.doi.org/10.22059/jesphys.2018.249021.1006959
Radad, M., Gholami, A., and Siahkoohi, H. R., 2016, A fast method for generating high resolution single-frequency seismic attributes, *Journal of Seismic Exploration*, ***25***, 11-25.
Radad, M., Gholami, A., and Siahkoohi, H. R., 2015, S-Transform with maximum energy concentration: Application to Non-stationary Seismic Deconvolution, *Journal of Applied Geophysics*, ***118***, 155-166. https://doi.org/10.1016/j.jappgeo.2015.04.010
Radad, M., Gholami, A., and Siahkoohi, H. R., 2015, S-transform with maximum energy concentration and its application to detect gas bearing zones and low-frequency shadows: *Journal of the Earth and Space Physics*, ***41***(3), 403-412. https://dx.doi.org/10.22059/jesphys.2015.53700
Radad, M. and Javaherian, A., 2012, Study of efficiency of seismic time-frequency spectral decomposition by matching pursuit for detecting thin layers: *Journal of the Earth and Space Physics*, ***38***(1), 113-131. https://dx.doi.org/10.22059/jesphys.2012.24838
Conferences
Izadbakhsh, H., Radad, M. and Roshandel Kahoo, A., 2025, Application of Hierarchical Clustering in Detecting Buried Channels in Seismic Data, The 7th Applied Geophysics Conference in Oil Exploration, Tehran, Iran.
Izadbakhsh, H., Radad, M. and Roshandel Kahoo, A., 2024, Detection of Buried Channels in Seismic Data Using Unsupervised Clustering, 20th Iranian Geophysics Conference, Tehran, Iran.
Hosseini, S.S., Radad, M. and Roshandel Kahoo, A., 2024, Improving salt dome detection by combining seismic attributes and mathematical morphology operators, 20th Iranian Geophysics Conference, Tehran, Iran.
Jalalian, L., Mahmoodabadi, M., Radad, M., SoltaniMoghdam, S., Mokhtari, Z. and Masihi, A., 2024, A deep neural network examination of microseismicity in the northern portion of the main recent fault, 9th International Conference on Seismology and Earthquake Engineering, Tehran, Iran.
Barabadi, M., Radad, M. and Roshandel Kahoo, A., 2022, Time frequency analysis of seismic data using synchroextracting transform, 20th Iranian Geophysics Conference, Tehran, Iran.
Khasraji Nejad, H., Roshandel Kahoo, A., Soleimani Monfared, M. and Radad, M., 2022, Identification of the buried channel by using the combination of multi-attributes by the method of PCA, Multiplication and Summation of scales, 20th Iranian Geophysics Conference, Tehran, Iran.

Mousavi, J., Radad, M., Soleimani Monfared, M. and Roshandel Kahoo, A., 2019, Fault detection using combination of seismic attributes and Prewitt edge detection method: The First National Conference on Signal and Image Processing in Geophysics, GEOSIG2019, Shahrood, Iran.
Gholamzade, A., Roshandel Kahoo, A. and Radad, M., 2019, Seismic Random Noise Attenuation Using Empirical Low-Rank Approximation: The First National Conference on Signal and Image Processing in Geophysics, GEOSIG2019, Shahrood, Iran.
HosseinPour, H.R., Roshandel Kahoo, A., Radad, M. and Soleimani Monfared, M., 2019, Iso-frequency AVO Analysis: The First National Conference on Signal and Image Processing in Geophysics, GEOSIG2019, Shahrood, Iran.
Khasraji Nejad, H., Roshandel Kahoo, A., Soleimani Monfared, M. and Radad, M., 2019, Multi scale analysis of variance attribute to identify buried channel: The First National Conference on Signal and Image Processing in Geophysics, GEOSIG2019, Shahrood, Iran.
Mafakheri, J., Roshandel Kahoo, A., Radad, M., Anvari, R. and Soleimani Monfared, M., 2019, Random Noise Attenuation in Seismic Data using Multi-Scale TOSSVD Algorithm: The First National Conference on Signal and Image Processing in Geophysics, GEOSIG2019, Shahrood, Iran.
Mahdavi, A., Roshandel Kahoo, A., Radad, M., Soleimani Monfared, M. and Nejati Kalateh, A., 2019, Local Maximum Synchrosqueezing Transform in Spectral Analysis of Seismic Data: The First National Conference on Signal and Image Processing in Geophysics, GEOSIG2019, Shahrood, Iran.
Talaeimanesh, M., Roshandel Kahoo, A. and Radad M., 2019, Designing and manufacturing a trainer seismic geophone: The 4th Seminar on Applied Geophysics in Petroleum Exploration, Tehran, Iran.
Hadiloo, S., Radad, M., Mirzaei, S., and Foomezhi, M., 2017, Seismic Facies Analysis by ANFIS and Fuzzy Clustering Methods to Extract Channel Patterns, 79th EAGE Conference & Exhibition, Paris, France.
Radad, M. and Gholami, A., 2014, Constant Q Analysis by Optimized Sparse S-Transform: 76th EAGE Conference & Exhibition, Amsterdam, The Netherlands.
Radad, M., Gholami, A. and Siahkoohi, H. R., 2014, Optimization of Generalized S-Transform: 16th Geophysics Conference of Iran, Tehran, Iran.
Radad, M., Siahkoohi, H. R. and Hamidi, M., 2011, Ground roll noise attenuation by local time-frequency transform: The 10th SEGJ International Symposium, Imaging and Interpretation, Kyoto, Japan.
Radad, M. and Goudarzi A. R., 2010, Empirical Mode Decomposition: A Filtering Technique for Random Noise Attenuation: The 19th International Geophysical Congress and Exhibition, Ankara, Turkey.
Radad, M. and Goudarzi A.R., 2010, Application of Matching Pursuit Decomposition in Seismic Data Interpretation: The 19th International Geophysical Congress and Exhibition, Ankara, Turkey.
Radad, M. and Hozhabri, R., 2009, Spectral Decomposition: A Useful Instrument for Fault Pattern Visualization: International Earthquake Symposium, Kocaeli, Turkey.
Radad, M., Javaherian, A., Araabi, B. N. and Torabi, M. R., 2009, Direct Detection of Hydrocarbon by Matching Pursuit Decomposition in One of the Reservoirs of South West Iran: First International Petroleum Conference & Exhibition, EAGE, Shiraz, Iran. DOI: 10.3997/2214-4609.20145880.

Thesis Supervision and Advising

Ph. D.
Fatemeh Shahnama (current). Evaluation of time-lapse reservoir effective stress changes using 4D seismic approach. Shahrood University of Technology. (Advisor)
Mahmood Shirazi (2024). Multi-synchrosqueezed optimized S-transform and its application in spectral decomposition of seismic data. Shahrood University of Technology. (Supervisor)
M. Sc.
Hossein Kohandel. Gas hydrates identification and interpretation in seismic data using attribute analysis. Shahrood University of Technology. (Supervisor)
Hamid Amani (current). Application of 2D Fourier transform for texture analysis of seismic data, a case study for salt dome identification. Shahrood University of Technology. (Supervisor)
Hanieh Izadbakhsh (2025). Buried channel detection in seismic data with combination of multi-attribute analysis and unsupervised clustering. Shahrood University of Technology. (Supervisor)
Seyyed Sajjad Hosseini Jonbazi (2025). Improvement on salt dome detection in seismic data using combination of seismic attributes and mathematical morphology operators. Shahrood University of Technology. (Supervisor)
Babak Shamsollahi (2025). Determination of 3D saltdome geobody by classification of seismic attributes using support vector machine. Shahrood University of Technology. (Supervisor)
Seyyed Mohammadreza Mousavinejad (2025). Fault detection in seismic data using eigenvector-based coherence attribute. Shahrood University of Technology. (Supervisor)
Ladan Jalalian Bardar (2024). Evaluation of the potential for reservoir-induced seismicity at Rudbar dam. Shahrood University of Technology. (Supervisor)
Pooya Hassanvand (2024). Identification of buried channels by classification of seismic attributes. Shahrood University of Technology. (Supervisor)
Saeed Latifian (2024). Sedimentary sequences identification using seismic attributes. Shahrood University of Technology. (Supervisor)
Zahra Atashgahi (2023). Seismic Swell Noise Attenuation Using Empirical Mode Decomposition. Shahrood University of Technology. (Supervisor)
Mahdi Barabadi (2023). Time-Frequency Analysis of Seismic Data Using Synchroextracting Transform. Shahrood University of Technology. (Supervisor)
Milad Barzegar (2022). Multi-resolution seismic facies analysis for tackling the residual noise on data. Shahrood University of Technology. (Supervisor)
Jabar Mousavi (2021). Fault Detection Using Combination of Seismic Attributes and Edge Detection Methods. Shahrood University of Technology. (Supervisor)
Soheil Paksima (2021). Generating Seismic Attributes Using Synchrosqueezed S-transform. Shahrood University Technology. (Supervisor)
Morteza Mazhari (2021). Seismic Random Noise Attenuation Using noise-based multi-scale diffusion filter. Shahrood University of Technology. (Advisor)
Meysam Haghani (2021). Fault Pattern Visualization in Gorgan Plain Data Using Seismic Attributes. Shahrood University of Technology. (Supervisor)
Javad Mafakheri (2021). Random Noise Attenuation in Seismic Data using Multi-Scale TOSSVD Algorithm. Shahrood University of Technology. (Supervisor)
Arshad Mahdavi (2021). Application of Local Maximum Synchrosqueezing Transform to Reflection Seismic Data Processing and Interpretation. Shahrood University of Technology. (Supervisor)

Mohammad Hosseinzadegan (2020). Power Line Noise Attenuation in Seismic Data Using by Spectral Interpolation. Shahrood University of Technology. (Supervisor)
Hamid Hosseinpour (2020). Spectral Analysis of Seismic AVO. Shahrood University of Technology. (Supervisor)
Hassan Khasrajinezhad (2020). Identifying Buried Channels in 3D Seismic Data Using Multi Scale Edge Detection Technique. Shahrood University of Technology. (Advisor)
Ali Gholamzadeh (2019). Seismic Random Noise Attenuation Using Empirical Low-Rank Approximation. Shahrood University of Technology. (Supervisor)
Mohsen Talayimanesh (2019). Designing and Manufacturing a Trainer Seismic 10 Hz Three Component Geophone. Shahrood University of Technology. (Supervisor)
Saeed Pishva (2018). Seismic Random noise Attenuation Using Shearlet Transform. Shahrood University of Technology. (Advisor)

Workshops and Internships

Technology Day on Hampson Russell, A fully integrated suite of geophysical advanced interpretation tools, CGG Co., Tehran, Iran, 2017.
Seismic Imaging: A Review of the Techniques, Their Principles, Merits and Limitations (EETIV), EAGE Short Course: Tehran, Iran, 2010.
Internship: “Carbonate rocks, sedimentary rocks, geology subterraneous, structural geology, gravimetry, magnetometry, 2-D and 3-D seismic survey design, reflection seismic data processing and seismic interpretation”, NIOC, Tehran, Iran.

Industrial Research Projects

Using Geomagnetic Method (Through Modeling Experiments) and Comparison with GPR Performance for Detecting Unexploded Ordnance: Military Services Project, Iran's National Elites Foundation, Defined in National Geography Organization of Iran, 2017.
Thin Layers Detection by Matching Pursuit Decomposition Method: R&D Project, Exploration Directorate, NIOC, 2009.

Reviewer of Journals

Geophysics (SEG)	Journal of Applied Geophysics (Elsevier)	Frontiers in Earth Science
Interpretation (SEG)	Geophysical Prospecting (Wiley)	Geopersia
Journal of Geophysics and Engineering (IOP)	Geoscience and Remote Sensing Letters (IEEE)	Iranian Journal of Geophysics
Transactions on Geoscience and Remote Sensing (IEEE)	Pure and Applied Geophysics (Springer)	Journal of the Earth and Space Physics
Digital Signal Processing (Elsevier)	Applied Sciences (MDPI)	Journal of Research on Applied Geophysics
Measurements (Elsevier)	Open Geosciences (Taylor & Francis)	Journal of Analytical and Numerical Methods in Mining Engineering
Minerals (MDPI)	Acta Geophysica	

Research Interests

Signal Processing Methods
Seismic Attributes
Time Frequency Analysis
Geophysical Data Processing and Interpretation