

CURRICULUM VITAE
ASIYE AZIZ ZANJANI, Ph.D.

Research Scientist, Earthquake Seismology

New Mexico Tech Seismological Observatory | Bureau of Geology and Mineral Resources |

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SUMMARY

My research is grounded in solid earth geophysics, integrating observational seismology, computational geophysics, and machine learning (ML) to investigate Earth's structure, earthquake processes, and natural to anthropogenic deformation from local fault zones to continental-scale lithospheric structure. My expertise bridges advanced seismic monitoring and processing tools with broader geological and geophysical data, enabling productive collaborations across diverse disciplines and addressing hazard mitigation related to resource extraction as well as clean energy transition including geothermal development, geologic hydrogen and carbon capture. I help quantify how subsurface fluid injection reactivates faults and drives induced seismicity, revealing complexities of fluid-rock medium within complex geometry and compact structures within sedimentary basins. I'm currently developing a high-precision ensemble machine-learning catalog using my developed module, Pick Aggregator, in northern Delaware basin (southeast New Mexico) as well as constructing a high-resolution shear wave velocity model using ambient noise tomography of a dense 2-D nodal array.

RESEARCH INTERESTS

- High-fidelity, automated machine learning-based earthquake catalog for monitoring induced seismicity and swarm activity in subduction zones and volcanic systems.
- Spatiotemporal analysis of induced seismicity, crustal deformation, and hydrothermal processes using relocated catalogs, focal mechanism, InSAR deformation, pressure modeling, and operational data.
- Understanding inherited crustal structures beneath intraplate seismic zones via seismic imaging using dense arrays.
- Understanding subduction zone dynamics through joint inversion of earthquake locations and velocity models, incorporating source mechanism, stress inversion, and thermal or geomechanical models.
- Understanding spatial variations in seismic attenuation using stochastic modeling of ground motion.

EDUCATION & PROFESSIONAL PREPARATION

Postdoc in Seismology, Southern Methodist University (2022–2025)

Postdoc in Seismology, Saint Louis University (2019–2021)

Ph.D. in Geophysics, Saint Louis University (2014–2019)

Dissertation: "Crustal Structure beneath the Wabash Valley Seismic Zone from Dense Seismic Arrays: Implications for Failed Continental Rifts and Intraplate Seismicity".

M.Sc. in Geophysics, Institute for Advanced Studies in Basic Sciences (2009–2012)

Thesis: "New Insights into the Seismotectonics of Northwest Iran Using the IASBS Temporary Local Seismic Network".

B.Sc. in Geology, University of Tehran (2004–2008)

RESEARCH FUNDING

(Total Awarded Research Funding: \$413K+; Under Review: \$50K+)

Proposals in Review: \$50K

- **Co-Principal Investigator:** *Shallow Subsurface Characterization of the Permian Basin Using Dense Seismic Nodal Arrays*, \$50K, Submitted to **New Mexico EPSCoR Seed Grant**, March 2026, Duration: 1 Year (pilot study using local and regional networks, array design, proposal development and fieldwork).

Awarded Grants as Postdoc: \$413K+

External Grants

- **Grant Task Leader:** *Toward Understanding the Physical Mechanism of Induced Seismicity in Texas*, Texas Bureau of Economic Geology at the University of Texas at Austin, cooperative agreement with TexNet: Seismic network and earthquake research funding through the state of Texas, task allocation \$213K+, Southern Methodist University (2022–2024), contributed to proposal writing, conducted research on the assigned task, and co-authored project reports, PI: Heather DeShon.
- **Grant Writer and Key Personnel:** *Earthquake, Tsunami and landslide hazard studies at U.S. continental margins using ocean bottom seismographs*, **United States Geological Survey (USGS)** Cooperative Funds (G19AC00406), \$97,058, Duration: 1 Year, Start Date: 9/20/2019, Saint Louis University, drafted the proposal, conducted the research, and prepared project reports, PI: Robert B. Herrmann.

Internal Grants

- **Co-Principal Investigator:** SMU Dedman College Research Council Grant, *Precise Earthquake Relocation Along the Cascadia Subduction Zone: Harnessing Machine Learning and Ocean Bottom Seismometers*, \$39,870, Duration: 1 Year, Start Date: 6/1/2025, PI: Heather DeShon.
- **Principal Investigator:** SMU O'Donnell Data Science and Research Computing Institute, *Unveiling Seismotectonics of the Subduction Zones: Leveraging Machine Learning Analysis of Ocean Bottom Seismometers*, \$63,902, Duration: 1 Year, Start Date: 6/1/2024, with Heather DeShon (also PI).

RESEARCH PUBLICATIONS

Manuscripts in Review

1. **Aziz Zanjani, A.** and H. R. DeShon. **Pick Aggregator:** A Multi-Model Ensemble of Machine Learning Pickers to Generate an Onshore-Offshore Seismic Catalog for Puerto Rico and the Virgin Islands, *Seismological Research Letters* (2026) (revision submitted).

Peer-Reviewed Journal Articles

1. **Aziz Zanjani, A.** and R. B. Herrmann. Spatial dependence of high-frequency ground motion along the Chilean subduction zone from aftershock sequences of the Mw 8.8 Maule and Mw 8.2 Iquique earthquakes. *AGU: Earth and Space Science* (2026) (Accepted in July).
2. **Aziz Zanjani, A.**, H. R. DeShon, V. Karanam, and A. Savvaidis (2025). Insights into spatiotemporal evolution of induced earthquakes in the Southern Delaware Basin using calibrated relocations from the TexNet catalog (2017-2022). *AGU Earth and Space Science*, 12(6). <https://doi.org/10.1029/2024EA004027>
3. **Aziz Zanjani, A.**, H. R. DeShon, V. Karanam, and A. Savvaidis (2024). Insights into temporal evolution of induced earthquakes in the Southern Delaware Basin using calibrated relocations from the TXAR catalog (2009-2016). *The Seismic Record*, 4(2), 140–150. <https://doi.org/10.1785/0320240011>
4. Herrmann, R. B., Ch. J. Ammon, H. M. Benz, **A. Aziz Zanjani**, and J. Boschelli (2021). Short-period surface-wave tomography in the continental United States—A resource for research. *Seismological Research Letters*, 92(6), 3642-3656. <https://doi.org/10.1785/0220200462>
5. **Aziz Zanjani, A.**, L. Zhu, R. B. Herrmann, Y. Liu, and J. Conder (2019). Crustal structure beneath the Wabash Valley Seismic Zone from joint inversion of receiver functions and surface-wave dispersions and its implications for continental rifts and intraplate seismicity. *Journal of Geophysical Research: Solid Earth*, 124(7), 7028-7039. <https://doi.org/10.1029/2018JB016989>
6. Ghods, A., E. Shabanian, E. Bergman, M. Faridi, S. Donner, Gh. Mortezaejad, **A. Aziz Zanjani** (2015). The Varzeghan-Ahar, Iran earthquake doublet (Mw 6.4, 6.2): Implications for the geodynamics of northwest Iran. *Geophysical Journal International*, 203(1), 522-540. <https://doi.org/10.1093/gji/ggv111>

doi.org/10.1093/gji/ggv306

7. **Aziz Zanjani, A.**, A. Ghods, F. Sobouti, E. Bergman, Gh. Mortezaejad, K. Priestly, S. Madanipour, M. Rezaeian (2013). Seismicity in the western coast of the South Caspian Basin and the Talesh Mountains. *Geophysical Journal International*, 195(2), 799-814. <https://doi.org/10.1093/gji/ggt299>
8. Mortezaejad, Gh., **A. Aziz Zanjani**, A. Ghods, and F. Sobouti (2013). Insights into the crustal structure and the seismotectonics of the Talesh region using local and teleseismic data. *Scientific Quarterly Journal of Geosciences, Geological Survey of Iran*, 88(2), 38-47 (in Persian).

Open-Source Data Products and Developed Codes

- Pick Aggregator (code): [GitHub](#)
- Relocated machine learning based catalog for Puerto Rico and Virgin Islands (mid 2015– mid 2016): [Zenodo](#)
- Calibrated Earthquake Relocations from the TexNet Catalog (2017–2022) and Vertical Surface Deformation (2016–2022) (Catalog): [Zenodo](#)
- Calibrated Relocations for the TXAR Catalog (2009–2016) (Catalog): [Zenodo](#)

RESEARCH EXPERIENCE

Research Scientist, New Mexico Tech Seismological Observatory (Aug. 2025–Present)

- Developing a high-resolution ensemble machine learning catalog for induced seismicity in southeast New Mexico.
- Shallow subsurface imaging using ambient noise tomography and 2-D dense seismic arrays in southeastern New Mexico to develop a high-resolution shear wave velocity model.
- Establishing collaborative research projects through competitive proposals (NSF, New Mexico EPSCoR Seed Grant).

Postdoctoral Researcher, Southern Methodist University (Feb. 2022–Aug. 2025)

- Developed novel *Pick Aggregator* module to build ensemble machine learning catalogs, applied to offshore seismic swarms north of Puerto Rico-Virgin Islands recorded by ocean bottom seismometers and land stations
- Integrated spatiotemporal analysis of induced seismicity in the Delaware Basin, incorporating seismicity patterns from relocated catalog, InSAR surface deformation, and fluid injection-extraction data
- Helped secured competitive external TexNet funding and wrote proposals for internal fundings.

Postdoctoral Researcher, Saint Louis University (Aug. 2019–June 2021)

- Developed calibrated earthquake locations and focal mechanisms for Puerto Rico Subduction Zone using ocean bottom and land seismometers.

- Secured USGS Cooperative Funds for seismic hazard studies in Puerto Rico.

Graduate Research Assistant, Saint Louis University (Aug. 2014–Aug. 2019)

- Developed high-resolution 2-D velocity model of the Wabash Valley Seismic Zone using joint inversion of receiver functions and surface wave dispersion (NSF project).
- Developed 3-D ambient noise tomography models of the Illinois Basin.
- Developed source-attenuation models using stochastic modeling of ground motion in the Chilean Subduction Zone.

Graduate Research Fellow, Institute for Advanced Studies in Basic Sciences (Aug. 2009–Mar. 2013)

- Investigated seismotectonics of the Talesh Fold-and-Thrust Belt, western coast of South Caspian Basin by developing a local high-resolution earthquake catalog.
- Relocated aftershocks of two major mainshocks in northwest Iran.

TEACHING EXPERIENCE

Instructor of Record

Adjunct Lecturer, Southern Methodist University

- Earth Systems (Canvas-based, undergraduate, 72 students, Fall 2023)

Developed inclusive, active-learning curriculum incorporating real-world applications and case studies, designed hands-on exercises with students presentations on anthropogenic impacts in Earth Systems.

Lecturer, University of Zanjan, Iran

- Introduction to Geophysics (undergraduate, 28 students, Fall 2012).

Teaching Assistant, Saint Louis University

- Sustainable Energy (undergraduate, Fall 2017 & 2018).
- Is Earth Unique? (undergraduate, Spring 2016).
- Earth's Dynamic Environment (undergraduate, Fall 2015 & 2016).

Professional Teaching Development

- **Certificate in University Teaching Skills**, Reinert Center for Transformative Teaching and Learning, Saint Louis University, 15 credits through workshops, online courses, and preparing a teaching portfolio, 2019.
- **Certificate in Teaching Near-surface Geophysics** (GPR, GPS, ERT, and seismic refraction), EarthScope Consortium, Colorado School of Mines, 2026.
- **Canvas Onsite Training**, Reinert Center for Transformative Teaching and Learning, Saint Louis University, 2021.

- **Comprehensive Canvas Training Series**, Southern Methodist University, 2023.

Courses Prepared to Teach

- Upper-level/Graduate: Introduction to Seismology, Applied Geophysics, Machine Learning in Earth Sciences, Induced Seismicity, Advanced Signal Processing, Geophysical Inverse Theory, Earthquakes and Volcanoes, Geophysical Field Methods, Computer Methods in Earth Science, Theoretical/Observational Seismology, Environmental Seismology, Earthquake and Fault Mechanics.
- Introductory Courses: Introduction to Geophysics, Earth Systems, Natural Hazards, Environmental Geology, Plate Tectonics, Structural Geology, Seismotectonics, Historical Geology, Earth Processes, Sustainable Energy, Earth's Dynamic Environment.

MENTORING & STUDENT SUPERVISION

2026 EarthScope Consortium, RESESS Program Summer Intern Mentor

- Nathan Wolski (Geology major from The University of Illinois in Champaign-Urbana): Ambient noise cross-correlation, surface wave dispersion picking, and tomography for developing shear wave velocity models, seismic data processing on Linux, nodal deployment.

Wolski, N., A. Aziz Zanjani, and U. Basu, 2026. Characterizing Southeastern New Mexico's Velocity Structure Using Ambient Noise Tomography, *AGU 2026 Fall Meeting*, San Francisco, CA, poster.

2024-2025 Graduate Student Co-mentor

- Omid Asgarvand (PhD candidate, Southern Methodist University): Machine learning for developing seismic catalogs.

Asgarvand, O., H. R. DeShon, and **A. Aziz Zanjani** (2026). Machine learning-based high-resolution earthquake catalog for the Middle America Trench using ocean bottom and land seismometers, *SSA Annual Meeting*, Pasadena, CA, poster.

Asgarvand, O., **Aziz Zanjani, A.**, and DeShon, H.R. (2025). Machine learning based earthquake catalog for the Middle American Subduction Zone, *NSF GAGE/SAGE Community Science Workshop*, Bloomington, MN, poster.

2022 Undergraduate IRIS Summer Intern Co-mentor

- Chris Justiniano: Seismic data processing on Linux, Machine learning for developing seismic catalogs.

Justiniano Ch., **A. Aziz Zanjani**, and H. R. DeShon (2022). A deep learning approach for induced seismicity in Azle-Reno, North Texas, *AGU Fall Meeting*, Chicago, IL, poster.

INVITED TALKS

- *From drilling to ground shaking: Tracing the effects of oil and gas production on seismicity in the Permian Basin*, New Mexico Tech, Department of Earth and Environmental Science (October 2025)
- *Spatial and temporal evolution of induced seismicity in the Delaware Basin*, UT San Antonio, Department of Earth and Planetary Sciences (October 2023)
- *Spatial and temporal evolution of induced seismicity in the Delaware Basin*, UT Dallas, Department of Sustainable Earth Systems Sciences (September 2023)
- Industry-focused presentations at TexNet & CISR Annual Review Meetings:
 1. *Insights into spatiotemporal evolution of induced seismicity in the Delaware Basin near Pecos, Texas, spanning 2009-2017*, TexNet & CISR 2023 Annual Review Meeting, Bureau of Economic Geology, University of Texas, Dec. 6, 2023.
 2. *Calibrated locations for induced earthquakes in the Delaware Basin, Texas, spanning 2009-2017*, TexNet & CISR 2022 Annual Review Meeting, Bureau of Economic Geology, University of Texas, Dec. 7, 2022.

CONFERENCE PRESENTATIONS & ABSTRACTS

1. **Aziz Zanjani, A.** and Heather R. DeShon (2026). Pick Aggregator: A Multi-Model Ensemble of Machine Learning Pickers to Detect Offshore Seismic Swarms North of Puerto Rico and the Virgin Islands, *SSA 2026 Annual Meeting*, Pasadena, CA, oral.
2. **Aziz Zanjani, A.** and U. Basu (2026). A Comprehensive Machine Learning-Based Catalog for Effective Monitoring of Induced Seismicity in Southeastern New Mexico, *SSA 2026 Annual Meeting*, Pasadena, CA, oral.
3. **Aziz Zanjani, A.** and U. Basu (2026). Constraining Seismic Velocity Structure in Southeastern New Mexico Using Ambient Noise Tomography: Implications for Induced Seismicity Depth Determination, *SSA 2026 Annual Meeting*, Pasadena, CA, poster.
4. **Aziz Zanjani, A.**, U. Basu, and A. Record (2025). Benchmarking Machine Learning Pickers and Pre-trained Models for Induced Seismicity in Southeastern New Mexico. *ESSA 2025 Annual Meeting*, Saint Louis, MO, poster.
5. **Aziz Zanjani, A.** and H. R. DeShon (2025). Seismic Catalog Development North of Puerto Rico and the Virgin Islands Using Machine Learning and Ocean Bottom Seismometers. *ESSA 2025 Annual Meeting*, Saint Louis, MO, oral.
6. **Aziz Zanjani, A.** and H. R. DeShon (2025). Seismotectonics of the Puerto Rico Subduction Zone: Leveraging Machine Learning Analysis of Ocean Bottom Seismometers. *SSA 2025 Annual Meeting*, Baltimore, MD, oral.
7. **Aziz Zanjani, A.**, H. R. DeShon, A. Savvaidis (2024). Spatiotemporal Evolution of Induced Earthquakes in the Southern Delaware Basin, Reeves-Pecos, West Texas. *SSA Annual Meeting*, Anchorage, AK, oral.

8. **Aziz Zanjani, A.**, H. R. DeShon, F. Aziz Zanjani, L. Binetti, A. Savvaidis (2023). Insights into spatiotemporal evolution of induced seismicity in the Delaware Basin near Pecos, Texas, *AGU Fall Meeting*, San Francisco, CA, oral.
9. **Aziz Zanjani, A.**, L. Binetti, and H. R. DeShon (2023). Bridging the data gap and relocation errors for improved spatiotemporal evaluation of induced seismicity in the Delaware Basin. *SSA Annual Meeting*, Puerto Rico, oral.
10. **Aziz Zanjani, A.** and H. R. DeShon (2023). Spatial and temporal characteristics of induced earthquakes in the Delaware Basin near Pecos, Texas, *ESSA Annual Meeting*, Dallas, TX, oral.
11. **Aziz Zanjani, A.**, L. Binetti, and H. R. DeShon (2022). Calibrated locations for induced earthquakes in the Delaware Basin, Texas, spanning 2009-2017, *AGU Fall Meeting*, Chicago, IL, poster.
12. **Aziz Zanjani, A.**, U. S. Ten Brink, R. B. Herrmann and C. H. Flores (2020). P-wave tomography and seismotectonics of the Puerto Rico subduction zone. *AGU Fall Meeting*, online, poster.
13. **Aziz Zanjani, A.**, R. B. Herrmann (2019). Spatial characteristics of high frequency ground motion along the Chilean Subduction Zone. *SSA Annual Meeting*, Seattle, WA, poster.
14. **Aziz Zanjani, A.**, L. Zhu, R. B. Herrmann, Y. Liu, and J. Conder (2017). Crustal structure beneath the Wabash Valley Seismic Zone and implications for the intracontinental seismicity. *AGU Fall Meeting*, New Orleans, LA, poster.
15. **Aziz Zanjani, A.**, Y. Liu, Sh. Hu, L. Zhu, R. B. Herrmann, and J. Conder (2016). Imaging the crustal structure of the Wabash Valley Seismic Zone using ambient noise tomography and receiver functions, *AGU Fall Meeting*, San Francisco, CA, USA, 12–16 Dec., poster.
16. **Aziz Zanjani, A.**, A. Ghods, E. Bergman, M. Rezaeian, and M. Faridi (2014). Relocation of the 1997 Mw 6.1 Golestan, Ardebil, earthquake sequence: A hint for a fault mechanism, *AGU Fall Meeting*, San Francisco, CA., USA, poster.
17. **Aziz Zanjani, A.**, A. Ghods, Gh. Mortezaejad, Insights into the seismotectonics of the South Caspian Basin using HDC algorithm for relocating earthquakes (2012), 15th Iranian Geophysical Conference, Tehran, Iran, oral.
18. **Aziz Zanjani, A.**, A. Ghods, Gh. Mortezaejad, and F. Sobouti (2012). Rupture directivity of the causative fault of 1997 Golestan-Ardebil earthquake, 15th Iranian Geophysical Conference, Tehran, Iran, oral.
19. **Aziz Zanjani, A.**, A. Ghods, Gh. Mortezaejad, F. Sobouti, and Mahnaz Rezaeian (2010). The seismicity of Talesh Mountains using local network data, 29th Symposium on the Geoscience, Geological Survey of Iran, Tehran, Iran, oral.

Other Co-authored abstracts:

- Wolski, N., **A. Aziz Zanjani**, and U. Basu, 2026. Characterizing Southeastern New Mexico's Velocity Structure Using Ambient Noise Tomography, *AGU 2026 Fall Meeting*, San Francisco, CA, poster.
- DeShon, H.R., Y. Seldon, P. Neupane, **A. Aziz Zanjani**, and J. Walter (2026). Comparison of Swarm Activity in Natural and Induced Intraplate Tectonic Settings, *SSA 2026 Annual Meeting*, Pasadena, CA, oral.
- Asgarvand, O., **A. Aziz Zanjani**, and H.R. DeShon (2026). Machine learning-based high-resolution earthquake catalog for the Middle America Trench using ocean bottom and land seismometers, *SSA 2026 Annual Meeting*, Pasadena, CA, poster.
- Asgarvand, O., **A. Aziz Zanjani**, and DeShon, H.R. (2025). Machine learning based earthquake catalog for the Middle American Subduction Zone, *NSF GAGE/SAGE Community Science Workshop*, Bloomington, MN, poster.
- DeShon, H.R., **A. Aziz Zanjani**, Y. Seldon, and J. Walter (2024). What can nearest neighbor approximation reveal about intraplate earthquakes? *Eastern Section SSA Annual Meeting*, Atlanta, GA, oral.
- DeShon, H.R., **A. Aziz Zanjani**, and J. Rosenblit (2023). Permian Basin seismicity and insights gained from studies of the Fort Worth Basin, Texas, *Eastern Section SSA Annual Meeting*, Dallas, TX, oral.
- DeShon, H.R., **A. Aziz Zanjani**, K. Sabunis, J. Rosenblit, and C.M. Justiniano Velez (2022). Exploring machine learning based detectors for induced earthquakes and complex network geometries in the oil and gas fields of Texas and Oklahoma, *AGU Fall Meeting*, Chicago, IL, oral.
- Justiniano Ch., **A. Aziz Zanjani**, and H. R. DeShon (2022). A deep learning approach for induced seismicity in Azle-Reno, North Texas, *AGU Fall Meeting*, Chicago, IL, poster.
- Zhu, L., **A. Aziz Zanjani**, Sh. Hu, Y. Liu, R. B. Herrmann, and J. Conder (2015). Preliminary results of crustal structure beneath the Wabash Valley Seismic Zone using teleseismic receiver functions and ambient noise tomography, *AGU Fall Meeting*, San Francisco, CA, USA, 14–18 Dec., poster.

MEDIA & PUBLIC ENGAGEMENT

- *Dallas Morning News*: "Is it natural or fracking? SMU study reveals cause of past Texas earthquakes" (August 2024)
- *SMU News, Research*: "Study revisits Texas seismic activity occurring before 2017, confirming connection to wastewater injection" (August 2024)

PROFESSIONAL SERVICE

Leadership & Organization in Professional Meetings

Scientific Session Organizer, Chair, and Corresponding Convener

- SSA 2026: "From Drilling to Ground Shaking: Mechanisms, Monitoring, and Mitigation of Induced Earthquakes," Pasadena, CA.

- SSA 2024: "Induced Earthquakes: Source Characteristics, Mechanisms, Stress Field Modeling, and Hazards," Anchorage, Alaska.
- AGU 2023: "De-Risking Induced and Triggered Earthquake: Advances in Theory, Monitoring, and Forecast Modeling," San Francisco, CA.

Co-Convener

- Eastern Section of SSA Annual Meeting, SMU, Dallas (2023).

Peer Review & Evaluation

Journal Peer Reviewer*

- Seismological Society of America: The Seismic Record (2026), Bulletin of the Seismological Society of America (BSSA) (2021).
- American Geophysical Union: Earth and Space Science (2025), Earth Surface (2025).

*Publons Academy Peer Reviewer Certificate, endorsed by a qualified supervisor, an online peer review course corresponding to 15 hours, two paper reviews (2021).

Outstanding Student Presentation Award (OSPA) Judge

- AGU Fall Meeting (2023).
- SSA Annual Meetings (2023, 2024, 2025, 2026).
- ESSA Annual Meeting (2023, 2025).

K-12+ Outreach Activities

- STEM Earthquake Research Workshop facilitator for middle school students, Medlin Middle School, STEM day, May 2022.
- Tech Trek, New Mexico Bureau of Geology and Mineral Resources, 2026.

FIELDWORK EXPERIENCE

- Nodal arrays design, field logistics, driving in difficult terrains, and FairField 2-D nodal deployment and data retrieval, southeastern New Mexico (Carlsbad), New Mexico, Bureau of Geology and Mineral Resources (summer 2026).
- Smart Solo node deployment, Socorro, New Mexico, Bureau of Geology and Mineral Resources (summer 2026).
- Teaching near-surface geophysics workshop (GPR, GPS, ERT, and seismic refraction), EarthScope Consortium, Colorado School of Mines (summer 2026).
- Active seismic refraction survey, Southern Methodist University (2023).

- Deployment of broadband seismometers for the Wabash Valley project, Saint Louis University (2015).
- Geophysical field campaigns for geodetic, gravity, and geoelectrical data acquisition, processing, and modeling, Institute for Advanced Studies in Basic Sciences (2010).
- Structural measurements around Sabalan Volcano, research project, Institute for Advanced Studies in Basic Sciences (2013).
- Structural and geological mapping of Qom Formation, University of Tehran (2007).

TECHNICAL EXPERTISE

Programming & High-Performance Computing (HPC): Python, MATLAB, Fortran, Bash scripting, HPC cluster management (SLURM, SBATCH, parallel processing), cloud computing

Seismological Analysis Software: Massive Parallel Analysis System for Seismologists (MsPASS), Computer Programs in Seismology (CPS), SAC/GSAC, ObsPy, SEISAN, XCORLOC, NonLinLoc, CAP, HypoDD, HypoInverse, GrowClust, tomoDD, VELEST, SMSIM

Machine Learning: EQTransformer, PhaseNet, SeisBench, GaMMA, PyOcta

Data Processing & Visualization: GMT, Python (Matplotlib, Seaborn), QGIS, Google Earth, LaTeX

Professional Certifications:

- EarthScope Consortium Certificate for Using MsPASS for Data Processing on HPC and Cloud Systems (2025).
- NVIDIA DLI Certificate: Fundamentals of Deep Learning (2023).

Professional Memberships

- American Geophysical Union (AGU).
- Seismological Society of America (SSA).

FELLOWSHIPS & AWARDS

- O'Donnell Data Science and Research Computing Institute Grant, 2024.
- Postdoctoral Fellowship, Texas Seismological Network Cooperative Funds, 2022-2024.
- Postdoctoral Fellowship, USGS Cooperative Funds, 2019.
- Seismological Society of America Travel Award, 2026.
- Best Presentation Award among postdoctoral scholars, Research and Innovation Week, Moody School of Graduate and Advanced Studies, Southern Methodist University (2023).
- Oral Presentation Award, 15th Iranian Geophysical Conference, Iranian National Geophysical Society, Tehran, Iran (2012).