

JIAXUAN LI

jxli@caltech.edu (281)-222-8499
Caltech Seismological Laboratory
1200 E. California Blvd., Pasadena, CA, 91125

EDUCATION

University of Houston	Ph.D. in Geophysics	2015 - 2020
Peking University	B.S. in Geophysics	2011 - 2015

PROFESSIONAL APPOINTMENTS

University of Houston	Assistant Professor	Jan 2025 -
California Institute of Technology	Postdoctoral Scholar	Nov 2020 - Present
Los Alamos National Laboratory	Graduate Research Assistant	2019 - 2020
Aramco Houston Research Center	Internship	Summer 2019
ConocoPhillips	Internship	Summer 2017
Tokyo University	Research Internship	Summer 2014

AWARDS

NSM Best Dissertation Award, University of Houston	2020
EAS Graduate Student Excellence Award (awarded to 1 over 200+ grad students)	2019
SEG/DGS Scholarship	2019
UH EAS Outstanding Academic Achievement Scholarship	2018
Dobrin Lecture Best Poster Presentation	2016/2018/2019
UH EAS Research Day Best Oral Presentation	2016
Merit Student Award, Peking University	2015
GSS-Utrip Scholarship, Tokyo University	2014
Liu Guangding Geophysics Scholarship (top 2 students in Geophysics)	2012

PUBLICATIONS

Selected peer-reviewed

1. **Li, J.**, Kim, T., Lapusta, N., Biondi, E. & Zhan, Z. (2023). The break of earthquake asperities imaged by distributed acoustic sensing. *Nature* 1–7. ([link](#), [pdf](#), [research briefing](#))
2. **Li, J.**, Zhu, W., Biondi, E., & Zhan, Z. (2023). Earthquake focal mechanisms with distributed acoustic sensing. *Nature Communications*, 14(1). ([link](#), [pdf](#), [peer review](#))
3. **Li, J.**, Zheng, Y., Thomsen, L., Lapen, T. J., & Fang, X. (2018). Deep earthquakes in subducting slabs hosted in highly anisotropic rock fabric. *Nature Geoscience*, 11(9). ([link](#), [pdf](#), [news](#) by Prof. Romanowicz)

In review/preparation

4. **Li, J.**, Biondi, E., Heimisson, E., Puel, S., et al., Minute-scale dynamics of repeated dike intrusions in Iceland with fiber-optic geodesy. (*in review*)
5. Appini, S., **Li, J.**, Hu, H., Creasy, N., Thomsen, L., & Zheng, Y. Influence of strong intra-slab anisotropy across Ryukyu from shear-wave splitting patterns. (*in review*)
6. Bird, E., Atterholt, J., **Li, J.**, Biondi, E., et al., Constraining Dike Opening Models With Seismic Velocity Changes Associated with the 2023-2024 Eruption Sequence on the Reykjanes Peninsula. (*in review*)

7. Zhai, Q., Yin, J., Yang, Y., Atterholt, J., **Li, J.**, Husker, A., Zhan, Z., Comprehensive Evaluation of DAS Arrays in California: Instrument Response, Noise Floor, and Amplitude Saturation (*in review*)
8. **Li, J.**, Yang, Y., Biondi, E., Reid-McLaughlin, A., Aster, R., Wiens, D., Karrenbach, M., & Zhan, Z. Rupture imaging of firm quakes with distributed acoustic sensing. (*in prep*)
9. **Li, J.**, Wang, X., & Zhan, Z. Waveform-based moment tensor catalog in Southern California using SCEC community velocity model. (*in prep*)

Peer-reviewed

10. Feng, Z., Huang, L., Chi, B., Gao, K., **Li, J.**, Ajo-Franklin, J., et al. (2024) Monitoring spatiotemporal evolution of fractures during hydraulic stimulations at the first EGS collab testbed using anisotropic elastic-waveform inversion. *Geothermics*, 122, 103076. ([link](#), [pdf](#))
11. Qin, Y., **Li, J.**, Huang, L., Schoenball, M., Ajo-Franklin, J., Blankenship, D., Kneafsey, T., & EGS Collab Team (2024) Source mechanism of kHz microseismic events recorded in multiple boreholes at the first EGS Collab Testbed. *Geothermics*, ([link](#), [pdf](#)).
12. Han, X., Spica, Z., **Li, J.**, Zhan, Z. (2024) Detection of earthquake infragravity and tsunami waves with underwater distributed acoustic sensing. *Geophysical Research Letters*, ([link](#), [pdf](#)).
13. Zhu, W., Biondi, E., **Li, J.**, Yin, J., & Zhan, Z. (2023). Seismic Arrival-time Picking on Distributed Acoustic Sensing Data using Semi-supervised Learning. *Nature Communications*. ([link](#), [pdf](#)).
14. Biondi, E., Zhu, W., **Li, J.**, Williams, E., & Zhan, Z. (2023) An Upper-Crust Lid over the Long Valley Magma Chamber. *Science Advances* 9, no. 42. ([link](#), [pdf](#))
15. Yin, J., Zhu, W., **Li, J.**, Biondi, E., Miao, Y., Spica, Z. J., Viens, L., Shinohara, M., Ide, S., Mochizuki, K., Husker, A. L., & Zhan, Z. (2023). Earthquake Magnitude With DAS: A Transferable Data-Based Scaling Relation. *Geophysical Research Letters*, 50(10). ([link](#), [pdf](#))
16. Qin, Y., **Li, J.**, Huang, L., Gao, K., Li, D., Chen, T., Bratton, T., El-kaseeh, G., Ampomah, W., Ispirescu, T., Cather, M., Balch, R., Zheng, Y., Tang, S., McCormack, K. L., & McPherson, B. (2023). Microseismic Monitoring at the Farnsworth CO2-EOR Field. *Energies*, 16(10), ([link](#), [pdf](#))
17. **Li, J.**, Hu, H., & Zheng, Y. (2019). Physics-guided machine learning identification of discrete fractures from double beam images. *SEG Technical Program Expanded Abstracts* 2019 (pp. 2433–2437). ([link](#), [pdf](#))
18. **Li, J.**, & Zheng, Y. (2019). Generation of a stochastic binary field that fits a given heterogeneity power spectrum. *Geophysical Journal International*, 217(1), 294–300. ([link](#), [pdf](#))

Others

19. **Li, J.** (2020) Inverting In-situ Anisotropy in Global Subduction Slabs Using Deep Earthquakes and Imaging Binary Mixtures and Fractures. *Ph.D. dissertation*. ([pdf](#))
20. **Li, J.**, Zhang, H., & AlAli, A. (2019) 3D staggered-grid finite-difference modeling of seismic waves in elastic media with discrete fractures. *Research report*. Aramco Houston Research Center. ([pdf](#))

PATENTS

- Inverting earthquake focal mechanisms with distributed acoustic sensing (filed).
- Fiber-seismic tomography (filed).
- Method of geochemical characterization, production allocation, and monitoring using trace and ultra-trace element analysis (US11460408).

GRANTS

- NSF EAR-1621878 (\$136,992): In-situ seismic anisotropy in the source region of global deep earthquakes. *Major contributor and writer*.

- NSF EAR-2027150 (\$314,146): Verification of predicted shear wave splitting due to strong seismic anisotropy in subducting slabs. *Major contributor and writer.*
- DOE DE-EE0008764 (\$625,000): Detecting and characterizing fracture zones using convolutional neural network. *Contributor and writer to the machine learning section.*
- DOE DE- EE0008764 (\$1,123,201): Detecting and characterizing fracture zones using convolutional neural network (phase 2). *Contributor to the machine learning section.*

TEACHING EXPERIENCE

Guest Lecturer	Advanced Seismology, Caltech	Spring 2021
Lecturer	Geophysical Signals and Analysis Lab, UH	Fall 2016 & 2017
Teaching Assistant	Physical Geology, UH	Fall 2015; Spring 2017
	Global Seismology, UH	Spring 2016

FIELD EXPERIENCE

Deployment of fiber cable and active seismic survey on Langjökull glacier, Iceland	2024
Deployment of DAS units in Mammoth/Olancho/Ridgecrest/Morro Bay, CA	2021, 2022, 2023
Tap test of DAS arrays in Mammoth/Ridgecrest/Alameda, CA	2021, 2022, 2023
Deployment of broadband seismometers in Gansu, China	2014

INVITED TALKS

1. Imaging Magma Plumbing Dynamics Using Low-frequency DAS Measurements. AGU Fall Meeting, 2024
2. Caltech Seismolab Seminar, 2024
3. Lithosphere Dynamics (LD) Seminar, USC. 2024
4. Advancing Earthquake Characterization with Telecom Fiber Networks. 2024 SSA Photonic Seismology Workshop.
5. Seismic Source Characterization with Distributed Acoustic Sensing. ARMA Meeting, 2024
6. EPS Seminar, UC Berkeley. 2024.
7. Rupture Imaging of Firm Quakes with Distributed Acoustic Sensing. SSA Annual Meeting, 2024
8. Earthquake Monitoring and Characterization with Distributed Acoustic Sensing. IGARSS Meeting, 2023.

PROFESSIONAL SERVICES

Reviewer for

AGU Books	Bulletin of the Seismological Society of America
Earthquake Science	Geophysical Journal International
Geophysical Prospecting	Geophysics
Geothermics	Journal of Geophysical Research: Solid Earth
IEEE Transactions on Geoscience and Remote Sensing	Scientific Reports
Seismological Research Letters	

PROFESSIONAL SOCIETIES

- AGU (American Geophysical Union)
- SCEC (Southern California Earthquake Center)
- SSA (Seismological Society of America)
- ARMA (American Rock Mechanics Association)