

Xun (Jack) Li

PhD in Geophysics

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PROFILE

I am a highly motivated geophysicist with a solid academic background and a passion for pushing the boundaries of laboratory earthquake research, aiming to validate and develop new technologies for the transition towards a net-zero world. I am keen on leveraging my multidisciplinary knowledge to drive groundbreaking research initiatives and shape the future of seismic wave applications for subsurface energy explorations, particularly in geothermal heat extraction and carbon dioxide storage projects, with laboratory methods employed. My expertise spans a diverse spectrum encompassing geophysics, acoustics, and rock physics, providing me with a comprehensive understanding of the intricate dynamics in the Earth's subsurface and a diverse range of tools to explore the subsurface. I am deeply committed to nurturing the next generation of geoscientists and sharing my knowledge with students, offering insights gleaned from the academic training I received and my research journey.

PROFESSIONAL CAREER

Postdoctoral Research Associate 2023–Now
• School of GeoSciences, The University of Edinburgh, Scotland, United Kingdom

EDUCATION

Swiss Federal Institute of Technology, Zurich (ETH), Switzerland 2018–2022
• PhD., Geophysics
• Thesis: *Elastic immersive wave experimentation*
• Advisor: Prof. Johan Robertsson

Colorado School of Mines, United States 2016–2018
• MSc., Geophysics
• Thesis: *A unified interpretation of nonlinear elasticity in granular solids* GPA: 3.99
• Advisor: Prof. Roel Snieder

University of Edinburgh, United Kingdom 2014–2016
• BSc (Hons)., Geophysics, **First Class** GPA: 77/100

Nanjing University, China 2012–2014
• BSc., Geology GPA: 4.52/5.0

PEER-REVIEWED PUBLICATIONS

1. **Li, X.**, Robertsson, J., and van Manen, D-J., Elastic immersive wave experimentation, *Geophysical Journal International*, 2023
2. **Li, X.**, Robertsson, J., Curtis, A., and van Manen, D-J., Internal absorbing boundary conditions for closed-aperture wavefield decomposition in solid media with unknown interiors, *The Journal of the Acoustical Society of America*, 2022
3. **Li, X.**, Koene, E., van Manen, D-J., Robertsson, J., and Curtis, A., Elastic immersive wavefield modelling, *Journal of Computational Physics*, 2022
4. **Li, X.**, Becker, T., Ravasi, M., Robertsson, J., and van Manen, D-J., Closed-aperture unbounded acoustics experimentation using multidimensional deconvolution, *The Journal of the Acoustical Society of America*, 2021 (**Front cover of March issue**)
5. **Li, X.**, Robertsson, J., Curtis, A., and van Manen, D-J., Compensating for source directivity in immersive wave experimentation, *The Journal of the Acoustical Society of America*, 2019
6. **Li, X.**, Sens-Schönfelder, C., and Snieder, R., Nonlinear elasticity in resonance experiments, *Physical Review B*, 2018

7. **Li, X.**, Main, I., and Jupe, A., Induced seismicity at the UK 'hot dry rock' test site for geothermal energy production, *Geophysical Journal International*, 2018
8. Müller, J., Becker, T. S., **Li, X.**, Aichele, J., Serra-Garcia, M., Robertsson, J. O. A., van Manen, D-J., Acoustic cloning, *Physical Review Applied*, 2023
9. Becker, T. S., van Manen, D-J., Haag, T., Bärlocher, C., **Li, X.**, Bösing, N., Curtis, A., Serra-Garcia, M., and Robertsson, J., Broadband acoustic invisibility and illusions, *Science Advances*, 2021
10. van Manen, D-J., **Li, X.***, Vasmel. R., Broggini, F., and Robertsson, J., Exact extrapolation and immersive modelling with finite-difference injection, *Geophysical Journal International*, 2020
11. Sens-Schönfelder, C., Snieder, R., and **Li, X.**, A model for nonlinear elasticity in rocks based on internal friction and contact aging, *Geophysical Journal International*, 2019

* Serve as the corresponding author

EXPANDED ABSTRACTS

1. **Li, X.**, Börsing, N., Becker, T., van Manen, D-J., Curtis, A., and Robertsson, J., Immersive Wave Control Experiments Using Non-isotropic Sources: Laboratory Applications, *Forum Acousticum 2020* (no peer review).
2. **Li, X.**, Becker, T., Ravasi, M., Robertsson, J., and van Manen, D-J., Multidimensional Deconvolution for Boundary Reflection Removal and Complete Scattering Characterization in Physical Acoustics Experiments, *32nd Parallel Computational Fluid Dynamics Conference (ParCFD 2021)* (limited peer review).

CONFERENCES ABSTRACTS

1. van Manen, D-J., Becker, T., **Li, X.**, Müller, J., Aichele, J., Serra-Garcia, M., and Robertsson, J., Acoustic Cloning, International Conference on Underwater Acoustics 2022 (ICUA2022)
2. **Li, X.**, Becker, T., Ravasi, M., Robertsson, J., and van Manen, D-J., Unbounded full-aperture acoustic wave experimentation using multidimensional deconvolution, *meeting of the Acoustical Society of America (ASA), 2021 Fall*.
3. **Li, X.**, Börsing, N., Becker, T., van Manen, D-J., Curtis, A., and Robertsson, J., Immersive wave control experimentation using compensated directive sources, *meeting of the Acoustical Society of America (ASA), 2019 Fall*.
4. Sens-Schönfelder, C., Snieder, R., and **Li, X.**, A physics-based model for seismic velocity changes induced by dynamic strain, *EGU General Assembly Conference, 2018*

INVITED PRESENTATIONS

1. *Closed-aperture unbounded acoustics experimentation using multidimensional deconvolution at the Langevin Institute (Paris)* 2023.02

APPROVED GRANTS

1. *Seismic control of laboratory earthquakes in granular media*. Postdoc fellowship funded by LabEx WIFI at the Langevin Institute (ESPCI, Paris). Funding: €57,854, 2023. Reviewed by an Internal selection committee.
2. *Laser ultrasonic laboratory for studying nonlinear wave propagation in granular materials*. Postdoc Mobility fellowship approved by the Swiss National Science Foundation Funding: CHF 106,600, 2023. Stringently peer-reviewed as a grant.

TEACHING EXPERIENCE

- *Numerical Modelling in Applied Geophysics* (master level), ETH Zurich 2019–2022
 - Post-course tutorial sessions (Teaching Assistant)
 - Exercise grading
- *Exploration and Environmental Geophysics* (undergraduate level). ETH Zurich 2019
 - Post-course exercise grading (Teaching Assistant)

REFEREE WORK

- Geophysics
- Geophysical Research Letter
- Geophysical Prospecting
- Petroleum Science

SOCIETY MEMBERSHIPS

- Acoustical Society of America (ASA)
- European Association of Geoscientists and Engineers (EAGE)
- Society of Exploration Geophysicists (SEG)

AWARDS

ETH, Zurich

- Chinese government award for outstanding self-finance students abroad 2021
 - Awarded annually to 500 students globally

University of Edinburgh

- Class Medal for 3rd Year Geophysics 2015
- Mobil North Sea Prize 2015
 - Awarded annually to the best junior student

Nanjing University

- China National Scholarship for undergraduate students 2013