Xiang Li

Assistant Professor,

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Professional Appointments

Aug. 2024-present	**Michigan Technological University**, Houghton, MI, USA Assistant Professor in Geological Engineering
Dec.2022-Aug. 2024	**University of California, Los Angeles**, Los Angeles, CA, USA Postdoctoral Scholar
Aug.2022-Nov.2022	**Northwestern University**, Evanston, Illinois, USA Postdoctoral Research Assistant
Jan.2017-Dec.2017	**Northwestern University**, Evanston, Illinois, USA Research Collaborator

Education

Jan.2018-Aug.2022	**Northwestern University**, Evanston, Illinois, USA Ph.D., Geotechnical Engineering
Sep.2015-Dec.2016	**Northwestern University**, Evanston, Illinois, USA M.S., Geotechnical Engineering
Sep.2013-Jul.2015	**Chang'an University**, Xi'an, Shaanxi, China M.S., Geological Engineering
Sep.2009-Jul.2013	**Xi'an University of Science and Technology**, Xi'an, Shaanxi, China B.S., Geological Engineering

Research Interests

- Geomechanics
- Unsaturated Soils
- Constitutive Modelling
- Finite Element Analysis
- InSAR
- Data driven analysis

Publications in Peer-reviewed Journals

Li, X., Handwerger, A. L., and Buscarnera, G. (2026). Simulating the catastrophic acceleration of creeping landslides with critical state plasticity. *Engineering Geology,* 368, 108773.

Li, X., Handwerger, A. L., Peltzer, G, and Fielding, E. (2024). Exploring the behaviors of initiated progressive failure and slow-moving landslides using InSAR. *Geophysical Research Letters,* 51 (13), e2024GL108267.

Li, X., Chen, Y., Handwerger, A. L., and Buscarnera, G. (2023). Dynamics of creeping landslides controlled by inelastic hydro-mechanical couplings. *Engineering Geology*, 317, 107078.

Li, X., Handwerger, A. L., and Buscarnera, G. (2023). Viscoplastic modelling of rainfall-driven slow-moving landslides: application to California Coast Ranges. *Landslides*, https://doi.org/10.1007/s10346-023-02039-1.

Li, C., Handwerger, A. L., Wang, J., Yu, W., **Li, X.**, Finnegan, N. J., Xie, Y., Buscarnera, G., and Horton, D. (2022). Augmentation of WRF-Hydro to simulate overland-flow- and streamflow-generated debris flow susceptibility in burn scars. *Nat. Hazards Earth Syst. Sci.*, 22, 2317-2345.

Li, X., Lizarraga, J. J., and Buscarnera, G. (2021). Regional-scale simulation of flowslide triggering in stratified deposits. *Engineering Geology*, 292, 106248.

Song, Z., **Li, X**., Lizarraga, J. J., Zhao, L., and Buscarnera, G. (2021). Shallow landslide triggering in unsaturated vegetated slopes: Efficient computation of susceptibility maps. *Computers and Geoscience*, 154, 104826.

Song, Z., **Li, X**., Lizarraga, J. J., Zhao, L., and Buscarnera, G. (2020). Spatially distributed landslide triggering analyses accounting for coupled infiltration and volume change. *Landslides*, 17 (12), 2811-2824.

Papers submitted

Li, X., Handwerger, A. L., Skarbek, R., and Buscarnera, G (2026). Stability analysis of slow-moving landslides incorporating rate and state friction and flow-deformation coupling. In preparation for *Journal of Geophysical Research Earth Surface*.

Contributions to International and National Conferences

Li, X., Handwerger, A. L., Skarbek, R., and Buscarnera, G (2026). Stability Analysis of Slow-Moving Landslides Incorporating Rate-Dependent Strength. Geo-Congress 2026. Salt Lake City, Utah, March, 9-12.

Li, X., Handwerger, A. L., Skarbek, R., and Buscarnera, G (2025). Assessing the Stability of Active Slow-moving Landslides through Integrated Geotechnical Modeling and InSAR Remote Sensing. *AGU 2025.* New Orleans, Luisana, Dec 15-19.

Buscarnera, G., Chen, Y., **Li, X** (2025). A framework to capture the loss of hydromechanical stability of unsaturated shallow ground subjected to rainstorms. *4th Pan-American Conference on Unsaturated Soils*. Ottawa, Canada, June 22-25.

Li, X, Buscarnera, G (2024). A Semi-Analytical Framework to Simulate the Motion of Creeping Landslides. Geo-Congress 2024, Vancouver, Canada, Feb. 25-28.

Li, X., Handwerger, A.L., Peltzer, G., Fielding, E. J (2023). From creep to catastrophe: unraveling landslide dynamics in Los Angeles through InSAR, Pixel Offset Tracking, and numerical modeling, AGU 2023, San Fransisco, CA, Dec. 11-15.

Li, X., Chen, Y., Handwerger, A.L., and Buscarnera, G. (2023). Modelling the dynamics of slow-moving landslides driven by precipitation. 2023 PGS Workshop & 19th G.A. Leonards Lecture, West Lafayette, May 5, 2023.

Li, X., and Buscarnera, G. (2022). Coupled flow-deformation analyses in creeping landslides catastrophic acceleration. *Engineering Mechanics Institute 2022*, Baltimore, MD, May 31-June 3.

Li, X., Handwerger, A.L., and Buscarnera, G. (2021). Simulation of landslide creep driven by coupled hydro-mechanical processes. *Biot-Bazant Conference*, Evanston, IL, June 1-3, 2021.

Li, X., Chen, Y., Lizarraga, J. J., and Buscarnera, G. (2021). Coupled infiltration-deformation regional analyses in landslide-prone swelling /collapsing ground. *Engineering Mechanics Institute 2021,* May 26-28.

Lizarraga, J. J., **Li, X.**, and Buscarnera, G. (2021). Flowslide triggering in volcanic soils: Role of stratigraphy and bedrock exfiltration. *Geo-Extreme 2021*, Savannah, Georgia, November 7-10, 2021.

Li, X., Song, Z., Lizarraga, J. J., and Buscarnera, G. (2019). Regional-scale modelling of rainfall-induced flowslides in unsaturated shallow slopes. *7th International Conference on Debris-Flow Hazard Mitigation*, Colorado, 10-13 June.

Lizarraga, J. J., **Li, X**., Buscarnera, G., and Cuomo, S. (2018). Performance of advanced safety factor theories against field evidences of variable triggering mechanisms. *Proc. of the 7th Int. Conference on Unsaturated Soils*, Hong Kong, 4-5, August 2018.

Invited talks

Invited Seminar at Wayne State University, Detroit, Michigan, March 2026, Topic: "Interpreting Landslide Kinematics and Failure Transitions Using Geotechnical Modeling and Remote Sensing".

Invited Seminar at University of Hawaii, Maona, April 2024, Topic: "Integrating Satellite Remote Sensing and Geotechnical Modelling: A New Frontier to Predict Geosystem Failure".

Invited Seminar at Michigan Technological University, Houghton, MI, March 2024, Topic: "Integrating Satellite Remote Sensing and Geotechnical Modelling: A New Frontier to Predict Geosystem Failure".

Invited Seminar at Georgia Institute of Technology, Atalanta, GA, February 2024, Topic: "Integrating Satellite Remote Sensing and Geotechnical Modelling: A New Frontier to Predict Geosystem Failure".

Invited Seminar at Jet Propulsion Laboratory, August 2023, Topic: 'From creep to catastrophe: unraveling landslide dynamics in Los Angeles through InSAR, Pixel Offset Tracking, and numerical modeling".

Teaching Experience

- **Department of GEMS, MTU**
  - GE1200 (co-teach): Introduction to Data Science for Earth Resource Application.
  - GE4860&5840: Computational methods in Geomechanics
  - GE3890: Engineering Geology and Rock Mechanics

Student Supervision

Graduate Research Assistant

- Brighton Muwi, PhD in Geological Engineering (exp. 2029 Fall). Thesis Title: Multidimensional Modeling of Landslide Behavior with Coupled Flow–Deformation Processes
- Alex Gurrola-Beltran, AGU Bridge M.S., in Geological Engineering (exp. 2027 summer). Thesis Title: Reconstruction and Interpretation of Multidimensional Ground Displacement from InSAR observations

Master student

- Munyaradzi Mudhina, M.S. in Mining Engineering (exp., Spring 2027).
- Brandon Mutovido, M.S. in Mining Engineering (exp., Spring 2027).
- Ronald Gonye, M.S. in Mining Engineering (exp., Spring 2027).

Undergraduate researchers

- Avery Spalding, Geology, MTU, funded through REU.
- Christina Lucas, Geological Engineering, MTU.
- Natilie Sorenson, Geological Engineering, MTU, funded through REU.

Institutional Service

- Reviewer for the journals: *Engineering Geology, Geophysical Research Letters*, *Géotechnique Letters, Journal of Geotechnical and Geoenvironmental Engineering, Remote Sensing of Environment, Journal of Geophysical Research - Earth Surface, Earth and Planetary Science Letters, Landslides, Water Resources Research, International Journal for Numerical and Analytical Methods in Geomechanics, Scientific Reports, Nature Communications, Acta Geotechnica*
- Proposal reviewer for the *US National Science Foundation, Swiss National Science Foundation*
- Faculty search committee member, 2025, GMES, MTU
- Committee Member, Curricular Committees for Geological Engineering, and Mining Engineering MTU.
- Member of the American Society of Civil Engineering (ASCE), American Geophysical Union (AGU).
- Member of Soil Properties and Modeling committee of the Geo-Institute of the ASCE.

Media Features

1. Los Angeles Times (July 12, 2024), Danger signs were present before Palos Verdes landslide destroyed homes, new study finds. https://www.latimes.com/california/story /2024-07-12/could-satellite-imaging-have-predicted-the-shocking-rolling-hills-estates -landslide-last-summer-researchers-say-yes

2. Physics.org (July 12,2024), 2023 Rolling Hills Estates landslide likely began the winter before, https://phys.org/news/2024-07-hills-estates-landslide-began-winter.html