

# Xiang Li

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## Professional Appointments

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

## Education

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

**Li, X.**, Handwerger, A. L., and Buscarnera, G. (2025). Simulating the catastrophic acceleration of creeping landslides with critical state plasticity. Submitted to *Engineering Geology*.

**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 (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. *4<sup>th</sup> 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 & 19<sup>th</sup> 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. *7<sup>th</sup> 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 7<sup>th</sup> Int. Conference on Unsaturated Soils*, Hong Kong, 4-5, August 2018.

### Invited talks

*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

#### ▪ Department of CEE, Northwestern University

Teaching assistant, CIV_ENV 452, <i>Unsaturated Soil Mechanics</i>	2022
Teaching assistant, GEN_ENG 205, <i>Engineering Analysis II</i>	2019, 2018
Teaching assistant, CIV_ENV 216, <i>Mechanics of Materials</i>	2018
Teaching assistant, CIV_ENV, <i>Matlab Boot Camp for Undergraduates</i>	2018

## **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 program M.S., in Geological Engineering (exp. 2027 summer)  
Research topic: Deriving Multidimensional Displacement Fields from Remote Sensing Observations

### **Master student**

- Munyaradzi Mudhina, M.S. in Mining Engineering (exp., Spring 2027).
- Bradon Mutovido, 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*
- Faculty search committee member, 2025, GMES, MTU
- Committee Member, Curricular Committees for Geological Engineering, MTU.
- Committee Member, Curricular Committees for Mining Engineering, MTU.

## **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>