# Stanford

# Adel Asadi

Postdoctoral Scholar, Earth and Planetary Sciences

## Bio

### BIO

Adel Asadi is a Postdoctoral Scholar at Stanford University's Department of Earth and Planetary Sciences, in the Doerr School of Sustainability. He is an affiliate member of the Mineral-X Initiative, a program dedicated to pioneering sustainable critical minerals exploration to facilitate the transition to green energy. Under the supervision of Prof. Jef Caers, Adel's research is focused on mineral exploration, leveraging data science tools and artificial intelligence algorithms. Through the integrated geological data analysis, his goal is to enhance the predictive accuracy of models for discovering high-grade mineral deposits, thereby enabling decision-making with higher certainty.

Before joining Stanford University, Adel was a Postdoctoral Scholar at Tufts University in Massachusetts. There, he conducted research in natural hazards and renewable energy domains. Under Prof. Laurie Baise's supervision, he developed a novel ensemble machine learning method to assess earthquake-induced soil liquefaction hazards, notably for the 2023 Türkiye Earthquakes. Under Prof. Babak Moaveni's supervision, in a project funded by the National Science Foundation (NSF), he exploited multiple-point geostatistics to simulate offshore wind speed and direction in a multi-variate context, using numerical weather models, remote sensing, observational, and geospatial data.

Adel Asadi earned his PhD in Civil and Environmental Engineering with a Geosystems specialization from Tufts University. His doctoral work in the Geohazards Research Lab involved a diverse toolkit (computer vision, machine learning, remote sensing, and geographic information systems) to model earthquake-induced ground failure hazards (soil liquefaction) and map post-earthquake ground failure damages (landslides and liquefaction) on global, regional, and event-specific scales. His dissertation research was funded by the US Geological Survey (USGS) and the National Geospatial Intelligence Agency (NGIA).

During his Master's study in Mining Engineering at Michigan Technological University, under Prof. Snehamoy Chatterjee's supervision, he developed a novel multiple-point geostatistical simulation algorithm for Earth resources modeling and uncertainty quantification. He also worked on a space mining research project aimed at mapping iron and titanium on the lunar surface using remote sensing data and machine learning algorithms. Additionally, he gained one year of professional experience in the copper mining industry through three internships at Freeport-McMoRan Inc. in Arizona.

### PROFESSIONAL EDUCATION

- Ph.D., Tufts University, USA , Civil and Environmental Engineering (Geosystems) (2023)
- M.Sc., Michigan Technological University, USA , Mining Engineering (2020)
- B.Sc., Tehran Science and Research Branch, IAU, Iran , Petroleum Engineering (2016)

### STANFORD ADVISORS

- Jef Caers, Postdoctoral Faculty Sponsor

## LINKS

- Stanford Earth & Planetary Sciences: https://epsci.stanford.edu/

- Stanford Mineral-X: https://mineralx.stanford.edu/

- LinkedIn Profile: https://www.linkedin.com/in/adel-asadi-ph-d-39748949/

- Google Scholar: https://scholar.google.ro/citations?user=KeC-A3YAAAAJ&hl=en

- ResearchGate: https://www.researchgate.net/profile/Adel-Asadi

- GitHub: https://github.com/adel-asadi

- Kaggle: https://www.kaggle.com/adelasadi

## Publications

## PUBLICATIONS

- **Pixel-based classification method for earthquake-induced landslide mapping using remotely sensed imagery, geospatial data and temporal change information** *NATURAL HAZARDS*

  Asadi, A., Baise, L. G., Koch, M., Moaveni, B., Chatterjee, S., Aimaiti, Y.

  2024

- **An Investigation on the Triaxial Changes of Zinc-Contaminated Clayey Sand** *INTERNATIONAL JOURNAL OF GEOMECHANICS*

  Asadi, A., Sereshki, M., Nikkhah Nasab, S.

  2024; 24 (1)

- **Geospatial Liquefaction Modeling of the 2023 Türkiye Earthquake Sequence by an Ensemble of Global, Continental, Regional, and Event#Specific Models** *Seismological Research Letters*

  Asadi, A., Sanon, C., Cakir, E., Zhan, W., Shirzadi, H., Baise, L. G., Cetin, K. O., Moaveni, B.

  2024; 95 (2A)

- **Regional landslide mapping model developed by a deep transfer learning framework using post-event optical imagery** *Georisk: Assessment and Management of Risk for Engineered Systems and Geohazards*

  Asadi, A., Baise, L. G., Chatterjee, S., Koch, M., Moaveni, B.

  2024

- **Semi-Supervised Learning Method for the Augmentation of an Incomplete Image-Based Inventory of Earthquake-Induced Soil Liquefaction Surface Effects** *REMOTE SENSING*

  Asadi, A., Baise, L., Sanon, C., Koch, M., Chatterjee, S., Moaveni, B.

  2023; 15 (19)