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Education	**Clemson University, Clemson, USA** Ph.D., Civil Engineering, 2017-2020 M.S., Civil Engineering, 2017-2019 **Chengdu University of Technology, Chengdu, China** B.S., Engineering Geology, 2010-2014
Research Interests	Geotechnical Earthquake Engineering, Engineering Seismology, Engineering Geology, Remote Sensing, Signal Processing, Geospatial Modeling, Artificial Intelligence, Computational Geomechanics
Dissertations	Ph.D. in Civil Engineering "Data-driven assessment of site responses at liquefiable sites" B.S. in Engineering Geology "Statistical modeling of coseismic landslide mobility"

Publications

*Journal Articles (*corresponding author)*

12. Li W, **Zhan W***, Lu H, Xu Q, Pei X, Wang D, Huang R, Ge D (2022). Precursors to large rockslides visible on optical remote-sensing images and their implications for landslide early detection. *Landslides,* DOI 10.1007/s10346-022-01960-1.

11. Lu J, Li W*, **Zhan W**, Tie Y (2022). Distribution and mobility of co-seismic landslides triggered by the 2018 Hokkaido earthquake in Japan. *Remote Sensing,* 14, 3957.

10. **Zhan W**, Chen Q* (2022). Nonlinear site response on liquefiable sites: insights from downhole seismic observations. *Engineering Geology*, Article 106610.

9. Luo Y, Xu Q, **Zhan W**, Grelle G (2022). Seismic hazard prediction using multispectral amplification maps in a complex topographic area: A case study of Qiaozhuang town, Sichuan Province, Southwest China. *Journal of Mountain Science*, 19: 726–739.

8. Shan S, Pei X, **Zhan W*** (2021). Estimating deformation modulus and bearing capacity of deep soils from dynamic penetration test. *Advances in Civil Engineering*, Article 1082050.

7. **Zhan W**, Chen Q* (2021). Accelerogram-based method for quick assessment of liquefaction occurrence. *Journal of Geotechnical and Geoenvironmental Engineering,* 147 (8): 04021060.

6. Gao G, Meguid MA, Chouinard LE, **Zhan W** (2021). Dynamic disintegration processes accompanying transport of an earthquake-induced landslide. *Landslides,* 18 (3):

909-933.

5.   Fan X, **Zhan W***, Dong X, van Westen C, Xu Q, Dai L, Yang Q, Huang R, Havenith HB (2018). Analyzing successive landslide dam formation by different triggering mechanisms: The case of the Tangjiawan landslide, Sichuan, China. *Engineering Geology*, 243: 128-144.

4.   Fan X*, Scaringi G, Xu Q, **Zhan W**, Dai L, Li Y, Pei X, Yang Q, Huang R (2018). Coseismic landslides triggered by the 8th August 2017 M s 7.0 Jiuzhaigou earthquake (Sichuan, China): factors controlling their spatial distribution and implications for the seismogenic blind fault identification. *Landslides*, 15(5): 967-983.

3.   Meng X, Pei X*, Huang R, Cui S, Zhu L, **Zhan W** (2018). Shear behaviors of rock mass in the interlayer fault zone of Daguangbao landslide. *Journal of Engineering Geology*, 26 (2): 309-318. (in Chinese)

2.   **Zhan W**, Fan X*, Huang R, Pei X, Xu Q, Li W (2017). Empirical prediction for travel distance of channelized rock avalanches in the Wenchuan earthquake area. *Natural Hazards & Earth System Sciences*, 17(6): 833-844.

1.   **Zhan W**, Huang R, Pei X, Li W (2017). Empirical prediction model for movement distance of gully-type rock avalanches. *Journal of Engineering Geology*, 25 (1): 154-163. (in Chinese)

Submitted Articles

3.   **Zhan W***, Baise LG, Kaklamanos J. A geospatial model for site response complexity. *Bulletin of the Seismological Society of America.* (Under revision)

2.   **Zhan W***, Chen Q, Baise LG. Coseismic and long-term changes of site response on liquefiable sites. *Engineering Geology* (Under revision)

1.   **Zhan W***, Cochran E. Reducing aleatory uncertainty of ground-motion modeling using gradient boosting model and feature selection techniques. *Bulletin of the Seismological Society of America.* (Under revision)

Conference Papers

5.   **Zhan W**, Baise LG, Kaklamanos J (2023). Predicting Within-Site Variability of Seismic Site Response Using a Geospatial Modeling Approach, *Geo-Risk 2023*, Arlington, Virginia, July 23-26, 2023. (under review)

4.   **Zhan W**, Zhang L, Wang L (2023). Probabilistic Assessment of Earthen Levees Considering Soil Spatial Variability, *Geo-Risk 2023*, Arlington, Virginia, July 23-26, 2023. (under review)

3.   **Zhan W**, Chen Q (2022). Accelerogram-based method for quick assessment of liquefaction occurrence. *GeoCalgary 2022*, Calgary, Canada, October 2-5, 2022.

2.   **Zhan W**, Chen Q (2021). Assessment of liquefaction effects on ground motion frequency parameters for accelerogram-based liquefaction detection, *American Society of Civil Engineers (ASCE) Geotechnical Engineering for Extreme Events (GeoExtreme) 2021*, Savannah, GA, USA, November 7-10, 2021.

1.   **Zhan W**, Baise LG, Chen Q, Juang CH, Miao F (2021). Effects of liquefaction-affected ground motions on building fragility curves, *17th World Conference on Earthquake Engineering*, Sendai, Japan, September 27 - October 2, 2021.

Presentations

Oral presentations

6. **Zhan W**, Baise LG, Kaklamanos J (2022). A geospatial model for predicting site response complexity. *Seismological Society of America (SSA) 2022 Annual Meeting*, Bellevue, Washington, USA, April 19-23, 2022.

5. **Zhan W**, Chen Q (2021). Assessment of liquefaction effects on ground motion frequency parameters for accelerogram-based liquefaction detection, *American Society of Civil Engineers (ASCE) Geotechnical Engineering for Extreme Events (GeoExtreme) 2021*, Savannah, GA, USA, November 7-10, 2021.

4. Gong, W, **Zhan W**, Wang L, Juang CH (2021). Design of Stabilizing Piles in Earth Slopes Considering Design Robustness, *Engineering Mechanics Institute Conference/Probabilistic Mechanics and Reliability (EMI/PMC) 2021 Conference*, Columbia University, New York City, USA, May 25-28, 2021. (Virtual oral presentation)

3. **Zhan W**, Chen Q (2020). Quick detection of subsoil liquefaction using accelerograms. *2020 AGU Fall Meeting*, San Francisco, CA, USA, December 7-11, 2020. (Virtual oral presentation)

2. **Zhan W**, Chen Q (2020). Coseismic and long-term changes of site response on liquefiable sites: a case study of Onahama Port Array in Japan. *2020 Eastern Section of the Seismological Society of America (ES-SSA) Annual Meeting*, Atlanta, GA, USA, October 12-16, 2020. (Virtual oral presentation)

1. **Zhan W**, Huang R, Pei X (2015). Study on the Site Effects of Large-scale Landslide movement triggered by Wenchuan Earthquake, *Engineering Geological Disaster Prevention Academic Conference*, Shanghai, China, October 12-14, 2015. (in Chinese)

Poster presentations

4. **Zhan W**, Baise LG, Moaveni B (2022). Quantifying epistemic uncertainty for global geospatial liquefaction models, 2022 SimCenter Symposium, Austin, Texas, USA, November 3-4, 2022.

3. **Zhan W**, Baise LG, Moaveni B (2022). Uncertainty quantification for global geospatial liquefaction models, Natural Hazards Research Summit 2022, Washington, DC, USA, October 6-7, 2022.

2. **Zhan W**, Baise LG, Kaklamanos J (2022). Ground-motion modeling using machine learning techniques and geospatial proxies. *Seismological Society of America (SSA) 2022 Annual Meeting*, Bellevue, Washington, USA, April 19-23, 2022.

1. **Zhan W**, Baise LG, Chen Q, Juang CH, Miao F (2021). Effects of liquefaction-affected ground motions on building fragility curves, *17th World Conference on Earthquake Engineering*, Sendai, Japan, September 27 - October 2, 2021. (Virtual poster presentation)

Research Experience

2021– now: Postdoctoral Scholar, Tufts University
Geohazards Research Lab advised by Prof. Laurie Baise

- Develop machine learning models to predict ground motions
- Geospatial modeling of seismic site response complexity
- Uncertainty quantification of global geospatial liquefaction model
- Image-based landslide and liquefaction detection

2017 – 2020: Graduate Research Assistant, Clemson University
Computational Geomechanics Lab advised by Prof. Qiushi Chen
- Develop accelerogram-based liquefaction detection method
- Evaluate seismic site response nonlinearity using borehole ground motion records
- Assess seismic site response temporal changes
- Develop machine learning models for single-station ground motion prediction
- Use OpenSees and effective stress analysis to simulate liquefaction behaviors
- Implement geotechnical models to assess liquefaction triggering and consequence
- Performance-based framework for liquefaction risk assessment
- Mechanical test of Lunar and Martian regolith simulants
- Use CT scan and image processing to characterize Martian regolith simulants

2014 – 2016: Graduate Research Assistant, Chengdu University of Technology
Geohazards Mitigation Lab advised by Prof. Xuanmei Fan
- Geological and geomorphological landslide mapping
- Slope monitoring using UAV, 3D Laser Scanner, and GBSAR
- GIS-based landslide susceptibility assessment
- Spatial distribution pattern analysis of co-seismic landslides
- In-situ and laboratory tests of geomaterials
- Use shaking table and centrifuge tests to study landslide initiation mechanism
- Empirical modeling of rock avalanche runout
- Discrete element modeling of landslide dynamic process
- Slope stability assessment using analytical and finite element models

Teaching and Mentoring Experience

Teaching
- Lab Instructor, "*CE3211 Soil Mechanics Lab*", Fall 2018 – Spring 2020
- Teaching Assistant, "*CE3210 Geotechnical Engineering*", Spring 2020
- Teaching Assistant, "*CE4240/6240 Earth Slopes and Retaining Structures*", Fall 2018 & 2019
- Teaching Assistant, "*CE4210/6210 Geotechnical Design*", Spring 2019
- Teaching Assistant, "*CE8450 Data Mining for System Analytics*", Fall 2018
- Teaching Assistant, "*CE8570 Uncertainty Modeling in Risk Engineering*", Spring 2018
- Teaching Assistant, "*CE8580 Fundamentals of Risk Engineering*", Spring & Fall 2017

Mentoring
- Mentor, PhD student research programs "*Uncertainty quantification of global geospatial liquefaction model*", "*Image-based landslide and liquefaction detection*", 2021 & 2022

- Mentor, Undergraduate student research program "*Characterization of Lunar Regolith Simulants and Their Feasibility for In Situ Resource Utilization*", Summer 2020
- Mentor, Undergraduate student research program "*Image-Based Characterization of Martian Regolith Simulants*", Spring 2020
- Mentor, High school student summer internship program "*Compression Strength Measurements of Bio-Cemented Martian Regolith Simulant*", Summer 2019

Professional Membership & Academic Services

Professional Membership
- Vice President, ASCE Geo-Institute Clemson University Graduate Student Organization
- Member, American Society of Civil Engineers Geo-Institute (ASCE G-I)
- Member, Earthquake Engineering Research Institute (EERI)
- Member, Seismological Society of America (SSA)
- Member, American Geophysical Union (AGU)

Academic Services
- Corresponding convener for the Session "Advances in Geospatial Modeling of Seismic Hazards", *Seismological Society of America (SSA) 2022 Annual Meeting*, April 19-23, 2022.
- Convener for the Special Interest Group Discussion "Modeling of Seismic Site Amplification using AI", *Seismological Society of America (SSA) 2022 Annual Meeting*, April 19-23, 2022.
- Reviewer for ASCE 2023 Geo-Risk Conference
- Reviewer for international journals: *Engineering Geology, Landslides, Lithology, Natural Hazards, Frontiers in Earth Science, Bulletin of Engineering Geology and the Environment, Arabian Journal of Geosciences, Advances in Civil Engineering, Stochastic Environmental Research and Risk Assessment, etc.*

Honors & Awards

- Travel Grant for 2022 SimCenter Symposium, NHERI SimCenter at UC Berkeley, 2022
- Registration and Travel Grants for the 12NCEE Conference, Earthquake Engineering Research Institute, 2022
- National Scholarship, Ministry of Education of China, 2016
- Travel Grant to AGU International Summer School on Rockslides (Kyrgyzstan), Chengdu University of Technology, 2016
- Meritorious Mention in Certificate Authority Cup Mathematical Contest in Modeling, www.madio.net, 2014
- Top 10 Excellent Thesis for Bachelor's Degree, Chengdu University of Technology, 2014
- Honorable Mention in the International Mathematics Modeling Competition (MCM/ICM), Consortium for Mathematics and Its Application in USA, 2013
- Excellent volunteer, Sichuan provincial environmental protection department, 2012

Languages & Skills

- Languages: English (fluent), Chinese (native)
- Programming: Python, R, Matlab, Tcl, C/C++, Git
- Earthquake Waveform Acquisition and Processing: ObsPy
- Numerical Analysis Tools: OpenSees, FLAC, Abaqus, PFC
- Visualization: Google Earth Engine, ArcGIS, AutoCAD, Origin, LaTeX
- Remote-Sensing Techniques: Unmanned Aerial Vehicle (UAV) Mapping, 3D Laser Scanning, Ground-based Synthetic Aperture Radar (GBSAR)
- Geotechnical Tests: Scanning Electron Microscope (SEM), Energy Dispersive X-ray, Computerized Tomography (CT) Scan, Direct Shear Test, Cyclic Triaxial Test

References

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