

Haojie Wang, Ph.D.

Postdoctoral Researcher/Research Scientist

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EDUCATION

Ph.D.	The Hong Kong University of Science and Technology, Hong Kong	2020
	<ul style="list-style-type: none"> Civil Engineering Thesis: "Machine Learning Powered Landslide Identification and Susceptibility Assessment" Advisor: Limin Zhang Committee: Jianye Ching, Jidong Zhao, Mengqian Lu and Tiezheng Qian 	
B.Eng.	China University of Geosciences, Wuhan	2016
	<ul style="list-style-type: none"> Civil Engineering Dissertation: "Study on Partial Revival Mechanism and Stability of Fuma Ancient Landslide in the Three Gorges Reservoir" <i>Excellent Bachelor's Degree Dissertation Award of Hubei Province, China</i> Advisor: Kunlong Yin Grade ranking: 1st/208, top 1% 	

RESEARCH

My research focuses on the investigation of rain- and earthquake-induced landslides using artificial intelligence (AI) and remote sensing techniques, the analysis of real-time slope reliability using multi-source monitoring information, as well as developing machine learning-based solutions for snow/glacier analyses. My research area mainly covers the entire Hong Kong and the Tibetan Plateau.

My current research interests and ongoing research projects encompass three fields: 1) AI-powered landslide identification, susceptibility assessment and forecasting, 2) ML-based automated snow/glacier mapping and evolution analysis, and 3) Dynamic landslide reliability analysis using monitoring and remote sensing data.

PARTICIPATED RESEARCH PROJECTS

- Centre for Slope Safety, Research Grant Council of Hong Kong, 2019 – now**
 - Establishment of the Rainstorm and natural terrain landslide Database of Hong Kong (READHK)
 - AI-powered landslide identification, susceptibility assessment and forecasting
- Multi-source large-quantity monitoring data fusion in Bayesian networks for the evaluation of reliability of engineered slopes, Research Grant Council of Hong Kong, 2016 - 2019**
 - A novel physically-based model for updating landslide susceptibility
- Study on Partial Revival Mechanism and Stability of Fuma Ancient Landslide in the Three Gorges Reservoir, Final Year Project, 2016**
 - Ancient landslide Partial Revival Mechanism analysis and numerical modelling of landslide revival

PUBLICATIONS AND MANUSCRIPTS

Manuscripts in preparation

- Wang, H.J.,** Zhang, L.M., 2021. Transfer learning reshapes machine learning in geoscience: Insights from predicting landslide hazards in Hong Kong. *Under preparation.*
- Wang, H.J.,** Zhang, L.M., 2021. Multiscale landslide susceptibility assessment in Hong Kong via transfer learning. *Under preparation.*

3. **Wang, H.J.**, Zhang, L.M., 2022. A bio-inspired method for enhancing the durability of hydrophobic sands. *Under preparation*.
4. **Wang, H.J.**, Zhang, L.M., 2022. Event-based landslide forecasting in Hong Kong using machine learning. *Under preparation*.

Manuscripts in review and revision

1. **Wang, H.J.**, Zhang, L.M., Wang, L., Fan, R.L., Zhou, S.Y., Qiang, Y.Q., Peng, M., 2021. Machine learning powered automated co-seismic landslide detection. **Engineering Geology**, Under review.

Published and accepted peer-reviewed journal papers

1. **Wang, H.J.**, Zhang, L.M., Luo, H.Y., He, J., Cheung, R.W.M., 2021. AI-powered landslide susceptibility assessment in Hong Kong. **Engineering Geology**, <https://doi.org/10.1016/j.enggeo.2021.106103>.
2. **Wang, H.J.**, Zhang, L.M., Yin, K., Luo, H.Y., Li, J.H., 2021. Landslide identification using machine learning. **Geoscience Frontiers**, <https://doi.org/10.1016/j.gsf.2020.02.012>. (Clarivate ESI Hot Paper& Highly Cited Paper as of July 2021)
3. **Wang, H.J.**, Zhang, L.M., Wang, L., He, J., Luo, H.Y., 2021. An Automated Snow Mapper Powered by Machine Learning. **Remote Sensing**, 13(23), 4826. <https://doi.org/10.3390/rs13234826>.
4. **Wang, H.J.**, Xiao, T., Li, X.Y., Zhang, L.L., Zhang, L.M., 2019. A novel physically-based model for updating landslide susceptibility. **Engineering Geology** 251: 71-80. <https://doi.org/10.1016/j.enggeo.2019.02.004>.
5. Luo, H. Y., Zhang, L.M., **Wang, H.J.**, He, J., 2021. Process of building collapse caused by the Po Shan Road landslide in Hong Kong on 18 June 1972. **Landslides**, <https://doi.org/10.1007/s10346-021-01745-y>.
6. Qiang, Y.J., Zhang, L.M., He, J., Xiao, T., Huang, H.H., **Wang, H.J.**, 2021. Urban flood hazards in the Guangdong-Hong Kong-Macau Greater Bay Area upon compound rainstorm-storm surge events, **Journal of Hydrology**, <https://doi.org/10.1016/j.jhydrol.2021.126293>.
7. Luo, H. Y., Zhang, L.M., **Wang, H.J.**, He, J., 2020. Multi-hazard vulnerability of buildings to debris flows. **Engineering Geology**, <https://doi.org/10.1016/j.enggeo.2020.105859>.
8. Luo, H.Y., Fan, R.L., **Wang, H.J.**, Zhang, L.M., 2020. Physics of building vulnerability to debris flows, floods and earth flows. **Engineering Geology**, <https://doi.org/10.1016/j.enggeo.2020.105611>.
9. Yin, K., Zhang, L.M., **Wang, H.J.**, Zou, H., Li, L.J., 2020. Marine soil behavior classification using CPTu and borehole records. **Canadian Geotechnical Journal**, <https://doi.org/10.1139/cgj-2019-0571>.
10. Fan, R.L., Zhang, L.M., **Wang, H.J.**, Fan, X.M., 2018. Evolution of debris flow activities in Gaojiagou ravine during 2008-2016 after the Wenchuan earthquake. **Engineering Geology** 235: 1-10. <https://doi.org/10.1016/j.enggeo.2018.01.017>.

Published conference papers

1. **Wang, H.J.**, Zhang, L.M., Xiao, T. 2020. DTM and rainfall-based landslide susceptibility analysis using machine learning: A case study of Lantau Island, Hong Kong, **APSSRA 2020**, Tokyo, Japan. <https://doi.org/10.15083/00079806>.
2. **Wang, H.J.**, Zhang, L.M., 2019. Landslide susceptibility updating considering real-time observations, **Geo-Congress 2019: Soil Erosion, Underground Engineering, and Risk Assessment**. American Society of Civil Engineers Reston, VA, pp. 107-113. <https://doi.org/10.1061/9780784482155.011>.

PROFESSIONAL SERVICE

Journals and conferences reviewer

- Engineering Geology
- Bulletin of Engineering Geology and the Environment
- Georisk: Assessment and Management of Risk for Engineered Systems and Geohazards
- Lithosphere

- Geomatics Natural Hazards & Risk
- Geocarto International
- The International Conference on Embankment Dams (ICED2020), Beijing, China
- Geo-Extreme 2021, Savannah, Georgia, USA

Presentations

- The Fifth International Young Scholars Geo-Symposium, Beijing, China, November 15-16, 2021. (Oral presentation, invited by Prof Bo Zhang of Peking University)
- The 7th Asian-Pacific Symposium on Structural Reliability and Its Applications, Tokyo, Japan, October 5-7, 2020. (Oral presentation)
- EGU2020: Sharing Geoscience Online, May 4-8, 2020. (Oral presentation)
- Geo-Congress 2019: Soil Erosion, Underground Engineering, and Risk Assessment. Philadelphia, Pennsylvania, USA, March 24–27, 2019. (Oral presentation)
- Computational Modelling of Multi-Uncertainty and Multi-Scale Problems 2017 (COMUS17), Porto, Portugal, September 12-14, 2017. (Oral presentation)

TEACHING EXPERIENCE

HKUST CIVL1160: Civil Engineering and Modern Society, Teaching Assistant	2019
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HKUST CIVL1160: Civil Engineering and Modern Society, Teaching Assistant	2017
HKUST CIVL 2410: Environmental Assessment and Management, Teaching Assistant	2016

FELLOWSHIPS AND AWARDS

Postdoctoral fellowship, The Hong Kong University of Science and Technology	2020
Postgraduate studentship, The Hong Kong University of Science and Technology	2016
Excellent Bachelor's Degree Dissertation Award , Provincial Education Board of Hubei Province	2016
Excellent Graduate Award, China University of Geosciences (Wuhan)	2016
Award of Excellence, National "Zhou Peiyuan" Mechanical Competition	2015
National Scholarship , Chinese Ministry of Education	2013
Excellent Student Award, China University of Geosciences (Wuhan)	2013

PROFESSIONAL SKILLS AND CERTIFICATES

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- Data processing and analysis
 - Machine learning programming
 - Remote sensing image interpretation (e.g., ENVI, ArcGIS, SNAP, etc.)
 - Field investigation and mapping
 - China Computer Test Level II C Language Excellent Certificate
 - China Computer Test Level III Network Technique Certificate