Lijing Wang

CONTACT
INFORMATION

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RESEARCH
INTERESTS

Bayesian Inversion, Uncertainty Quantification, Computer Vision in Geosciences

EDUCATION

Stanford University, Stanford, CA

Ph.D. in Geological Sciences, advised by Prof. Jef Caers.   Sep 2017 - present

Peking University, Beijing, China

B.S. in Space Physics   Jul 2017
B.S. in Applied Mathematics   Jul 2017

Hong Kong University of Science and Technology, Hong Kong, China

Exchange program in Physics with full-tuition scholarship   Dec 2014

RESEARCH
EXPERIENCE

Ph.D. Candidate, Stanford University (Stanford, CA)   Sep 2017 - present

- Data Science Scholar at Stanford Data Science Institute, 2020 - 2022 cohort
- Ph.D. candidate at Stanford Center for Earth Resources Forecasting

Main research projects:

- Quantifying uncertainty of subsurface systems using geophysical data
- 3D geomodeling using computer vision methods: level-sets method, semantic segmentation with convolutional neural networks
- Bayesian inversion of subsurface systems

Other projects:

- Improving urban neighborhood environments to reduce inequities in well-being using from street view imagery data
- Covid-19 Serology Study Design and Exploration
- Semantic segmentation of crop type in Africa
- Landslides susceptibility assessment and auto landslides detection in California

Data Science Intern, Total E&P Research and Technology   Jun 2020 - Sep 2020
(Sunnyvale, CA)
- AI & Geosciences Program: based in Google Cloud Advanced Solutions Lab
- Developed a semi-supervised learning framework to optimize geophysical data interpretation with limit labels
- Active Learning to aid experts' geophysical interpretation

Guest Ph.D., Hydrogeophysics Group, Aarhus University   Jun 2019 - Aug 2019
(Aarhus, Denmark)
- 3D modeling of geological structures given towed electromagnetic (tTEM) surveys: uncertainty assessment and quantification.

Research Assistant, Peking University (Beijing, China)   Jun 2016 - Apr 2017
- Detecting the air pollution level (PM2.5) in Beijing using crowd-sourcing photos
- Precision Medicine: Drug Sensitivity Prediction

Research Intern, Stanford University (Stanford, CA)   Jun 2016 - Sep 2016
- Functional Data Analysis with incomplete production data in unconventional reservoirs.

Research Intern, University of California, Berkeley (Berke-   Jun 2015 - Sep 2015
ley, CA)
- Urban foraging's contribution to nutrition: correlation between urban foraging knowledge and demographic variables

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JOURNAL
PUBLICATIONS

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Wang, L., Peeters, L., MacKie, E.J., Caers, J., Quantifying Uncertainty of Non-Stationary Geological Interfaces: Metropolis-Hasting Sampling of Implicit Level Sets, 2021 (in preparation)

Wang, L., Scheidt, C., Pra, A., Pontiggia, M., Caers, J., A joint Bayesian approach to volume average linear inverse problem for global and spatial variables, 2021 (in preparation)

Wang, L., Joncour, F., Barrallon, P., Harribey, T., Castanie L., Yousfi S., Guillon S., Semi-supervised semantic segmentation for seismic interpretation, 2021 (in submission)

Johnston, E., Davenport, F., **Wang, L.**, Caers, J., Muthukrishnan, S., Burke, M., Diffenbaugh, N., Quantifying the influence of precipitation intensity on landslide hazard in urbanized and non-urbanized areas, 2021 (in submission)

Miltenberger, A., Uhlemann, S., Mukerji, T., Williams, K., **Wang, L.**, Wainwright, H., Probabilistic evaluation of geoscientific hypotheses with geophysical data: application to electrical resistivity imaging of a fractured bedrock zone, Journal of Geophysical Research - Solid Earth, 2021 (under review)

Li, Q., **Wang, L.**, Perzan, Z., Caers, J., Brown G., Bargar, J., Maher K., Global sensitivity analysis of a reactive transport model for mineral scale formation during hydraulic fracturing, *Environmental Engineering Science*, 2021

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CONFERENCE
PUBLICATIONS

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M Rustowicz, R., Cheong, R., **Wang, L.**, Ermon, S., Burke, M., Lobell, D. , Semantic segmentation of crop type in Africa: A novel dataset and analysis of deep learning methods, *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*, 2019

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PRESENTATION AND
POSTER

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Wang, L., Vilhelmsen, T. N., Caers, J., Local decision making through understanding of multi-scale uncertainty: Application to well catchment protections in Denmark, oral presentation, *Computational Methods in Water Resources* (CMWR 2020)

Wang, L., Peeters, L., Caers, J.,, Uncertainty assessment of hydrogeological structures combining geophysical survey and geological knowledge: A stochastic level set optimization framework, *American Geophysical Union*, oral presentation, Fall Meeting 2020

Wang, L., Vilhelmsen, T. N., Caers, J., Direct forecasting of local hydraulic conductivity using combined geophysical and hydrological data: Application to well catchment

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predictions in Danish aquifer system, *American Geophysical Union*, Fall Meeting 2019

Wang, L., Vilhelmsen, T. N., Caers, J., Joint Uncertainty Quantification on Spatial and Global Hydrogeological Models: An Application to Danish Groundwater Management, *American Geophysical Union*, Fall Meeting 2018

Johnston, E. C., Caers, J., **Wang, L.**, Davenport, F. V., Muthukrishnan, S., Diffenbaugh, N. S., Multi-scale signatures of climate change on landslide susceptibility: a case study for the Pacific Coast of the United States, *American Geophysical Union*, Fall Meeting 2018

Wang, L., Grujic, O., Caers, J.,Reconstruction and Forecasting Oil Rates Using Functional Data Analysis and Universal Co-Kriging, *NGI Industrial Affiliates Meeting*, Stanford University, 2017

Wang, L., Yao, Y., Tang, Y., A Statistical Learning Approach for Drug Sensitivity Prediction with Cancer Cell Line Data, *Data Science and Computational Precision Health*, 2017

Wang, L., Grujic, O., Caers, J., Statistical Learning on Incomplete Production Profiles of Unconventional Reservoirs, *NGI Industrial Affiliates Meeting*, Stanford University, 2016

Teaching and Mentoring	• Data Science for Social Good Program Technical mentor	Spring 2021 - now Stanford Data Science Institute
	• GEOLSCI 6: Data Science for Geoscience Co-designer/Teaching Assistant	Winter 2021 Stanford University
	• GEOLSCI 240: Data Science for Geoscience Teaching Assistant	Winter 2019 Stanford University
	• Data Analysis and Business Value Teaching Assistant	Spring 2017 Peking University

Service	Co-president in Association of Chinese Students and Scholars at Stanford	2019-2020
	Student Organizing Committee, Women in Data Science @ Stanford Earth	2019

Honors and Awards	Society for Industrial and Applied Mathematics (SIAM) Travel Awards	2021
	Stanford Data Science Scholars Program Fellowship	2020-2022
	GS Travel Fund 2021	2020
	Harriet Benson Fellowship Award	2020
	2nd Prize in Stanford Big Earth Hackathon	2018
	Meritorious in COMAP's Mathematical Contest in Modeling	2016
	Houston BAA Scholarship	2016
	Guanghua Scholarship	2014, 2015
	Dean's list in School of Science, HKUST	2014

Technical skills	Languages: Python, R, MATLAB, C/C++ Deep Learning Framework: TensorFlow, Keras Other Software: LaTeX, Jupyter, Google Cloud Platform