PENGFEI WANG

Email: wltcwpf@ucla.edu | Website: https://wltcwpf.github.io

Education

University of California, Los Angeles Los Angeles, CA

Ph.D. in Civil Engineering/Geotechnical Earthquake Engineering 09/2015-Expected 06/2020
Data Derived Non-Ergodic Seismic Site Response Models and Their Predictabilities GPA: 3.9/4.0
(working title of my dissertation)
Advisor: Jonathan P. Stewart

M.S. in Statistics 12/2017-Expected 06/2020
Network Analysis of International Trade (Participated in an Economics Research) GPA: 3.9/4.0
(working title of my thesis, a collaborative research in economics)
Advisor: Frederic Rick Paik Schoenberg (Committee Chair)

Tongji University Shanghai, China

B.S. in Traffic Engineering/Urban Metro and Railway 09/2011-07/2015
Simulation-Based Study of the Geneva City-Center Network and Traffic Analysis
Advisor: Nikolaos Geroliminis (École polytechnique fédérale de Lausanne - Switzerland)

Related Research Experience

University of California, Los Angeles Los Angeles, CA

Graduate student researcher 06/2016-Present

- Study data-derived seismic site response and its predictability using geotechnical and statistical models
  - *Applied causal and non-causal filters to remove noise for over 10,000 three-component earthquake ground motion time series records from 29 large earthquakes in California as testing dataset, and then developed an R package to compute intensity measures of processed time series. The package also implements Sinc interpolation to reduce as-recorded time step. Applied Bayesian hierarchical models to extract convoluted systematic event and site bias from total residuals among all records. The future work includes analyzing the prediction performances of existing models and then proposing data-derived improved models.*
- Participate in developing R/Python package for automated earthquake ground motions processing
  - *Developed a much more accurate and efficient program to automatically detect the P wave arrival (starting) time of earthquake ground motions time series and accept/reject data by Boosting method. Its accuracy is > 96% but only takes less than about 1/20 of the time for human manual processing.*
- Analyze spatial pattern of seismic site response
  - *Analyzed spatial correlation of seismic site response by Kriging semi-variogram and proposed cell-based mixed effect models for attenuation parameter, κ in frequency domain.*

Publications

Journal Articles

[1] **Wang, P.**, Stewart, J.P., Brandenberg, S.J., Tsai, Y.T.. (2020). Development of Region-Specific Linear Site Amplification Model for Soft Peat Sites in Hokkaido, Japan. *Bulletin of the Seismological Society of America*. (In prepartion)

[2] Brandenberg, S.J., Stewart, J.P., **Wang, P.**, Nweke, C.C., Hudson, K., Goulet, C.A., Meng, X., Davis, C.A., Ahdi, S.K., Hudson, M.B., Donnellan, A., Lyzenga, G., Pierce, M., Wang, J., Winters, M.A., Delisle, M.-P., Lucey, J., Kim, Y., Gallien, T.W., Lyda, A., Yeung, J.S., Issa, O., Buckreis, T., Yi, Z.. (2019). Ground Deformation Data from GEER Investigations of Ridgecrest Earthquake Sequence. *Seismological Research Letters*. (Accepted)

[3] Zheng, N., Dantsuji, T., **Wang, P.**, Geroliminis, N.. (2017). Macroscopic Approach for Optimizing Road Space Allocation of Bus Lanes in Multimodal Urban Networks Through Simulation Analysis. *Journal of the Transportation Research Board*, No. 2651, DOI: 10.3141/2651-05.

Conference Papers

[1] **Wang, P.**, Stewart, J.P.. (2019). Data-Derived Site Response and its Predictability Using Ergodic and Site-Specific Methods. *Proceeding of SMIP2019 Seminar on Utilization of Strong Motion Data*, California Strong Motion Instrumentation Program, University of California Los Angeles, California. October 18, 2019. https://escholarship.org/uc/item/3wb9h9fq.

[2] Stewart, J.P., **Wang, P.**, Teague, D.P., Vecchietti, A.. (2019). Applications of non-ergodic site response in ground motion modeling. *Proceeding of 7th International Conference on Earthquake Geotechnical Engineering* (Invited Keynote), Rome, Italy. 07/17-20/2019. https://escholarship.org/uc/item/5427j7f3.

[3] Nweke, C.C., **Wang, P.**, Brandenberg, S.J., Stewart, J.P.. (2018). Reconsidering Basin Effects in Ergodic Site Response Models. *Proceeding of SMIP2018 Seminar on Utilization of Strong Motion Data*, California Strong Motion Instrumentation Program, Sacramento, California. October 19, 2018. https://escholarship.org/uc/item/6048v74k.

Technical Reports

[1] Stewart, J.P., Brandenberg, S.J., **Wang, P.**, Nweke, C.C., Hudson, K., Mazzoni, S., Bozorgnia, Y., Goulet, C.A., Hudnut, K.W., Davis, C.A., Adhi, S.K., Zareian, F., Fayaz, J., Koehler, R.D., Chupik, C., Pierce, I., Williams, A., Akciz, S., Hudson, M.B., Kishida, T.. (2019). Preliminary Report on Engineering and Geological Effects of the July 2019 Ridgecrest Earthquake Sequence. Report No. GEER-064. DOI: 10.18118/G6H66K.

[2] Kayen, R., Wham, B., Grant, A., Atsushi, M., Anderson, D., Zimmaro, P., **Wang, P.**, Tsai, Y.T., Bachhuber, J., Madugo, C., Sun, J., Hitchcock, C., Motto, M.. (2019). Seismological, Geological, and Geotechnical Engineering Aspects of the 2018 Magnitude 6.6 Hokkaido Eastern Iburi Earthquake. Report No. GEER-060. DOI: 10.18118/G6CM1K.

[3] **Wang, P.**, Stewart, J. P., Bozorgina, Y., Boore, D. M., Kishida, T. (2017). "R" Package for Computation of Earthquake Ground Motion Response Spectra. Report No. 2017/09. *PEER*, UC Berkeley.

Related Courses

Statistics:

Applied Probability (200A), Theoretical Statistics (200B), Statistics Programming (202A), Statistical Modeling and Learning (201B), Matrix Algebra and Optimization (202B), Advanced Modeling and Inference (201C), Bayesian Statistics (C236), Spatial Statistics (222), Pattern Recognition and Machine Learning (M231), Statistical Analysis of Networks (218), Introduction to Mathematical Statistics (100B), Linear Models (100C)

Mathematics:

Analysis (131A/B), Algebra (110 A/B), Linear Algebra (151A), Future plan: Linear Algebra (151B), Introduction to Topology (121)

Others:

Systems and Signals (EE 102), Digital Signal Processing (EE 113),
Topics in Applied Regression (BioStats 201A/B), Analysis of Correlated Data (BioStats 411)

Teaching Experience

Statistics:

Introduction to Monte Carlo Methods (Stats 102C), TA, 2019 Fall

Civil Engineering:

Design of Foundations and Earth Structures (CEE 121), TA, 2019 Winter
Principles of Soil Mechanics (CEE 120), TA, 2016 Fall

Computer Skills

R (daily use, 3 years +); Python (2 years +); Matlab (4 years +); LaTeX (2 years +)