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PROFESSIONAL PREPARATION

Tongji University, Shanghai, China

Civil Engineering, B.S., 1998

University, Shanghai, China

Civil Engineering, M.S., 2008

Louisiana State University, Baton Rouge, LA

Civil Engineering, Ph.D., 2012

APPOINTMENT

08/19-present Associate Professor, University of Connecticut, Storrs, CT

08/13-08/19 Assistant Professor, University of Connecticut, Storrs, CT

05/12-08/13 Senior Specialist, Technip USA Inc., Houston, TX

RECENT PUBLICATIONS (2021-present)

- Zhu, D., Huang, X., Ding, Z., **Zhang, W.** (2024) "Estimation of wind turbine responses with attention-based neural network incorporating environmental uncertainties", *Reliability Engineering & System Safety*, 241(1), January 2024, 109616.
- Huang, Y.K., Zhang, J., Ren, Z., Xiang, W., Sifat, I., **Zhang, W.**, Zhu, J., Li, B. (2023) "Next Generation Decentralized Water Systems: a Water-Energy-Infrastructure-Human Nexus (WEIHN) Approach", *Environmental Science: Water Research & Technology*, 9, 2446-2471.
- Hughes, W., **Zhang, W.** (2023) "Evaluation of Post-Disaster Home Livability for Coastal Communities in a Changing Climate", *International Journal of Disaster Risk Reduction*, V 96(10), 103951.
- Zhu, D., **Zhang, W.**, Ding, Z., Kim, J. (2023) "Investigation of crack propagation driving force based on crystal plasticity and cyclic J-integral", *Engineering Fracture Mechanics*, v 289 (9).
- Hughes, W., Santos, L., Lu, Q., Malla, R., Ravishanker, N., **Zhang, W.** (2023) "Probabilistic Risk Assessment Framework for Predicting Large Woody Debris Accumulations and Scour near Bridges", *Structure and Infrastructure Engineering*, <https://doi.org/10.1080/15732479.2023.2177875>.
- Zhang, J., Bagtzoglou, Y., Zhu, J., Li, B., and **Zhang, W.** (2023). "Fragility-based System Performance Assessment of Critical Power Infrastructure", *Reliability Engineering & System Safety*, v232, April 2023, 109065. <https://doi.org/10.1016/j.res.2022.109065>
- Hughes, W., Lu, Q., Ding, Z., and **Zhang, W.** (2023). "Modeling Tree Damages and Infrastructure Disruptions under Strong Winds for Community Resilience Assessment." *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*, v 9(1), <https://ascelibrary.org/doi/full/10.1061/AJRUA6.RUENG-956>.
- Ding, Z., **Zhang, W.**, Hughes, W. (2022) "Wind Load Evaluation of Low-rise Residential Buildings for Coastal Communities using Database-assisted Design Method." *Journal of Structural Engineering*, v 149(1). <https://ascelibrary.org/doi/10.1061/%28ASCE%29ST.1943-541X.0003509>
- Hughes, W., **Zhang, W.**, and Ding, Z.,(2022). "Multi-Objective Optimization for Hurricane Retrofit to Improve Coastal Community Structural and Socioeconomic Resilience." *Natural Hazards Review*, v 23(4), <https://ascelibrary.org/doi/full/10.1061/%28ASCE%29NH.1527-6996.0000590>.
- Hughes, W., **Zhang, W.**, Cerrai, D., Bagtzoglou, A., Wanik, D., and Anagnostou, E. (2022).

- “A Hybrid Physics-Based and Data-Driven Model for Power Distribution System Infrastructure Hardening and Outage Simulation”, *Reliability Engineering & System Safety*, Volume 225, September 2022, 108628. <https://doi.org/10.1016/j.ress.2022.108628>
- Zhu, D., **Zhang, W.**, Ding, Z. (2022) “A Multiscale Crack Iteration and Remeshing Model for Low Cycle Crack Propagation Evaluation”, *ASCE Journal of Engineering Mechanics*, Volume 148 Issue 8 – August 2022. [https://doi.org/10.1061/\(ASCE\)EM.1943-7889.0002122](https://doi.org/10.1061/(ASCE)EM.1943-7889.0002122)
 - Hughes, W., **Zhang, W.**, Ding, Z., and Li, X. (2022). “Integrated Structural and Socioeconomic Resilience Assessment for Coastal Community Residential Building Hurricane Vulnerability.” *Natural Hazards Review*, 23 (3), [https://doi.org/10.1061/\(ASCE\)NH.1527-6996.0000564](https://doi.org/10.1061/(ASCE)NH.1527-6996.0000564).
 - Ding, Z., **Zhang, W.**, and Zhu, D. (2022). “Neural-Network Based Wind Pressure Prediction for Low-Rise Buildings with Genetic Algorithm and Bayesian Optimization “, *Engineering Structures*, Volume 260, 1 June 2022, 114203, <https://doi.org/10.1016/j.engstruct.2022.114203>.
 - Zhu, D., **Zhang, W.**, Ding, Z. (2022) “A Modified Fatigue Damage Model Considering Loading Sequence Effect”, *International Journal of Damage Mechanics*, V31(7). [link](https://doi.org/10.1080/10701711.2022.2053552)
 - Zhang, J., **Zhang, W.**, Lu, Q., Zhu, J., Bagtzoglou, A. (2022) “A Fragility-Weighted Topological Network for Resilient Assessment of Overhead Power Distribution System Subjected to Hurricane Winds”, *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*, V8(2), <https://ascelibrary.org/doi/abs/10.1061/AJRUA6.0001232>;
 - Lu, Q., **Zhang, W.** “An Integrated Damage Modeling and Assessment Framework for Overhead Power Distribution Systems Considering Tree-Failure Risks”, *Structure and Infrastructure Engineering*, <https://doi.org/10.1080/15732479.2022.2053552>.
 - Lu, Q., **Zhang, W.** (2022) “Integrating Dynamic Bayesian Network and Physics-based Modeling for Risk Analysis of a Time-Dependent Power Distribution System during Hurricanes”, *Reliability Engineering & System Safety*, Volume 220, April 2022, 108290. <https://www.sciencedirect.com/science/article/pii/S0951832021007614>
 - Lu, Q., **Zhang, W.**, Bagtzoglou, A. (2022) “Physics-Based Reliability Assessment of Community-Based Power Distribution System using Synthetic Hurricanes “, *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*, V8(1), March 2022. <https://ascelibrary.org/doi/full/10.1061/AJRUA6.0001205>
 - Li, X., **Zhang, W.** “Physics-informed Deep Learning Model in Wind Turbine Response Prediction”, *Renewable Energy*, Volume 185, February 2022, Pages 932-944 <https://www.sciencedirect.com/science/article/pii/S0960148121017791>
 - Zhu, D., **Zhang, W.**, Ding, Z. (2022) “Preliminary Experimental Investigation of Loading Sequence Effects on Low Cycle Bending Fatigue”, *Journal of Aerospace Engineering*, 35 (2). March 2022. [https://doi.org/10.1061/\(ASCE\)AS.1943-5525.0001380](https://doi.org/10.1061/(ASCE)AS.1943-5525.0001380).
 - Ma, X., **Zhang, W.** (2022) “Dynamic Amplification Effects of Scour and Debris Impacts for Short Span Bridges”, *Engineering Structures*, 252(1), February 2022, 113644 <https://doi.org/10.1016/j.engstruct.2021.113644>. Feb. 2022
 - Zhu, D., **Zhang, W.**, Ding, Z. (2022) “Dislocation Density Evolution in Low Cycle Fatigue of Steels Using Dislocation-Based Crystal Plasticity”, *Journal of Engineering Mechanics*, 148 (2). [https://doi.org/10.1061/\(ASCE\)EM.1943-7889.0002063](https://doi.org/10.1061/(ASCE)EM.1943-7889.0002063). Feb. 2022
 - Ding, Z., **Zhang, W.**, Hughes, W., Zhu, D. (2021) “A Modified Sub-Assembly Approach for Hurricane Induced Wind-Surge-Wave Vulnerability Assessment of Low-rise Wood Buildings in Coastal Communities”, *Journal of Wind Engineering and Industrial Aerodynamics*, 218(11), November 2021, 104755. <https://doi.org/10.1016/j.jweia.2021.104755>
 - Ma, X., **Zhang, W.** (2021). “Evaluating Tsunami Damage of Wood Residential Buildings in a Coastal Community Considering Waterborne Debris from Buildings”, *Engineering Structures*, Volume 244, 1 October 2021, 112761. <https://doi.org/10.1016/j.engstruct.2021.112761>

- Yu, Y., Kurian, B., Zhang, W., Cai, C.S., Liu, Y. (2021). “Fatigue damage prognosis of steel bridges under traffic loading using a time-based crack growth method”, *Engineering Structures*, 2021, 237, 112162.
- Ding, Z., **Zhang, W.**, Zhu, D. “A Three-dimensional Equivalent Parameterized Beam Element for Nail Connections in Wood Residential Buildings”. *Journal of Structural Engineering*, 147(4), April 2021. [https://doi.org/10.1061/\(ASCE\)ST.1943-541X.0002983](https://doi.org/10.1061/(ASCE)ST.1943-541X.0002983)
- Hughes, W., **Zhang, W.**, Bagtzoglou, A., Wanik, D., Pensado, O, Yuan, H., Zhang, J. (2021). “Damage Modeling Framework for Resilience Hardening Strategy for Overhead Power Distribution Systems”. *Reliability Engineering and System Safety*, Vol. 207, March 2021, 107367. <https://doi.org/10.1016/j.ress.2020.107367>.
- Ma, X., **Zhang, W.**, Bagtzoglou, A., Zhu, J. (2021). “A Local System Modeling Method for Resilience Assessment of Overhead Power Distribution System under Strong Winds”. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*, 7 (1) (March 2021). <https://doi.org/10.1061/AJRUA6.0001103>

SYNERGISTIC ACTIVITIES

1. Develop new courses, such as Coastal Hazards Engineering, Reliability for Engineers with individual course project to enhance hands-on experiences on engineering design and analysis;
2. Mentoring Ph.D., master, undergraduate and high school students;
3. Associate Editor for ASCE Journal of Bridge Engineering.
4. Reviewing for 20+ journals, such as Engineering Structures, Journal of Structure Engineering, etc.
5. Chair for structural dynamics and control committee in ASCE Earth and Space division; Members for some other committees in ASCE EMI and TRB.