Xinyue **Wang**

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EDUCATION

Lehigh University *2019 - 2025 (exp.)*
Ph.D. Candidate in Structural Engineering | Advisor: Paolo Bocchini *Bethlehem, PA*

Harbin Institute of Technology *2016 - 2019*
M.S. in Civil Engineering | Ranking: 6/164 | Advisor: Changhai Zhai *Harbin, China*

Shandong University *2012 - 2016*
B.S. in Civil Engineering | Ranking: 1/137 *Jinan, China*

HONORS & AWARDS

Travel Award to attend the NHERI Computational Academy, SimCenter at UC Berkeley *2024*
Travel Award to attend the EMI Conference, ASCE Lehigh Valley Section *2024*
Rossin Doctoral Fellowship, Lehigh University *2023*
Travel Award to attend the NHERI Summer Institute, NHERI Network Coordination Office *2023*
Brink Teaching Fellowship, Lehigh University *2022*
Tier 1 Student Scholarship to attend the ETS Conference, Structural Engineering Institute *2022*
Gibson Teaching Fellowship, Lehigh University *2020*
First-Class Scholarship, Harbin Institute of Technology *2017 & 2016*
National Scholarship (Top 0.2% nationwide), Ministry of Education of China *2015 & 2014*

PUBLICATIONS

Journal Articles Published

J3 **Wang, X.**, and Bocchini, P. (2023). "Predicting wildfire ignition induced by dynamic conductor swaying under strong winds." *Scientific Reports*, 13(1), Article 1. https://doi.org/10.1038/s41598-023-30802-w

J2 **Wang, X.**, Wen, W., and Zhai, C. (2020). "Vulnerability assessment of a high-rise building subjected to mainshock–aftershock sequences." *The Structural Design of Tall and Special Buildings*, 29(15), e1786. https://doi.org/10.1002/tal.1786

J1 Zhai, C., Bao, X., Zheng, Z., and **Wang, X.** (2018). "Impact of aftershocks on a post-mainshock damaged containment structure considering duration." *Soil Dynamics and Earthquake Engineering*, 115, 129–141. https://doi.org/10.1016/j.soildyn.2018.08.013

Works Under Review

U1 **Wang, X.**, and Bocchini, P. (2024). "Physics-based surrogate models of panels for portfolio analysis of transmission towers under hurricanes." *Structure and Infrastructure Engineering*.

Manuscripts in Preparation

M1 **Wang, X.**, and Bocchini, P. (2025). "Parameterized class fragility models of transmission towers for hurricane risk analysis of electricity transmission systems."

Conference Proceedings and Presentations (* denotes presenter)

C7 **Wang, X.***, and Bocchini, P. (2025). "Hurricane risk analysis for power transmission networks: from surrogate models for tower portfolios to parameterized fragility and spatiotemporal outages." *14th International Conference on Structural Safety and Reliability (ICOSSAR'25)* , Los Angeles, California. **[Oral presentation]**

C6 **Wang, X.**, Venkitasubramaniam, P., Xie, S., and Bocchini, P.* (2024). "Dynamic traffic simulation for transportation system resilience assessment." *12th International Conference on Bridge Maintenance, Safety and Management (IABMAS 2024)*, Copenhagen, Denmark. **[Conference paper]**

C5 **Wang, X.***, and Bocchini, P. (2024). "Class fragility models of transmission towers for regional analysis of transmission systems under hurricanes." *Engineering Mechanics Institute Conference and Probabilistic Mechanics & Reliability Conference (EMI/PMC 2024)*, Chicago, Illinois. **[Conference paper]** **[Finalist of EMI Objective Resilience Student Paper/Presentation Competition]**

C4 **Wang, X.**, Ma, L., and Bocchini, P.* (2023). "Panel-oriented surrogate model for developing class fragility curves for transmission towers." *14th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP14)*, Dublin, Ireland. **[Conference paper]**

C3 **Wang, X.***, and Bocchini, P. (2023). "Sensitivity analysis for the development of class fragility models of transmission towers under hurricanes." *Engineering Mechanics Institute Conference (EMI 2023)*, Atlanta, Georgia. **[Oral presentation]**

C2 **Wang, X.***, and Bocchini, P. (2023). "Predicting wildfire ignition induced by conductor-vegetation contact under strong winds." *Catastrophe Modeling and Data Workshop*, NYC, New York. **[Poster]**

C1 **Wang, X.***, and Bocchini, P. (2022). "Predicting wildfire ignition induced by conductor-vegetation contact under high winds." *Engineering Mechanics Institute Conference (EMI 2022)*, Baltimore, Maryland. **[Oral presentation]**

Web-Based Publications

W1 **Wang, X.** (2023). "Light a light or light a fire." *Lehigh University Graduate Student Research Series*. https://wordpress.lehigh.edu/gsrs/2023/05/10/light-a-light-or-light-a-fire/

RESEARCH EXPERIENCE

Resilience analysis for power transmission systems under hurricanes *2024 - present*

Dissertation project, conducted at Lehigh University *Research Assistant*

- Conducting an expert opinion survey on post-storm recovery of electric power systems to support recovery modeling.
- Developing and implementing a resilience analysis framework for power transmission systems which integrates advanced fragility and recovery models; testbed: Florida.

Dynamic traffic simulation for transportation system resilience assessment *2023 - 2024*

Dissertation project, conducted at Lehigh University *Research Assistant*

- Implemented a resilience analysis framework for transportation systems, incorporating dynamic traffic simulation on post-disaster, disrupted transportation networks.

Fragility modeling for electric power infrastructure under hurricanes *2021 - 2025*

Dissertation project, conducted at Lehigh University *Research Assistant*

- Developed physics-based surrogate models of panels for efficient modeling and analysis of portfolios of transmission towers.
- Developed parameterized class fragility models of transmission towers to support regional-scale risk and resilience assessment.

Predicting wildfire ignition induced by powerline-vegetation contact *2019 - 2021*

Dissertation project, conducted at Lehigh University *Research Assistant*

- Developed a mechanistic and probabilistic approach for predicting wildfire ignition caused by conductor swinging under strong winds.

Seismic fragility of high-rise buildings under mainshock-aftershock sequences *2016 - 2019*

Master's research, conducted at Harbin Institute of Technology *Master Student*

- Developed an effective storey damage index for quantifying the accumulative seismic damage of high-rise buildings subjected to mainshock-aftershock sequences.

SERVICE & LEADERSHIP

Journal Reviewer

Journal of Structural Engineering
Structure and Infrastructure Engineering

Lehigh Univeristy Graduate Student Research Series (GSRS) *2023 - present*

Inaugural Editorial Board Member and Web Editor

- Solicit and edit blog posts written by graduate students and post-docs to promote research accessibility and impact. For more information, visit `https://wordpress.lehigh.edu/gsrs/`.

Fritz Engineering Research Society (FERS) *2022 - 2024*

Treasurer

Earthquake Engineering Research Institute (EERI) Lehigh Student Chapter *2021 - 2022*

President

- Organized a seminar series featuring guest lecturers, including Dr. Georgios Tsampras (UCSD) and Mr. Jay Wilson (Friedman Family Visiting Professionals).

TEACHING & MENTORING

Guest Lecturer

Introduction to Catastrophe Modeling (graduate/undergraduate) *Fall 2022*

Graduate Teaching Assistant

Introduction to Catastrophe Modeling (graduate/undergraduate) *Fall 2022*
Engineering Statics (undergraduate) *Fall '22, '21*
Strength of Materials (undergraduate) *Spring 2021*

Research Mentor

Research mentor for one Lehigh undergraduate on characterization and design of transmission poles	*Fall 2023*
Research mentor for one REU student from Rutgers University on flooding risk analysis of tunnels	*Summer 2023*
Research mentor for one Lehigh undergraduate on combined hazard and vulnerability analysis for power transmission lines [Poster]	*Summer 2023*
Research mentor for two Lehigh undergraduates on mapping and spatial analysis of power transmission infrastructure	*Fall 2022*
Research mentor for one REU student from Smith College on tunnel fragility analysis	*Summer 2022*

PROFESSIONAL MEMBERSHIPS

American Society of Civil Engineers (ASCE), Member
Engineering Mechanics Institute (EMI), Member
Earthquake Engineering Research Institute (EERI), Student member
Fritz Engineering Research Society (FERS), Member
International Council on Large Electric Systems (CIGRE), Student member
NHERI Graduate Student Council (GSC), Member

TECHNICAL SKILLS

Programming	Python, MATLAB, LaTeX, Tcl, C
Catastrophe Modeling	Hazus, SimCenter Apps, IN-CORE, Oasis Loss Modeling Framework
Finite Element Modeling	OpenSees, SAP2000
Transportation Modeling	Simulation of Urban MObility (SUMO), RDR Tool Suite
Geographic Information Systems	ArcGIS, Google Earth Engine
Computing & Version Control	High-performance computing (HPC), Git/GitHub