

# WoongHee Jung

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## EDUCATION

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**The University of Notre Dame** Notre Dame, IN  
Ph.D., Civil and Environmental Engineering and Earth Science Expected May 2025  
Thesis: *Advancements in uncertainty quantification for coastal hazard assessment*  
Advisor: Alexandros Taflanidis

**Seoul National University** Seoul, Korea  
M.S., Department of Civil & Environmental Engineering Feb 2018  
Thesis: *Short-term prediction of wind velocity on bridge deck*  
Advisor: Ho-Kyung Kim

**Seoul National University** Seoul, Korea  
B.S., Department of Civil & Environmental Engineering Feb 2016  
*Cum Laude*

## RESEARCH EXPERIENCE

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**University of Notre Dame** Notre Dame, IN  
*Graduate Research Assistant, Civil and Environmental Engineering and Earth Science*  
Aug 2020 – Present

- Suggested efficient frameworks for real-time probabilistic prediction of storm surge using adaptive importance sampling scheme and multi-fidelity Monte Carlo.
- Validated benefits of metamodeling technique for regional storm surge hazard quantification
- Proposed a computationally efficient global sensitivity analysis for problems involving computationally expensive numerical models and high-dimensional outputs, and applied the tool for exploring the sensitivity of probabilistic storm surge estimates to forecast errors of storm characteristics.

**Korea Bridge Design & Engineering Research Center**  
*Researcher* Mar 2018 – Dec 2019

- Established a real-time bridge management system against hazardous situations such as strong wind and abnormal vibrations.

## TEACHING EXPERIENCE

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**University of Notre Dame** Notre Dame, IN  
*Teaching Assistant, Civil and Environmental Engineering and Earth Science*  
Feb 2021 – May 2022

- CE30150: Modeling and Dynamics of Building Systems
- CE30200: Introduction to Structural Engineering

## PUBLICATIONS

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- **Jung, W.**, Taflanidis, A. A., Nadal-Caraballo, N. C., Yawn, M. C., & Aucoin, L. A. (2023). Regional storm surge hazard quantification using Gaussian process metamodeling techniques. *Natural Hazards*, 1-29.
- **Jung, W.**, Taflanidis, A. A., Kyprioti, A. P., Adeli, E., Westerink, J. J., & Tolman, H. (2023). Efficient probabilistic storm surge estimation through adaptive importance sampling across storm advisories. *Coastal Engineering*, 183, 104287.
- **Jung, W.**, Kyprioti, A. P., Adeli, E., & Taflanidis, A. A. (2023). Exploring the sensitivity of probabilistic surge estimates to forecast errors. *Natural Hazards*, 115(2), 1371-1409.
- **Jung, W.**, & Taflanidis, A. A. (2023). Efficient global sensitivity analysis for high-dimensional outputs combining data-driven probability models and dimensionality reduction. *Reliability Engineering & System Safety*, 231, 108805.

## PRESENTATIONS

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- **Jung, W.**, Taflanidis, A. A., Kyprioti, A. P. (2023, July 9 – 13) *Adaptive importance sampling for efficient probabilistic storm surge estimation*, 14<sup>th</sup> International Conference on Applications of Statistics and Probability in Civil Engineering, Dublin, Ireland.
- **Jung, W.** & Taflanidis, A. A. (2023, June 6 – 9) *Multi-fidelity Monte Carlo for real-time probabilistic storm surge predictions*, ASCE Engineering Mechanics Institute 2023 Conference, Atlanta, GA, United States.
- **Jung, W.** & Taflanidis, A. A. (2022, May 31 – June 3) *Efficient global sensitivity analysis for high-dimensional outputs combining data-driven probability models and dimensionality reduction techniques*, ASCE Engineering Mechanics Institute 2022 Conference, Baltimore, MD, United States.
- **Jung, W.** & Taflanidis, A. A. (2022, September 13 – 17) *Efficient global sensitivity analysis for high-dimensional outputs combining data-driven probability models and principal component analysis*, The 13<sup>th</sup> International Conference on Structural Safety and Reliability, Shanghai, China.

## HONORS & AWARDS

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CERRA Student Recognition Awards in ICASP14	2023
EMI 2023 Probabilistic Methods Committee Student Paper Competition Awards	2023

## LEADERSHIP & OUTREACH

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President of Earthquake Engineering Research Institute (EERI) student chapter at Notre Dame	Sep 2022-Aug 2023
Vice president of Earthquake Engineering Research Institute (EERI) student chapter at Notre Dame	Sep 2021-Aug 2022