

JI YUN LEE

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 Pullman, WA 99164
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EDUCATION

Georgia Institute of Technology, Atlanta, GA

Ph.D. in Civil & Environmental Engineering, August 2015

Stanford University, Stanford, CA

M.S. in Civil & Environmental Engineering, June 2011

Korea University, Seoul, South Korea

B.S. in Architectural Engineering (Double Major in Civil & Environmental Engineering), February 2009

University of Pennsylvania, Philadelphia, PA

Exchange student, June 2006-May 2007

PROFESSIONAL EXPERIENCE

Assistant Professor

Department of Civil and Environmental Engineering
 Washington State University

08/2017-present**Postdoctoral Scholar**

Department of Civil and Environmental Engineering
 University of California, Los Angeles

08/2016-07/2017**Visiting Faculty**

Department of Civil, Environmental, and Construction Engineering
 University of Central Florida

08/2015-08/2016**RESEARCH INTERESTS AND EXPERTISE**

Structural reliability; Risk assessment and management of infrastructure systems and supply chain exposed to natural hazards; Risk-informed decision-making; Infrastructure resilience and sustainability; Supply chain resilience; Catastrophe insurance; Stochastic models of evolving risks; Climate change effects and adaptation; Adaptive management; Bayesian learning; Applications of statistics and probability in civil engineering; Intergenerational equity; Actuarial science

AWARDS AND HONORS

- NAE's 2021 US Frontiers of Engineering **2021**
- ASCE SEI Codes and Standards Young Professional (CSAD-YP) Program Future Funds **2018-2021**
- ASCE ExCEEEd (Excellence in Civil Engineering Education) Fellow **2019**
- ASCE SEI Tier 1 Young Professional Scholarship to Structures Congress **2019**
- Travel Award, 2018 NSF NHERI Summer Institute, University of Texas, San Antonio, TX **2018**
- Kwanjeong Educational Foundation Scholarship for Doctoral Research Abroad **2011-2015**

- Travel Grant, the 12th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP12), Vancouver, BC, Canada; Funds provided by CEE at Georgia Tech 2015
- 1st Place Award, ASCE/EMI Probabilistic Methods Committee student paper competition; Awarded at the 2014 annual EMI conference 2014
- Travel Grant, 2014 Engineering Mechanics Institute Conference (EMI), McMaster University, Hamilton, ON, Canada; Funds provided by CEE at Georgia Tech 2014
- Exchange Student Scholarship at University of Pennsylvania 2006-2007
- Un-bong Scholarship, Un-bong Foundation 2005
- Honors Scholarship, Korea University 2004

PUBLICATIONS

* indicates graduate students and postdoctoral scholars at WSU

Publications in Peer Reviewed Journals and Book Chapters

- J18. Ma, F.* , **Lee, J.Y.**, Camenzind, D., and Wolcott, M.P. (2021). “Probabilistic wildfire risk assessment methodology and evaluation of supply chain system.” In preparation.
- J17. Zhao, J.* , **Lee, J.Y.**, Camenzind, D., Wolcott, M.P., Lewis, K.C., and Gillham, O. (2021). “Multi-component resilience assessment framework for a supply chain system.” In review.
- J16. Ghasemi, S.H.* , **Lee, J.Y.**, and Nowak, A. (2021). “A vector-based structural safety measure using the system reliability and survivability index.” In review.
- J15. **Lee, J.Y.**, Ma, F.* , and Li, Y. (2021). “Understanding homeowner proactive actions for managing wildfire risks.” In review.
- J14. Ghasemi, S.H.* and **Lee, J.Y.** (2021). “Measuring instantaneous resilience of a highway bridge subjected to earthquake events.” *Transportation Research Record*. 03611981211009546.
- J13. Ghasemi, S.H.* and **Lee, J.Y.** (2021). “Reliability-based indicator for post-earthquake traffic flow capacity of a highway bridge.” *Structural Safety*, 89, 102039.
- J12. Wilson, A.W.* , Phillips, A.R., Motter, C.J., **Lee, J.Y.**, and Dolan, J.D. (2021). “Seismic loss analysis of buildings with post-tensioned cross-laminated timber walls.” *Earthquake Spectra*, 8755293020944188. <https://doi.org/10.1177/8755293020944188>.
- J11. Soltani, M.H., Ghasemi, S.H.* , Soltani, A., **Lee, J.Y.**, Nowak, A.S., and Jalilikhani, M. (2020). “State-of-the-art reliability analysis of structural drift control corresponding to the critical excitations.” *Journal of Earthquake Engineering*. <https://doi.org/10.1080/13632469.2020.1798829>.
- J10. Tomar, A., Burton, H.V., Mosleh, A., and **Lee, J.Y.** (2020). “Hindcasting the functional loss and restoration of the Napa water system following the 2014 earthquake using discrete-event simulation.” *ASCE Journal of Infrastructure Systems*, 26(4), 04020035.
- J9. Nouri, F., Ghasemi, S.H.* , and **Lee, J.Y.** (2020). “System reliability analysis of the scoliosis disorder.” *BMC Musculoskeletal Disorder*, 21(1), 1-12.
- J8. Zhao, J.* , **Lee, J.Y.**, Li, Y., and Yin, Y-J. (2020). “Effect of catastrophe insurance on disaster-impacted community: quantitative framework and case studies.” *International Journal of Disaster Risk Reduction*, 43, 101387.
- J7. Burton, H.V., **Lee, J.Y.**, Moradi, S., and Dastmalchi, S. (2019). “Multi-objective performance-based design optimization of a controlled rocking steel braced frame system.” *Resilient Structures and Infrastructure*, pp. 243-268.
- J6. **Lee, J.Y.**, Burton, H.V., and Lallemand, D. (2018). “Adaptive decision framework for civil infrastructure exposed to evolving risks.” *Procedia Engineering*, 212:435-442.

- J5. **Lee, J.Y.**, Burton, H.V., and Lallemand, D. (2018). “Adaptive decision-making for civil infrastructure systems and communities exposed to evolving risks.” *Structural Safety*, 75: 1-12.
- J4. **Lee, J.Y.** and Ellingwood, B.R. (2017). “A decision model for intergenerational life-cycle risk assessment of civil infrastructure exposed to hurricanes under climate change.” *Reliability Engineering and System Safety*, 159: 100-107.
- J3. Ellingwood, B.R. and **Lee, J.Y.** (2016). “Managing risks to civil infrastructure due to natural hazards: communicating long-term risks due to climate change.” In *Risk Analysis of Natural Hazards: Interdisciplinary Challenges and Integrated Solutions*, pp. 97-112. Risk, Governance, and Society, Springer, ISBN 978-3-319-22126-7.
- J2. Ellingwood, B.R. and **Lee, J.Y.** (2016). “Life cycle performance goals for civil infrastructure: intergenerational risk-informed decisions.” *Structure and Infrastructure Engineering*, 12(7): 822-829.
- J1. **Lee, J.Y.** and Ellingwood, B.R. (2015). “Ethical discounting for civil infrastructure decisions extending over multiple generations.” *Structural Safety*, 57:43-52.

Publications in Conference Proceedings

- C10. Ma, F.* and **Lee, J.Y.** (2022). “Probabilistic wildfire risk assessment for a supply chain system.” *Proceedings of the 13th International Conference on Structural Safety and Reliability*, Shanghai, China, June, 2021. Accepted for presentation.
- C9. Zhao, J.* and **Lee, J.Y.** (2022). “Multi-component resilience assessment framework for transportation systems.” *Proceedings of the 13th International Conference on Structural Safety and Reliability*, Shanghai, China, June, 2021. Accepted for presentation.
- C8. Ghasemi, S.H.*, **Lee, J.Y.**, Jalayer, M., Hosseini, P., and Khajehshahzarian, P. (2021). “Work-zone crash severity analysis: development and use of the joint distribution of crash-related variables.” *Proceedings of the 100th Transportation Research Board Annual Meeting*, Washington, D.C., January, 2021.
- C7. **Lee, J.Y.**, Zhao, J.*, Li, Y., and Yin, Y-J. (2019). “Quantitative impact of catastrophe risk insurance on community resilience.” *Proceedings of the 13th International Conference on Applications of Statistics and Probability in Civil Engineering*, Seoul, South Korea, May, 2019.
- C6. **Lee, J.Y.**, Ellingwood, B.R., Burton, H.V., and Ma, F.* (2019). “Dynamic risk assessment of resilient infrastructure systems under uncertain conditions.” *Proceedings of the 13th International Conference on Applications of Statistics and Probability in Civil Engineering*, Seoul, South Korea, May, 2019.
- C5. **Lee, J.Y.**, Tomar, A., and Burton, H.V. (2018). “A framework for water distribution system exposed to seismic events and evolving conditions.” *Proceedings of the 11th U.S. National Conference on Earthquake Engineering*, Los Angeles, CA, June, 2018.
- C4. **Lee, J.Y.**, Burton, H.V., and Lallemand, D. (2017). “Adaptive decision framework for civil infrastructure exposed to evolving risks.” *Proceedings of the 7th International Conference on Building Resilience (ICBR)*, Bangkok, Thailand, November, 2017.
- C3. **Lee, J.Y.** and Ellingwood, B.R. (2015). “Ethical discounting for intergenerational life-cycle risk assessment.” *Proceedings of the 12th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASPI2)*, Vancouver, BC, Canada, July, 2015.
- C2. **Lee, J.Y.** and Ellingwood, B.R. (2014). “Impacts of climate change on long-term risk to building structures exposed to hurricanes.” *Proceedings of the 2014 Engineering Mechanics Institute Conference (EMI)*, McMaster University, Hamilton, ON, Canada, August, 2014 (*First prize, ASCE/EMI Probabilistic Methods Committee student paper competition*).

- C1. **Lee, J.Y.** and Ellingwood, B.R. (2013). “Intergenerational risk-informed decision framework for civil infrastructure.” *Proceedings of the 11th International Conference on Structural Safety & Reliability (ICOSSAR)*, Columbia University, New York, NY, June, 2013.

Technical Reports

- T1. **Lee, J.Y.** and Li, Y. (2021). “A first step towards longitudinal study on homeowners’ proactive actions for managing wildfire risks.” *Natural Hazards Center Quick Response Grant Report Series, 328*. Boulder, CO: Natural Hazards Center, University of Colorado Boulder.

INVITED TALKS AND CONFERENCE PRESENTATIONS

† indicates invited talks

- P24. “Instantaneous-resilience metric concerning the robustness and redundancy.” *The 100th Transportation Research Board Annual Meeting*, Washington, D.C., January, 2021. (poster presentation)
- P23. “Work-zone crash severity analysis: development and use of the joint distribution of crash-related variables.” *The 100th Transportation Research Board Annual Meeting*, Washington, D.C., January, 2021. (poster presentation)
- P22†. “Risk and resilience assessment of infrastructure systems and communities.” *Graduate Seminar in the Department of Civil and Environmental Engineering*, Washington State University, Pullman, WA, November, 2019.
- P21†. “Resilience assessment framework for sustainable aviation fuel supply chain.” *The 2019 Fall ASCENT (Aviation Sustainability Center) Advisory Committee Meeting*, Alexandria, VA, October, 2019.
- P20. “Quantitative impact of catastrophe risk insurance on community resilience.” *The 13th International Conference on Applications of Statistics and Probability in Civil Engineering*, Seoul, South Korea, May, 2019.
- P19. “Dynamic risk assessment of resilient infrastructure systems under uncertain conditions.” *The 13th International Conference on Applications of Statistics and Probability in Civil Engineering*, Seoul, South Korea, May, 2019.
- P18†. “Sustainable aviation fuel supply chain resilience assessment,” *The Federal Aviation Administration (FAA) Aviation Sustainability Center (ASCENT) Meeting*, Webinar, May, 2019.
- P17. “A quantitative assessment of the role of catastrophe risk insurance in community resilience under evolving conditions,” *Structures Congress 2019*, Orlando, FL, April, 2019.
- P16†. “Resilient infrastructure systems: assessment and decision-making,” *Graduate Seminar in the School of Electrical Engineering and Computer Science*, Washington State University, Pullman, WA, November, 2018.
- P15. “A framework for water distribution system exposed to seismic events and evolving conditions,” *The 11th U.S. National Conference on Earthquake Engineering*, Los Angeles, CA, June, 2018.
- P14†. “Seismic risk models for adaptive decision making,” *The 2018 Pacific Earthquake Engineering Research Center Annual Meeting*, UC Berkeley, Berkeley, CA, January, 2018.
- P13†. “Risk-informed decision framework for civil infrastructure systems exposed to evolving risks,” *Washington State Department of Transportation*, Olympia, WA, December, 2017.

- P12. “Adaptive decision framework for civil infrastructure exposed to evolving risks,” *The 7th International Conference on Building Resilience; Using Scientific Knowledge to Inform Policy and Practice in Disaster Risk Reduction*, Bangkok, Thailand, November, 2017.
- P11†. “Evolving risk to civil infrastructure systems exposed to multiple hazards,” *Graduate Seminar in the Department of Civil and Environmental Engineering*, Washington State University, Pullman, WA, October, 2017.
- P10†. “Risk-informed decision for civil infrastructure exposed to evolving risk: Sharing risk across multiple generations,” *Graduate Seminar in the Department of Civil and Environmental Engineering*, UCLA, Los Angeles, CA, June, 2017.
- P9†. “Risk-informed decision for civil infrastructure exposed to natural hazards: Sharing risk across multiple generations,” *Washington State University*, Pullman, WA, April, 2017.
- P8†. “Risk-informed decision for civil infrastructure exposed to natural hazards: Sharing risk across multiple generations,” *North Dakota State University*, Fargo, ND, April, 2016.
- P7†. “Risk-informed decision for civil infrastructure exposed to natural hazards: Sharing risk across multiple generations,” *Florida International University*, Miami, FL, March, 2016.
- P6†. “Risk-informed decision for civil infrastructure exposed to natural hazards: Sharing risk across multiple generations,” *University of Rhode Island*, Kingston, RI, March, 2016.
- P5†. “Risk-informed decision for civil infrastructure exposed to natural hazards: Sharing risk across multiple generations,” *Korea Marine Equipment Research Institute (KOMERI)*, Busan, South Korea, November, 2015.
- P4. “Ethical discounting for intergenerational life-cycle risk assessment,” *The 12th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASPI2)*, Vancouver, BC, Canada, July, 2015.
- P3†. “Risk-informed decision for civil infrastructure exposed to natural hazards: sharing risk across multiple generations,” *Graduate Seminar in the Department of Civil and Environmental Engineering*, Colorado State University, Fort Collins, CO, June, 2015.
- P2. “Impacts of climate change on long-term risk to building structures exposed to hurricanes,” *2014 Engineering Mechanics Institute Conference (EMI)*, McMaster University, Hamilton, ON, Canada, August, 2014.
- P1. “Intergenerational risk-informed decision framework for civil infrastructure,” *The 11th International Conference on Structural Safety & Reliability (ICOSSAR)*, Columbia University, New York, NY, June, 2013.

TEACHING EXPERIENCE

Instructor	Washington State University	01/2018-present
▪ Statics (CE 211)		
▪ Introduction to Structural Engineering (CE 330)		
▪ Decision-Making for Sustainable and Resilient Civil Infrastructure (CE 405/505)		
▪ Probability and Statistical Models in Engineering (CE 531)		
▪ Graduate Seminar (CE 580)		
Instructor	University of Central Florida	08/2015-08/2016
▪ Engineering Analysis – Statics (EGN 3310)		
▪ Honors Engineering Analysis – Statics (EGN 3310H)		
▪ Mechanics of Materials (EGN 3331)		

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| Teaching Assistant | Colorado State University | 08/2013-12/2014 |
| <ul style="list-style-type: none"> ▪ Structural Load Modeling ▪ Structural Stability ▪ Structural Reliability | | |
| Teaching Assistant | Georgia Institute of Technology | 08/2012-12/2012 |
| <ul style="list-style-type: none"> ▪ Structural Load Modeling | | |

ACADEMIC ADVISING

Graduate Student

- Vishnupriya Jonnalagadda, Ph.D., Civil Engineering, WSU
- Fangjiao Ma, Ph.D., Civil Engineering, WSU
- Jie Zhao, Ph.D., Civil Engineering, WSU
- Stanley Kouassi, M.S., Civil Engineering, WSU (Fulbright Scholar)
(currently Project Manager at Louis Berger International)

Graduation

Aug 2024
May 2023
May 2022
Dec 2019

Postdoctoral Scholar

- Seyed Hooman Ghasemi (currently Lecturer at Rowan University) 02/2020-01/2021

Graduate Research Committees

- Member of 6 Ph.D. Thesis Committee: Gustavo Alejandro Acuna Alegria; Yan Zhang; Majid Jarrah; Zhipeng Li; Fokruddin Ahmad; Honglan Huang (UCLA)
- Member of 4 M.S. Thesis Committee: Alex Wilson; Qiyang Luo; Tasnia Shehrin; Madison Ann Broers

PROFESSIONAL SERVICES

- ASCE 7-22 Minimum Design Loads and Associated Criteria for Buildings and Other Structures
 - Member of Main Committee
 - Historian and Voting Member of Load Combinations Subcommittee
- Task leader in ASCE 7-22 Load Combinations Subcommittee
 - Develop ASCE publication that documents history and basis of load factors, load combinations, and reliability methods and targets currently in ASCE 7-16
- Member, ASCE Infrastructure Resilience Division (IRD)
- Member, ASCE Task Group 2 Reliability-Based Structural System Performance Indicator (TG2)
- Member, ASCE Task Group 3 Risk Assessment of Structural Infrastructure Facilities and Risk-Based Decision Making (TG3)
- Associate Member, American Society of Civil Engineers (ASCE)
- Member, Society for Risk Analysis (SRA)
- Member, Korean-American Scientists and Engineers Association (KSEA)
- Member, Korea Women in Science and Engineering (KWise)
- **Editorial Board:** Reliability Engineering and Resilience
- **Proposal Reviewers:** USDOT Center for Advanced Multimodal Mobility Solutions and Education Research Proposals for 2021
- **Journal Reviewers:** Structural Safety; Structure and Infrastructure Engineering; Reliability Engineering and System Safety; International Journal of Disaster Risk Reduction; Engineering Structures; Journal of Aerospace Engineering; Journal of Building Engineering; Journal of Professional Issues in Engineering Education and Practice; The Open Construction and Building Technology Journal; Journal of Waterway, Port, Coastal, and Ocean Engineering; Journal of Water Resources Planning and Management; Journal of Infrastructure Preservation and Resilience; Automation in Construction; etc.