Jeongyoon Oh

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Summary

My research bridges risk management in the built environment, including infrastructure, construction, and buildings, with data-driven and AI-enabled methods. A core focus is on developing decision-support methods to proactively address risks spanning cost, schedule, safety, energy, environmental performance, and human factors. Building on this foundation, my work is expanding toward AI-enabled approaches for the built environment, where large language models can support areas such as risk identification, construction management processes, and design optimization. This line of research aims to enhance decision-making across the project lifecycle.

Education

Ph.D.	August 2021 – present
	Georgia Institute of Technology, Building Construction
	Area of Concentration: AI-Enhanced Risk Management
M.S.	August 2023 – May 2025
	Georgia Institute of Technology, Economics
M.S.	September 2015 – August 2017
	Yonsei University, Architectural Engineering
	Area of Concentration: Sustainable Built Environment and Facility Management
B.S.	March 2011 – August 2015
	Ewha Womans University, Architectural Engineering

Employment History

Georgia Institute of Technology

Graduate Research Assistant, School of Building Construction, College of Design (May 2022 – present)

Graduate Teaching Assistant, School of Building Construction, College of Design (August 2021-May 2022)

- BC 2634 Construction Plans & Estimates
- BC 3630 Project Management I

Smart Space for the Healthcare of Senior Citizens

Startup, Sponsored by Korean Ministry of Small and Medium-Sized Enterprises and Startups (May 2020 – August 2021)

Incheon National University

Researcher in Construction Engineering and Management (May 2020 – August 2021)

Kyonggi University

Researcher in IoT-Based Facility Management Lab (March 2018 – August 2019)

Yonsei University

Graduate Teaching Assistant, Department of Architecture and Architectural Engineering (Fall 2015, Spring 2016, Spring 2017)

- Building Cost Estimation

- Architectural Design Studio 2

Research, Scholarship, and Creative Activities

A. Referred Publications and Submitted Articles

A1. Published and Accepted Journal Articles

1. **Oh, J.**, Touran, A., D'Angelo, D., Clark, T., Fisher, C., Gaskins, C., & Ashuri, B. (2025). Empirical Assessment of Variability in Project Effectiveness and Change Orders Across Project Delivery Method. *Journal of Construction Engineering and Management*. http://doi.org/10.1061/JCEMD4/COENG-16784.
2. **Oh, J.**, Touran, A., D'Angelo, D., Clark T., Fisher, C., Gaskins, C., & Ashuri, B. (2025). Machine Learning-Enhanced Recurrent Event Modeling for Change Order Recurrence in Highway Construction, *Journal of Management in Engineering*. http://doi.org/10.1061/JMENEA/MEENG-6583.
3. **Oh, J.**, Chung, F., Koo, C., Castro-Lacouture, D., & Ashuri, B. (2024). Empirical Adaptation of Construction Work/Rest Schedules to Physiological Variability in Heat Response. *Safety Science.* http://dx.doi.org/10.2139/ssrn.4639354.
4. **Oh, J.**, Wong, W., Castro-Lacouture, D., Lee, J., & Koo, C. (2023). Indoor environmental quality improvement in green building: Occupant perception and behavioral impact. *Journal of Building Engineering*, 69, 106314. https://doi.org/10.1016/j.jobe.2023.106314.
5. Li, W., Koo, C., Hong, T., **Oh, J.**, Cha, S. H., & Wang, S. (2020). A novel operation approach for the energy efficiency improvement of the HVAC system in office spaces through real-time big data analytics. *Renewable and Sustainable Energy Reviews*, 127, 109885. https://doi.org/10.1016/j.rser.2020.109885.
6. An, J., Hong, T., **Oh, J.**, Jung, W., Jeong, K., Park, H. S., & Lee, D. E. (2019). An optimal implementation strategy of the multi-function window considering the nonlinearity of its technical-environmental-economic performance by window ventilation system size. *Building and Environment*, 161, 106234. https://doi.org/10.1016/j.buildenv.2019.106234.
7. Jung, W., Hong, T., **Oh, J.**, Kang, H., & Lee, M. (2019). Development of a prototype for multi-function smart window by integrating photovoltaic blinds and ventilation system. *Building and Environment*, 149, 366-378. https://doi.org/10.1016/j.buildenv.2018.12.026.
8. **Oh, J.**, Koo, C., Hong, T., & Cha, S. (2018). An integrated model for estimating the techno-economic performance of the distributed solar generation system on building façades: Focused on energy demand and supply. *Applied Energy*, 228, 1071-1090. https://doi.org/10.1016/j.apenergy.2018.06.119.
9. Li, W., Koo, C., Cha, S., Hong, T., & **Oh, J.** (2018). A novel real-time method for HVAC system operation to improve indoor environmental quality in meeting rooms. *Building and Environment*, 144, 365-385. https://doi.org/10.1016/j.buildenv.2018.08.046.
10. Koo, C., Hong, T., **Oh, J.**, & Choi, J. (2018). Improving the prediction performance of the finite element model for estimating the technical performance of the distributed generation of solar power system in a building façade. *Applied Energy*, 215, 41-53. https://doi.org/10.1016/j.apenergy.2018.01.081.
11. **Oh, J.**, Hong, T., Kim, H., An, J., Jeong, K., & Koo, C. (2017). Advanced strategies for net-zero energy building: Focused on the early phase and usage phase of a building's life cycle. *Sustainability*, 9, 1-52. https://doi.org/10.3390/su9122272.
12. Jeong, K., Hong, T., Koo, C., **Oh, J.**, Lee, M. & Kim, J. (2017). A prototype design and development of the smart photovoltaic system blind considering the photovoltaic panel,

tracking system, and monitoring system. *Applied Sciences*, 7(10), 1-18. https://doi.org/10.3390/app7101077.

13. **Oh, J.**, Koo, C., Hong, T., Jeong, K., & Lee, M. (2017). An economic impact analysis of residential progressive electricity tariffs in implementing the building-integrated photovoltaic blind. *Applied Energy*, 202, 259-274. https://doi.org/10.1016/j.apenergy.2017.05.158.
14. Hong, T., Koo, C., **Oh, J.**, & Jeong, K. (2017). Nonlinearity analysis of the shading effect on the technical-economic performance of the building-integrated photovoltaic blind. *Applied Energy*, 194, 467-480. https://doi.org/10.1016/j.apenergy.2016.05.027.
15. Koo, C., Hong, T., Jeong, K., Ban, C., & **Oh, J.** (2017). Development of the smart photovoltaic system blind and its impact on the net-zero energy solar buildings using technical-economic-policy analyses. *Energy*, 124, 382-396. https://doi.org/10.1016/j.energy.2017.02.088.
16. Park, H., Koo, C., Hong, T., **Oh, J.**, & Jeong, K. (2016). A finite element model for estimating the techno-economic performance of the building-integrated photovoltaic blind. *Applied Energy*, 179, 211-227. https://doi.org/10.1016/j.apenergy.2016.06.137.
17. Hong, T., Jeong, K., Ban, C., **Oh, J.**, Koo, C., Kim, J., & Lee, M. (2016). A preliminary study on the 2-axis hybrid solar tracking method for smart photovoltaic blinds. *Energy Procedia*, 88, 484-490. https://doi.org/10.1016/j.egypro.2016.06.067.

A2. Journal Articles in Preparation, Submitted, or Under Revision

1. **Oh, J.**, & Ashuri, B. Expert System with Explainable AI for Change Order Impact Profiling in Construction Projects. *Expert Systems with Applications*, Manuscript No. ESWA-S-25-24143. Originally submitted July 4, 225; first-round revision submitted August 30, 2025.
2. **Oh, J.,** Lee, S.Y., Touran, A., & Ashuri, B. Revisiting Change Orders in Construction through a Systematic Review Using Large Language Models. Manuscript in preparation for submission to the *International Journal of Project Management*.
3. **Oh, J.,** Oh, H.J., & Ashuri, B. Impact of Pre-Award Evaluation Criteria on Delivery Performance in Design-Build Projects. Manuscript in preparation for submission to the *Journal of Construction Engineering and Management*.

A3. Conference, Symposium Proceedings, and Presentations

1. **Oh, J.**, & Ashuri, B. Reassessing Change Order Impacts through Multi-Cause Identification Using Large Language Models. Submitted to the *ASCE Construction Research Congress 2026*, March 18-21, 2026, San Antonio, Texas. Manuscript under review.
2. **Oh, J.**, & Ashuri, B. AI-Assisted Literature Review of Change Orders in Construction with Thematic and Methodological Insights. Submitted to the *Transportation Research Board (TRB) 105th Annual Meeting*, January 11-15, 2026, Washington, D.C. Manuscript under review.
3. **Oh, J.**, & Ashuri, B. Toward a Deeper Understanding of Change Orders in Highway Construction: A Data-Driven Empirical Approach. *CIB W78 Conference on IT in Construction, 2025 European Conference on Computing in Construction EC³*, July 14-17, Porto, Portugal. https://doi.org/10.35490/EC3.2025.475.
4. **Oh, J.**, Baru, A., Yang, E., & Ashuri, B. (2025). Framework for building energy management: Seasonal benchmarks for optimizing thermal comfort. *CIB World Building Congress Conference 2025*. May 19-23, Indiana, United States. https://doi.org/10.7771/3067-4883.2017.
5. **Oh, J.**, Touran, A., D'Angelo, D., Clark, T., Gaskins, C., & Ashuri, B. (2024). A comprehensive analysis of change orders based on project progress in design-build highway construction. *Construction Research Congress 2024*, March 20-23, Iowa, United States. https://doi.org/10.1061/9780784485286.014.

6. Hong, T., **Oh, J.**, Jung, W., An, J., & Kim, H. (2018). Establishment of operational strategy of the ventilation system in a building by considering the indoor and outdoor concentration of fine dust. *International Conference on Time Series and Forecasting (ITISE 2018)*, September 19-21, Granada, Spain.
7. Hong, T., An, J., **Oh, J.**, Jung, W., & Lee, M. (2018). Predictive model of the techno-environmental performance of novel multi-function window combined ventilation system and solar photovoltaic blind using finite element method. *International Conference on Time Series and Forecasting (ITISE 2018)*, September 19-21, Granada, Spain.
8. Kim, H., Hong, T., **Oh, J.**, Jeong, K., & Kim, J. (2018). Development of an automatic control algorithm for the window ventilation system using a logistic regression model. *11th International Conference on Sustainable Energy & Environmental Protection (SEEP 2018)*, May 8-11, Edinburgh, Scotland.
9. Kang, H., Hong, T., Lee, M., Jeong, K., & **Oh, J.** (2017). Development of the sensor network algorithm for maximizing the electricity generation of the smart photovoltaic (PV) blind. *2017 17th International Conference on Control, Automation and Systems (ICCAS 2017)*, October 18-21, Jeju, South Korea.
10. Hong, T., Lee, M., Jeong, K., **Oh, J.**, & Kong, M. (2017). *A framework for rating the rooftop solar PV suitability of a building considering the geographic and technical potential in urban areas*. 33rd European PV Solar Energy Conference and Exhibition (EU PVSEC 2017), September 25-29, Amsterdam, Netherlands.
11. **Oh, J.**, Hong, T., & Koo, C. (2017). The effect of residential progressive electricity tariffs on the economic performance of building-integrated photovoltaic blind. *The 9th International Exergy, Energy and Environment Symposium (IEEES-9)*, May 14-17, Split, Croatia.
12. Hong, T., **Oh, J.**, Jeong, K., Kim J., & Lee, M. (2016). Establishment of optimal control strategy of building-integrated photovoltaic blind slat angle by considering interior illuminance and electricity generation. *The 2nd International Workshop on Machine Learning, Optimization and Big Data (MOD 2016)*, August 26-29, Volterra, Tuscany, Italy. https://doi.org/10.1007/978-3-319-51469-7_40.

B. Patents and Software Program

B1. Patent Registration

1. System and method for the techno-economic-policy assessment of the distributed solar generation in net-zero energy residential building (2018) (No. 10-1911403), South Korea.

B2. Software Registration

1. System for indoor environment real-time monitoring and optimal control of window ventilation based on the LabVIEW (2018) (C-2018-009294), South Korea.
2. Multi-objective optimization system and method for determining the optimal CO2 emissions reduction strategies in existing building (2018) (C-2018-007466), South Korea.
3. System for real-time monitoring and optimal control of smart photovoltaic system blind based on the LabVIEW (2017) (C-2017-029317), South Korea.
4. Bi-directional (2-axis) optimal angle analysis system and method of solar panel for maximizing the amount of electricity generated from the building-integrated photovoltaic blind system (2017) (C-2017-029416), South Korea.
5. System and method for the techno-economic-policy assessment of the distributed solar generation in net-zero energy building (2017) (C-2017-012220), South Korea.

6. System and method for estimating the amount of electricity generated from the building-integrated photovoltaic blind system by using the finite element method (2017) (C-2017-012219), South Korea.

C. Research Projects

Design Build Research Project (Phase II), *South Carolina Department of Transportation*, United States.

- Role: Graduate research assistant
- Participation duration: May 2022 – present

Development an Intelligent Facility Management System for Occupant-centric Coworking Spaces through the Living-lab-based Digital Transformation (iFMS-OCS), *National Research Foundation of Korea (NRF)*, South Korea.

- Role: Researcher
- Participation duration: May 2020 – August 2021

Development of a Real-Time Diagnostic and Optimal Control System for Achieving Intelligent Energy Systems in Social Welfare Facilities, *Korea Institute of Energy Technology Evaluation and Planning (KETEP)*, South Korea.

- Role: Researcher
- Participation duration: May 2020 – August 2021

A Real-time Monitoring and Diagnostics System for Energy Demand and Indoor Environmental Quality in a Building, *National Research Foundation of Korea (NRF)*, South Korea.

- Role: Researcher
- Participation duration: March 2018 – August 2019

Development of IoT-based Multi-Function Smart Window by Integrating Solar PV Blind and Active Ventilation System in the quest for Zero Energy Buildings, *The Ministry of Land, Infrastructure and Transport (MOLIT)*, South Korea.

- Role: Graduate student researcher
- Participation duration: September 2016 – August 2018

Intelligent Planning System for the Distributed Solar Generation in the Net-Zero Energy Buildings (IP-DSG), The Ministry of Science, *ICT & Future Planning (MSIP)*, South Korea.

- Role: Graduate student researcher
- Participation duration: June 2016 – May 2018

D. Grants and Research Proposal

Model for Diagnostics and Prediction of Construction Workers' Heat Stress and Its Impact. *Small Study Program*, *The Center for Construction Research and Training (CPWR)*, United States.

- Role: Contributed as a co-author under the supervision of Dr. Daniel Castro
- Status: Submitted, not funded (January 2022)

Real-Time Hazard Identification and Construction Worker Localization Based on Visual Simultaneous Localization and Mapping (vSLAM), *Faculty Development Grant Proposal*, *Georgia Institute of Technology*, United States.

- Role: Contributed as a co-author under the supervision of Dr. Daniel Castro
- Status: Submitted, not funded (December 2021)

Honors and Awards

- Scholarship, International Facility Management Association (IFMA), 2025

- Dean's Fellowship, School of Building Construction, Georgia Institute of Technology, 2025 – 2026
- Winner, Best Student Paper Competition, Construction Division, Institute of Industrial & Systems Engineers (IISE), 2025
- Finalist, Graduate Research Award in International Project Management Association (IPMA) Global Research Award, 2025
- Excellent Paper Award, Conference in Korea Institute of Construction Engineering, 2016
- Gold Prize, 2014 Ewha Engineering Capstone Design Contest, 2014
- 4th Place, 2014 Ewha Engineering Portfolio Contest for the Best Paper, 2014
- Excellent Paper Award, Ewha Womans University Graduate Thesis Presentation, 2014

Professional and Academic Service

Research Mentorship

- Pascal Bermeo Neumann, School of Civil and Environmental Engineering, Georgia Tech (Fall 2024 – Spring 2025)
- Richard Still, School of Building Construction, Georgia Tech (January 2023 – May 2023)
- Hakpyeong Kim, Jongbaek An, and Woojin Jung, Department of Architecture and Architectural Engineering, Yonsei University (Mar 2017 - Aug 2017)

Guest Lectures

- BC 4130 Integrated Design, Construction, and Development, "DB vs. DBB: Data-Driven Insights on Project Performance - Are DB Projects Truly More Effective Than DBB Projects?", Georgia Tech (Fall 2025)
- BC 7100 Quantitative Methods for Construction Research, "Power BI: Data Visualization for Insight Extraction", Georgia Tech (Fall 2024, Fall 2025)

Journal/Conference Reviewer

- Journal of Management in Engineering, 2025
- Construction Research Congress Conference, 2024, 2025
- World Building Congress, 2025

References

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