Sang Min Lee

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EDUCATION

2023–2027 (expected) **Ph.D. in Artificial Intelligence**
Interdisciplinary Program in Artificial Intelligence, Seoul National University
- Research: AI for resilient infrastructure and wind engineering
- Advisor: Prof. Thomas H.-K. Kang

2021–2023 **M.S. in Structural Engineering**
Department of Architecture and Architectural Engineering, Seoul National University
- Thesis: Machine Learning Application to Automated Impact-Echo Test for Concrete Structures
- Advisor: Prof. Thomas H.-K. Kang

2016–2021 **B.S. in Architectural Engineering**
Department of Architecture and Architectural Engineering, Seoul National University

RESEARCH AND PROFESSIONAL EXPERIENCE

Mar 2021 – present **Graduate Research Assistant**
Hi-performance Structural Engineering Lab, Seoul National University
- Advisor: Prof. Thomas H.-K. Kang

Oct–Nov 2025 **Visiting Researcher**
National Weather Center, University of Oklahoma, Norman, OK, USA
- Hydrometeorology and Remote Sensing Lab, hosted by Prof. Yang Hong

SELECTED PUBLICATIONS

6 journal articles · 20 conference papers

Journal Articles

J6 **Lee, S. M.**, Hong, J., Choi, H., & Kang, T. H.-K. (2025). **Machine learning assisted method for automated impact-echo testing of concrete structures**. Journal of Nondestructive Evaluation, 44(4), 121. SCIE doi:10.1007/s10921-025-01260-3

J5 **Lee, S. M.**, Choi, H. S., Kim, C., & Kang, T. H.-K. (2025). **Lightweight alternative machine learning model for automating concrete crack image classification**. ACI Structural Journal, 122(5). SCIE

J4 Lee, Y. I., **Lee, S. M.**, & Kang, T. H.-K. (2025). **Multiclass deep support vector data description for structural health monitoring**. Journal of Structural Engineering, 151(12). SCIE doi:10.1061/JSENDH.STENG-14823

J3 Ahn, B., Lee, D., **Lee, S. M.**, & Kang, T. H.-K. (2023). **A methodology for predicting expected wind speed from satellite images using artificial neural networks** (in Korean). Journal of the Wind Engineering Institute of Korea, 27(4), 135–142. KCI

J2 **Lee, S. M.**, Choi, H., & Kang, T. H.-K. (2023). **Machine learning applications for smart impact-echo testing** (in Korean). Review of Architecture and Building Science (Architectural Institute of Korea), 67(3), 47–50.

J1 **Lee, S. M.**, Sung, H. S., & Kang, T. H.-K. (2022). **Comparison of performance for predicting compressive strength of concrete using machine learning**. Journal of the Korea Concrete Institute, 34(5), 505–513. KCI

International Conference Papers

C8 **Lee, S. M.**, & Kang, T. H.-K. (2026). **CoMuRAG: Condition-mutated hard negatives for safety-sensitive Korean building-code retrieval**. ACM/IEEE Joint Conference on Digital Libraries (JCDL 2026).

C7 Park, H. G., **Lee, S. M.**, & Kang, T. H.-K. (2026). **Modified impact-echo testing of liner-plate-backed concrete in nuclear containment buildings**. ACEM26 / Structures26.

C6 **Lee, S. M.**, & Kang, T. H.-K. (2025). **Retrieval augmented generation for assistance of using wind load design codes**. The 10th Asia-Pacific Conference on Wind Engineering (APCWE10).

C5 **Lee, S. M.**, Lee, Y. I., & Kang, T. H.-K. (2024). **Multi-sphere deep SVDD for system identification of building structure**. The 2024 World Congress on Advances in Civil, Environmental, and Materials Research (ACEM24).

C4 **Lee, S. M.**, Choi, H. S., Kim, C., & Kang, T. H.-K. (2024). **Representation learning for classification of concrete crack images**. The 2024 Structures Congress, Seoul, Korea.

C3 **Lee, S. M.**, & Kang, T. H.-K. (2022). **Clustering wind pressure tap using dynamic time warping**. 8th European-African Conference on Wind Engineering (EACWE2022), Bucharest, Romania.

C2 **Lee, S. M.**, & Kang, T. H.-K. (2022). **Shear strength prediction of prestressed concrete based on machine learning**. The 2022 Structures Congress, Seoul, Korea.

C1 **Lee, S. M.**, & Kang, T. H.-K. (2021). **Prediction of wind pressure coefficients on high-rise building façade using LSTM RNN model for sensor reduction**. The 2021 World Congress on Advances in Structural Engineering and Mechanics (ASEM21).

Also 12 papers at Korean domestic conferences and 3 theses. Full CV: concrete-sangminlee.github.io/cv/

PATENTS

2023 **AI-based defect detection system inside concrete members**
Lee, S. M., & Kang, T. H.-K. Korean Patent 10-2611457, registered

2022 **Wind load estimation system based on artificial intelligence**
Lee, S. M., & Kang, T. H.-K. Korean Patent 10-2480382, registered

TEACHING EXPERIENCE

2021–2024 **Teaching assistant for 8 courses, Seoul National University**

HONORS AND AWARDS, CERTIFICATIONS

2025–2026 **SNU AI Fellowship**, Interdisciplinary Program in Artificial Intelligence, SNU

2025 **Excellence Award, SNU AI Paper Competition**, Interdisciplinary Program in Artificial Intelligence, SNU

2023–2024 **SNU AI Graduate School Scholarship**, Interdisciplinary Program in Artificial Intelligence, SNU

2022 **Outstanding Teaching Assistant Award**, College of Engineering, SNU

2022 **Outstanding Presentation Award**, Korea Concrete Institute

2025 **Big Data Analysis Engineer**, Korea Data Agency

PROFESSIONAL SERVICE

2024–present Reviewer, **Wind and Structures**

2025 Organizing committee member, **28th WEIK Annual Conference**

Memberships KCI, ACI, AIK, KSMI, WEIK, ASCE

SKILLS

Programming: Python, MATLAB, C · Embedded and IoT: Arduino UNO, ESP32, Teensy, STM boards · Engineering tools: ECO2, AutoCAD, Microsoft Excel