Jin-Bin IM

Department of Architectural Engineering
Hanyang University
Client Briefing & Program Management Lab
Lab Website: http://cbpm.hanyang.ac.kr

Website: https://jinbin-im.github.io/
E-mail: jbim0202@hanyang.ac.kr
Mobile: +82 10-8952-0202
Google Scholar *h*-index: 5, Scopus *h*-index: 5

RESEARCH INTERESTS

- Extended Reality   [J3, J7, J8, J9, J10, U5]

  - Exploring the integration of eXtended Reality (XR) into spatial design evaluation to examine how built environments influence occupant responses. Employing both self-reported measures and physiological data (EEG, HRV) to quantify the relationship between environmental features and human experience.

- Artificial Intelligence

  - Applying natural language processing, image processing, and transformer-based models to interpret user intent and automate aspects of spatial design and design communication.

- Project Management   [J5, J6, U1, U2, U3, U6]

  - Analyzing stochastic management data in construction projects, characterized by their temporary nature, diverse stakeholders, and labor-intensive processes, by implementing machine learning algorithms to interpret complex interconnections.

EDUCATIONS

Ph.D. Hanyang University   2026
  Department of Architectural Engineering
  Dissertation title: "A User-Centered Spatial Design Revision Framework using Affective Engineering and Transformer-based Emotional Requirement Interpretation"

M.S. Hanyang University   2022
  Department of Architectural Engineering

B.S. Hanyang University   2020
  Department of Interior Architecture Design

EXPERIENCES

Teaching Fellow, Hanyang University   2024–2026
  Department of Architectural Engineering
    ENE4044 *Computer Engineering*   Spring 2026
    PBL4004 *Architectural Engineering Capstone PBL*   Fall 2025
    ENE4044 *Computer Engineering*   Spring 2025
    ENE4044 *Computer Engineering*   Spring 2024

Internship, SIFC Property Korea YH   2019–2020
  - Property management for IFC Seoul, including a IFC Mall ($85,444m^2$ GFA), three IFC Seoul Office Towers ($329,586m^2$ GFA), and Conrad Seoul Hotel (five-star hotel)

Undergraduate Research Student, Hanyang University   2019
  Hanyang University, Department of Interior Architecture Design

RESEARCH PROJECTS

Hanyang University, Department of Architectural Engineering   2021–2026

Research Manager, *extended reality and occupant behavior*
- *Study on Quality Control of Educational Facilities using Virtual Environments.*   2023–2024
- *Development of Decision-making Framework to Support Personalized Spatial Composition based on Temperament, Perception and Bio-markers Applying Digital Twin.*   2021–2024

Research Participant, *construction management and on-site quality control*
- *Development of Artificial Intelligence-based Real-Time Construction Quality Management System.*   2024–2026
- *Construction Quality Control using Digital Twin Technology.*   2021–2022
- *Establishment of Standard Guidelines for Daycare Centers in Police Stations.*   2021

Hanyang University, Department of Interior Architecture Design   2019

Research Student, *data collection and analysis*
- *Spatial Preference Modeling based on Immersive Virtual Environment and Choice Modeling Theory.*   2019

INTERNATIONAL PUBLICATIONS

- REFERRED JOURNALS

[J10] **Im, J. B.**, Hong, R. L., Joo, M., Zhang, E., & Kim, J. H.[*] (2025). Visual Fidelity Effects on Occupants' Performance, Mental States, and Emotions in Mixed Reality Environments. *Architectural Science Review,* Taylor & Francis, *(Accepted)*. (https://doi.org/10.1080/00038628.2025.2584180) [A&HCI, Q1, 2.5%, IF 1.8]

[J9] Lee, K. T., **Im, J. B**., & Kim, J. H.[*] (2025). Effects of Human Perception Dimensions Constituting Individual Temperament and Experience on Indoor Space Composition Decision-making Presented in a Mixed-reality Environment. *Architectural Science Review,* Taylor & Francis, 1–16. (https://doi.org/10.1080/00038628.2025.2510300) [A&HCI, Q1, 2.5%, IF 1.8]

[J8] Joo, M., **Im, J. B.**, Lee, K. T., & Kim, J. H.[*] (2025). Comparative Analysis of Work Performance and Physiological Response Based on Office Types and Indoor Space Design. *Architectural Engineering and Design Management,* Taylor & Francis, 1–17. (https://doi.org/10.1080/17452007.2025.2490958) [SCIE, Q2, 34.3%, IF 2.7]

[J7] **Im, J. B.**, Joo, M., Lee, K. T., & Kim, J. H.[*] (2025). A mixed reality approach to identify cognitive performance and mental states in preferred vs. non-preferred individual and collaborative work environments. *Building and Environment,* Elsevier, *274, 112806.* (https://doi.org/10.1016/j.buildenv.2025.112806) [SCIE, Q1, 4.1%, IF 7.1]

[J6] Park, S. J., **Im, J. B.**, Yoon, H. S., & Kim, J. H.[*] (2025). Data Augmentation Approaches for Estimating Curtain Wall Construction Duration in High-Rise Buildings. *Buildings,* MDPI, *15(4),* 583. (https://doi.org/10.3390/buildings15040583) [SCIE, Q2, 27.7%, IF 3.1]

[J5] Kim, H. J., Kim, J. H.[*], & **Im, J. B**.[*] (2023). Forecasting offline retail sales in the COVID-19 pandemic period: A case study of a complex shopping mall in South Korea. *Buildings*, MDPI, *13*(3), 627. (Co-Corresponding Author) (https://doi.org/10.3390/buildings13030627) [SCIE, Q2, 40.4%, IF 3.3]

[J4] Lee, K. T., **Im, J. B.**, Park, S. J., & Kim, J. H.[*] (2023). Identifying improvements priorities in daycare centre space performance from teachers' perspectives: application of importance–performance analysis and structural equation modelling. *Engineering, Construction and Architectural Management,* Emerald, 32(1), 639–672. (https://doi.org/10.1108/ECAM-08-2022-0777) [SCIE, Q1, 22.3%, IF 3.6]

[J3] Lee, K. T., **Im, J. B.**, Park, S. J., & Kim, J. H.[*] (2022). Conceptual framework to support personalized indoor space design decision-making: A systematic literature review. *Buildings*, MDPI, *12*(6), 716. (https://doi.org/10.3390/buildings12060716) [SCIE, Q2, 44.1%, IF 2.6]

[J2] Park, S. J., Lee, K. T., **Im, J. B.**, & Kim, J. H.[*] (2022). The need for smart architecture caused by the impact of COVID-19 upon architecture and city: A systematic literature review. *Sustainability*, MDPI, *14*(13), 7900. (https://doi.org/10.3390/su14137900) [SCIE, Q2, 45.0%, IF 3.2]

[J1]   Nindartin, A., Moon, H. W., Park, S. J., Lee, K. T., **Im, J. B**.[*], & Kim, J. H.[*] (2022). Influencing of the Building Energy Policies upon the Efficiency of Energy Consumption: The Case of Courthouse Buildings in South Korea. *Energies*, MDPI, *15*(18), 6679. (Co-Corresponding Author) (https://doi.org/10.3390/en15186679) [SCIE, Q3, 60.9%, IF 3.0]

- UNDER REVIEW

[U7]   **Im, J. B.**[†], Ahn, C.[†], Lee, S. Y., Yoo, Y., & Kim, J. H.[*] (2025). Techno-Economic Feasibility of e-Methanol System fueled by CO2 and Green Hydrogen with Policy Pathways to Competitiveness. *Energy Policy,* Elsevier, (Co-First Author) *(Under Review)*.

[U6]   Lee, K. T., **Im, J. B.**, Hong, R. L., & Kim, J. H.[*] (2025). Enhancing Retrieval-Augmented Generation Performance through Network Analysis of Question Types in Public Procurement Law. *Journal of Management in Engineering*, ASCE, (*Under Review*).

[U5]   **Im, J. B.**, Lee, K. T. & Kim, J. H.[*] (2025). Effects of Visualization Quality on Occupant Responses in Immersive Design Review Environments. *Developments in the Built Environment,* Elsevier, *(Under Review)*.

[U4]   Ochirsuren, N., Kye, Y. S., **Im, J. B.**, Zhang, E., & Lee, K. T., Kim, J. H.[*] (2025). Effect of Changing Sequence in Semi-Top-Down Construction Works to Optimize Time and Cost: A Case Study on Korean Apartment Projects, *Engineering, Construction and Architectural Management,* Emerald, *(Under Review)*.

[U3]   Shin, S. H., **Im, J. B.**, Choi, H., Kim, J. H., & Lee, K. T.[*] (2025). AI-Based Approach to International Market Selection Models Considering Construction Factors: A Case Study of Indian Firms, *Journal of Civil Engineering and Management,* Vilnius Tech. Press, *(Under Review)*.

[U2]   Hong, R. L., **Im, J. B.**, Kang, H. G., & Kim, J. H.* (2025). Prediction of structural frame works safety and health management expenses in apartment construction projects by introducing interpretable machine learning, *Engineering, Construction, and Architectural Management,* Emerald, (*Under Review*).

[U1]   Hong, R. L., Yoon, J. H., **Im, J. B.**, & Kim, J. H.[*] (2025). Prediction of Actual Safety and Health Management Expenses for Water Supply System Construction Projects in Korea through Machine Learning. *Journal of Civil Engineering and Management,* Vilnius Tech. Press, *(Under Review)*.

- REFERRED CONFERENCES

[C5]   Zhang, E., Choi, S. W., **Im, J. B.**, Baek, Y. G., Kim, J. H., & Lee, K. T.[*] (2025)., Study of construction dispute resolution strategies centered on two-level game theory, *the 11th International Conference on Construction Engineering and Project Management (ICCEPM 2025),* Jeju, South Korea, 17–20 November, 2025.

[C4]   Ochirsuren, N., Kim, G. T., **Im, J. B.**, Hong, R. L., Xu, L., & Kim, J. H.[*] (2025). A BPMN-based Framework for Real-time Rebar Arrangement Inspection on Construction Sites, *the 11th International Conference on Construction Engineering and Project Management (ICCEPM 2025),* Jeju, South Korea, 17–20 November, 2025.

[C3]   Hong, R. L., **Im, J. B.**, Zhang, E., Park, S. J., Ochirsuren, N., Beak, Y. G., Kang, S. H., Wang, S., Lee, C. S., Cheong, S. W., & Kim, J. H.[*] (2025). Development of a Petrochemical Plant Pipe Counting Method Based on Improved Mask R-CNN and Transformer. *the 42nd International Symposium of Automation and Robotics in Construction (ISARC 2025)*, pages 972–979, Montreal, Canada, 28–31 July, 2025. (https://doi.org/10.22260/ISARC2025/0126)

[C2]   **Im, J. B.**, Hong, R.L., Jang, J. H., Zhang, E., Shin, S. H., Joo, M., Lee, K. W., Lee, K. M., Lee, K. H., Park, S. Y., & Kim, J. H.[*] (2025). Effects of Visual Fidelity on Task Performance and Mental Workload in IVEs. *the 42nd International Symposium of Automation and Robotics in Construction (ISARC 2025)*, pages 909–916, Montreal, Canada, 28–31 July, 2025. (https://doi.org/10.22260/ISARC2025/0118) (Presenter)

[C1]   Jang, J. H., **Im, J. B.**[*], Zhang, E. L., Joo, M. B., Kang, S. H., & Kim, J. H.[*] (2024). A Framework for Assessing the Learning Performance and Creativity in Spatial Features by Immersive Virtual Environments. *the 10th International Conference on Construction Engineering and Project Management (ICCEPM 2024), pages 621–628*, Sapporo, Japan, 29 July – 1 August, 2024. (https://doi.org/10.6106/ICCEPM.2024.0621) (Presenter)

DOMESTIC PUBLICATIONS

- REFERRED JOURNALS

[5]   Zhang E. L., Jo, S. H., **Im, J. B.**, & Kim, J. H.[*] (2024). Importance and Performance Analysis on Stakeholders Perceptions against Public Rental Housing Status and Directions to Improve Occupants Satisfaction. *Journal of the Architectural Institute of Korea, 41(1), 301–*312. (https://doi.org/10.5659/JAIK.2025.41.1.301) [Scopus]

[4] Lee, K. Y., Ding, Z. S., **Im, J. B.**, Park, S. J., & Kim, J. H.* (2024). Investigation of Construction Duration Influence Factors and Comparison of Artificial Intelligence Methods for Estimating Appropriate Construction Duration in Public Sewerage Construction. *Korea Institute of Construction Engineering and Management, 25*(6), 66–74. (https://dx.doi.org/10.6106/KJCEM.2024.25.6.066) [KCI]

[3] Kim, D. H., Ye, S. J., Lee, K. T., **Im, J. B.**, & Kim, J. H.* (2023). Developing a Comprehensive Framework for Detailed Facility Planning in Office Building Grade Assessment. *Journal of the Architectural Institute of Korea*, *39*(9), 69–80. (https://doi.org/10.5659/JAIK.2023.39.9.69) [Scopus]

[2] **Im, J. B.**, Hwang, S. J., Jang, J. H., Kim, J. H., & Lee, K. T.* (2022). Introduction of mixed reality on special tree landscape design review phase. *Journal of the Architectural Institute of Korea*, *38*(8), 71–81. (https://doi.org/10.5659/JAIK.2022.38.8.71) [Scopus]

[1] Kim, H. S., **Im, J. B.**, Lee, K. T., Kim, H. J., & Kim, J. H.* (2021). Proposals for Feasibility Study and Optimal Combination of Renewable Energy Generation Systems in Baengnyeongdo and Oedo using HOMER. *Journal of the Architectural Institute of Korea*, *37*(12), 347–356. (https://doi.org/10.5659/JAIK.2021.37.12.347) [Scopus]

- REFERRED CONFERENCES

[5] Kim, D. H., Ye, S. J., **Im, J. B.**, & Kim, J. H.* (2023). Developing a Comprehensive framework for Detailed Facility Planning in Office Building Grade Assessment. *Spring Annual Conference of AIK, pages 769–772.*

[4] **Im, J. B.**, Ding, Z. S., & Kim, J. H.* (2023). A Case Study of Complex Shopping Mall on Factors Relevant to COVID-19 Affecting Offline Retail Sales, *Spring Annual Conference of AIK, pages 735–736.*

[3] Lee, K. T., **Im, J. B.**, Ding, Z. S., Hong, R. L., & Kim, J. H.* (2022). An Analysis of User's Emotions and Task Performance in Indoor Space Implemented by Mixed-Reality, *Autumn Annual Conference of AIK, pages 1051–1054.*

[2] Park, S. J., Lee, K. T., **Im, J. B.**, & Kim, J. H.* (2022). Design of Experiments for Voxel Down-sampling Indoor Point Cloud Data, *Autumn Annual Conference of AIK, pages 1082–1085.*

[1] **Im, J. B.**, Lee, K. T., Kim, H. J., Nindartin, A., Nour, N., & Kim, J. H.* (2022). Forecasting of Offline Complex Shopping Mall Retail Sales after COVID-19 pandemic, *Autumn Annual Conference of AIK, pages 1060–1061.*

PATENTS

- South Korea Patent, No. 10-2421360, "System for Generating 3D LiDAR Scanning Position." July 12, 2022.

REFERENCES

Ju-Hyung Kim, Ph.D. (Advisor)
Dean of Academic Affairs
Department of Architectural Engineering
Hanyang University
Seoul, 04763, Republic of Korea
E-mail: kcr97jhk@hanyang.ac.kr
Mobile: +82 10-8390-0609

Namhyuk Ham, Ph.D.
Department of Architecture and Urban Engineering,
Hanyang Cyber University, Seoul, Republic of Korea
E-mail: nhham@hycu.ac.kr
Mobile: +82 10-2088-5952

Kyung-Tae Lee, Ph.D.
Department of Architectural Engineering
Kangwon National University
Chuncheon, 24341, Republic of Korea
E-mail: ktlee0422@kangwon.ac.kr
Mobile: +82 10-2008-8637

Seunghyeon Wang, Ph.D.
Department of Architectural Engineering,
Hanyang University, Seoul, Republic of Korea
E-mail: wsh1019@hanyang.ac.kr
Mobile: +82 10-9731-4974