Sungboo Yoon

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RESEARCH INTERESTS

Construction Robotics, Human-Robot Interaction, Teleoperation

EDUCATION

2020 – 2022   **Seoul National University**, Seoul, South Korea

M.S. in Construction Engineering & Management

- Thesis: "Challenges in Spatial Communication Using Deictic Gesture for Human-Robot Collaboration in Construction"
- Advisor: Dr. Moonseo Park

2014 – 2020   **Seoul National University**, Seoul, South Korea

B.S. in Architectural Engineering

- Graduated with honors (Cum Laude)

APPOINTMENTS

2022 – Present **Graduate Research Assistant**, Department of Architecture & Architectural Engineering, *Seoul National University*, Seoul, South Korea

2022   **Research Associate**, Institute of Construction and Environmental Engineering, *Seoul National University*, Seoul, South Korea

2020 – 2022   **Research Assistant**, Department of Architecture & Architectural Engineering, *Seoul National University*, Seoul, South Korea

2018 – 2019   **Intern**, *Daewoo E&C*, Seongnam, South Korea

2016 – 2018   **Sergeant**, Public Security Division, *Korean National Police Agency*, Seoul, South Korea

PUBLICATIONS

REFEREED JOURNAL ARTICLES

Yoon, S., Park, M., & Ahn, C. R. (2024). "LaserDex: Improvising Spatial Tasks Using Deictic Gestures and Laser Pointing for Human–Robot Collaboration in Construction." *Journal of Computing in Civil Engineering*, 38(3), 04024012. **(Invited paper, Editor's choice)**

Yoon, S., Kim, Y., Park, M., & Ahn, C. R. (2023). "Effects of Spatial Characteristics on the Human–Robot Communication Using Deictic Gesture in Construction." *Journal of Construction Engineering and Management*, 149(7), 04023049.

Yoon, S., Park, M., Jung, M., Hyun, H., & Ahn, S. (2021). "Multi-objective Optimization Model for Tower Crane Layout Planning in Modular Construction." *Korean Journal of Construction Engineering and Management*, 22(1), 36-46.

REFEREED CONFERENCE PROCEEDINGS

Yoon, S., Park, J., Park, M., & Ahn, C. R. (2024). "A Deictic Gesture-Based Human-Robot Interface for In Situ Task Specification in Construction." In *Computing in Civil Engineering 2023* (pp. 445-452). **(Recognized as a top paper and invited to the special issue of the *Journal of Computing in Civil Engineering*)**

Heo, C., Ahn, C. R., **Yoon, S.**, Jung, M., Park, M. (2022). "Measuring the Impact of Supply Network Topology on the Material Delivery Robustness in Construction Projects." In *The 9th International Conference on Construction Engineering and Project Management (ICCEPM)*.

Yoon, S., Kim, Y., Ahn, C. R., & Park, M. (2021). "Challenges in Deictic Gesture-Based Spatial Referencing for Human-Robot Interaction in Construction." In *ISARC. Proceedings of the International Symposium on Automation and Robotics in Construction* (Vol. 38, pp. 491-497). IAARC Publications.

NON-REFEREED INVITED ARTICLES

Ahn, C. R. & **Yoon, S.** (2022) "Intelligent Robots in Construction." *Review of Architecture and Building Science*, Vol. 66, No. 10, 40-43

PATENTS

Ahn, C. R. & **Yoon, S.**, "Symbiotic Human-Robot Interface Using Augmented Reality for Shared Control and On-Site Work Instruction of Intelligent Construction Robots." 10-2022-0094853, Date of Patent: July 29, 2022.

Park, M., Ji, S., **Yoon, S.**, Ahn, S., Jeong, G., & Jung, W., "System and method for managing modular construction project schedule." 10-2022-0094854, Date of Patent: July 29, 2022.

Park, M., Ji, S., **Yoon, S.**, Ahn, S., Jeong, G., & Jung, W., "System and method for managing lifting plan of modular construction." 10-2022-0094855, Date of Patent: July 29, 2022.

Park, M., Ji, S., **Yoon, S.**, Ahn, S., Jeong, G., & Jung, W., "System and method for site management of modular construction." 10-2022-0097873, Date of Patent: July 29, 2022.

Honors & Awards

2024	**Editor's Choice Article**, ASCE Journal of Computing in Civil Engineering. Paper Title: "LaserDex: Improvising Spatial Tasks Using Deictic Gestures and Laser Pointing for Human–Robot Collaboration in Construction." Yoon, S., Park, M., and Ahn, C. R. (2024).
2023	**Graduate Fellowship**, Foundation for Industrial Safety Partnerships
2023	**Graduate Fellowship**, Engineering Research Foundation
2022 – 2023	**Dean's List**, Seoul National University
2020	**Graduate Fellowship**, Hanssem DBEW Research Foundation
2019	**Second Place Award**, **Graduation Exhibition**, Seoul National University
2019	**Second Place Award**, **Mooyoung CM Competition**, Mooyoung CM
2015 – 2019	**Dean's List**, Seoul National University

Teaching

2022 – Present	**Research Mentor,** Seoul National University
	Mentee: Chaeeun Lee (M.S. student in Architectural Engineering)
	Mentee: Seungmin Shin (M.S. student in Architectural Engineering)

Presentations

Writing involvement in granted proposals

Professional certificate

Professional leadership & Service activities

2023 – Present	**Student Member**, Data, Sensing and Analysis (DSA) committee, ASCE
2022 – Present	**Student Member**, American Society of Civil Engineers (ASCE)
2020 – Present	**Member**, Korea Institute of Construction Engineering and Management
2020 – Present	**Member**, Architectural Institute of Korea (AIK)