

Biographical Sketch  
**Kim, SeongYong**

---

School of Civil and Environmental Engineering, Georgia Institute of Technology  
E-mail: skim3310@gatech.edu | URL: <https://syoi92.github.io>

**(a) Professional Preparation**

Seoul National University, South Korea; Architectural Engineering; B.S., 2017  
Seoul National University, South Korea; Civil and Environmental Engineering; M.S., 2019  
Georgia Institute of Technology, Atlanta, GA; Computer Science–[Perception and Robotics]; M.S., 2024  
Georgia Institute of Technology, Atlanta, GA; Civil Engineering; Ph.D. Student, 2021–present

**(b) Appointments**

2019–2021: **Startup Entrepreneur**, GIS-Focused Early-Stage Ventures, South Korea.

**(c) Products**

**Journal Publications**

- [J1] Kim, Y., **Kim, S.**, Chen, Y., Yang, H., Kim, S., Ha, S., Gombolay, M., Ahn, Y. and Cho, Y.K., 2024. Understanding human-robot proxemic norms in construction: How do humans navigate around robots?. *Automation in Construction*, 164, p.105455.
- [J2] **Kim, S.**, Park, S., Kim, H. and Yu, K., 2021. Deep floor plan analysis for complicated drawings based on style transfer. *Journal of Computing in Civil Engineering*, 35(2), p.04020066.
- [J3] Kim, H., **Kim, S.** and Yu, K., 2021. Automatic extraction of indoor spatial information from floor plan image: A patch-based deep learning methodology application on large-scale complex buildings. *ISPRS International Journal of Geo-Information*, 10(12), p.828.

**Conference Proceedings**

- [C1] **Kim, S.** and Cho, Y.K., 2025. Towards Robust 3D Segmentation in Construction: Tackling Raw and Incomplete Scans. *SCE International Conference on Computing in Civil Engineering 2025*.
- [C2] Kim, Y., Chen, Y., **Kim, S.** and Cho, Y.K., 2024. How Much Distance Should Robots Keep from Other Workers at Construction Jobsites?. In *Construction Research Congress 2024* (pp. 893-902).
- [C3] **Kim, S.**, Kim, Y. and Cho, Y.K., Construction Scene Segmentation Using 3D Point Clouds: A Dataset and Challenges. In *Construction Research Congress 2024* (pp. 378-385).
- [C4] Chen, Y., **Kim, S.**, Ahn, Y. and Cho, Y.K., 2023. A Framework of Reconstructing Piping Systems on Class imbalanced 3D Point Cloud Data from Construction Sites. In *ISARC. Proceedings of the International Symposium on Automation and Robotics in Construction* (Vol. 40, pp. 426-433). IAARC Publications.
- [C5] **Kim, S.**, Yajima, Y., Park, J., Chen, J. and Cho, Y.K., 2022. A hybrid semantic-geometric approach for clutter-resistant floorplan generation from building point clouds. In *9th International Conference on Construction Engineering and Project* (pp. 378-385).
- [C6] Kim, Y., **Kim, S.**, Yajima, Y., Irizarry, J. and Cho, Y.K., 2022. Development of Framework for Highway Lawn Condition Monitoring using UAV Images. In *ISARC. Proceedings of the International Symposium on Automation and Robotics in Construction* (Vol. 39, pp. 444-450). IAARC Publications.

- 
- [C7] Kahoush, M., Yajima, Y., **Kim, S.**, Chen, J., Park, J., Kangisser, S., Irizarry, J. and Cho, Y.K., 2022. Analysis of flight parameters on UAV semantic segmentation performance for highway infrastructure monitoring. *ASCE International Conference on Computing in Civil Engineering 2021* (pp. 885-893).
- [C8] Yajima, Y., Kahoush, M., **Kim, S.**, Chen, J., Park, J., Kangisser, S., Irizarry, J. and Cho, Y.K., 2021. Ai-driven 3d point cloud-based highway infrastructure monitoring system using UAV. *ASCE International Conference on Computing in Civil Engineering 2021* (pp. 894-901).
- [C9] **Kim, S.**, Park, S. and Yu, K., 2018. Application of style transfer in the vectorization process of floorplans (short paper). In *10th International Conference on Geographic Information Science* (GIScience 2018) (pp. 39-1). Schloss Dagstuhl–Leibniz-Zentrum für Informatik.
- [C10] **Kim, S.**, Park, S. and Yu, K., 2018, Proposal for a method of extracting road layers from remote sensing images using conditional GANs. In *Proceedings of the 2nd International Conference on Digital Signal Processing* (pp. 84-87).
- [C11] Park, S., **Kim, S.** and Yu, K., 2018, Designing of indoor linkable pedestrian network data model for the transportation vulnerable. In *Proceedings of the 2nd International Conference on Digital Signal Processing* (pp. 57-60).
- [C12] Park, S., **Kim, S.Y.**, and Yu, K., 2018, A study on generation methodology of an indoor network using building evaluation map. 2018. *International Multidisciplinary Scientific GeoConference: SGEM, 18(2.2)*, pp.11-17.

#### Technical Posters

- [P1] Kim, P., **Kim, S.** and Cho, Y., 2025. Let the Robot Decide: Adaptive Scan Planning in cluttered and Unknown Terrains. *IEEE International Conference on Robotics and Automation (ICRA)*
- [P2] **Kim, S.** and Cho, Y., 2024. Reality Capture in Construction Sites: A Study on Point Sampling for 3D Point Cloud Segmentation. *ASCE International Conference on Computing in Civil Engineering (i3CE)*
- [P3] Cho, Y., Kurtis, K., Gentry, R., Brown, J., **Kim, S.** and Lee, S. 2024. RP 22-21: Phase III - Investigation and Guidelines for Best Practices of Mass Concrete Construction Management. *12th Annual Transportation Research Expo*. Georgia Department of Transportation.
- [P4] Irizarry, J., Cho, Y., Yajima, Y., **Kim, S.** and Kangisser, S., 2021. RP 20-09: Development of Highway Mowing Operations, Monitoring, and Verification using UAVs. *9th Annual Transportation Research Expo*. Georgia Department of Transportation.

#### Workshop Presentations

- [W1] Chen, J., Cho, Y., **Kim, S.** and Park, J., 2024. Deep Learning Tools for Understanding and Modeling the Built Environment. *ASCE International Conference on Computing in Civil Engineering (i3CE)*
- [W2] Chen, J., Park, J., Yajima, Y., and **Kim, S.**, 2021. 2D floorplan reconstruction for the Scan-to-BIM Challenge on Computer Vision in the Built Environment. Presented at the *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)* workshop; awarded 2nd place in the challenge.

#### Patents

- [T1] Kim, H., Yu, K. and **Kim, S.**, 2023, Automatic extraction method of indoor spatial information from floor plan images through patch-based deep learning algorithms and device thereof, KR patent, 10-2535054, 2023/5/17.

---

[T2] Yu, K., Im, J. **Kim S.**, and Kim J., 2019, Method for location identification using volunteered geographic information, KR patent, 10-2053235, 2019/12/2.

**(d) Synergistic Activities**

- 1. Awards:** (i) Selected as 2023–2024 CEE Future Faculty Fellow at Georgia Tech (\$1,000 award) (ii) Runner-up for Best Paper Award at ASCE i3CE 2024. (iii) 2nd place in Scan-to-BIM Challenge at CVPR 2021.
- 2. Teaching and mentoring:** (i) Delivered guest lectures in graduate courses on Construction Simulation, UAV Applications, LiDAR Sensing, and Scan-to-BIM Processes. (ii) Served as a TA for courses including: Construction Industry Best Practices (CEE 6125 / 8813-I), Construction Equipment and Methods (CEE 8813-A), Construction Automation (CEE 6185 / 8813-L), Construction Operation (CEE 4120), during Fall 2022 to Spring 2025 at Georgia Tech.
- 3. GIS and entrepreneurial activities:** (i) Proposed and led a government-funded startup project on recommending optimal business locations for new market owners; Received \$50,000 in funding through Korea’s New Founder Startup Package, supported by the Ministry of SMEs and Startups. (ii) Provided GIS-based consulting on site allocation for Samsung Training Center; funded \$1,850 by Samsung Economic Research Institute.
- 4. Review service:** Reviewer for peer-reviewed journals and conferences, including *Automation in Construction*, *Developments in the Built Environment*, and ISARC proceedings.
- 5. Outreach:** Participated in Georgia Tech’s Robotics Open House Lab Demo (April 2025), engaging K–12 students and community members through lab tours and demonstrations.