

Seok-Young Kim

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Research Interests

Mixed Reality, 3D Scene Understanding, 3D Reconstruction/Generation, Interactive Spatial AI System

Education

Korea Advanced Institute of Science and Technology (KAIST)

Mar. 2024 - Present

M.S. in Graduate School of Metaverse

Advisor: Woontack Woo

Thesis: Object-level Interactive 3D Scene Generation from Physical-world Images in Mixed Reality

Technical University of Munich (TUM)

Dec. 2024 - Feb. 2025

Visiting Scholar

Mentor: Guangyao Zhai

- Computer Vision Group at the CAMP Chair hosted by Dr. Benjamin Busam

- Topic: Controllable 3D Scene Generation from Scene Graph

Chonnam National University (CNU)

Mar. 2018 - Feb. 2024

B.S. in Artificial Intelligence (*Summa Cum Laude*)

Research Experience

Ubiquitous Virtual Reality Lab, KAIST

Jan. 2024 - Feb. 2024

- Undergraduate Intern

Advisor: Woontack Woo

Autonomous Intelligence Mobility Lab, CNU

Jan. 2022 - Dec. 2023

- Undergraduate Intern

Advisor: Chansoo Kim

Publications

International Conference/Journal

- [1] **Seokyoung Kim**, Dooyoung Kim, Taejun Son, Youngbin Kim, Woontack Woo
Zero-shot Interactive 3D Scene Reconstruction from a Single Image
(*Under Review, 2026*)
- [2] **Seokyoung Kim**, Dooyoung Kim, Woojin Cho, Hail Song, Suji Kang, Woontack Woo
Linking the Real to Virtual Scene with 3D Scene Graph
(*Under Review, 2026*)

International Poster, Workshop and Demo

- [3] Jinseok Hong, Minju Baeck, **Seokyoung Kim**, Yoonseok Shin, Woontack Woo
Collaborative Scene Mood Authoring with Voice-driven Multimodal Feedback Design in Virtual Reality
ACM SIGGRAPH Asia 2025, XR Demo
- [4] **Seokyoung Kim**, Dooyoung Kim, Taejun Son, Woontack Woo
RealityCrafter: User-guided Editable 3D Scene Generation from a Single Image in Mixed Reality
ACM Symposium on User Interface Software and Technology (UIST 2025 Adjunct)

Domestic Conference/Journal

- [1] **Seokyoung Kim**, Jinseok Hong, Minju Baeck, Woontack Woo
Scene Graph Diffusion Transformer for Controllable 3D Virtual Scene Generation
Korea Computer Congress (KCC) Conference, 2025 🏆 *Best Paper Award*
- [2] Suji Kang, Seokhwan Yang, **Seokyoung Kim**, Woontack Woo
Speech-to-3D: Personalized 3D Scene Rendering based on User Speech Recognition
Korea Computer Congress (KCC) Conference, 2025
- [3] Seungwoon Shin, **Seokyoung Kim**, Woontack Woo
Scene Graph-based Interactive 3D Scene Reconstruction from RGB Sequences
Korea Software Congress (KSC) Conference, 2024

- [4] **Seokyoung Kim**, Chansoo Kim
Improved Depth Completion with a Two-branch Backbone based on CNN-ViT integration module
Transactions of the Korean Society of Automotive Engineers, KCI, 2024
- [5] **Seokyoung Kim**, Chansoo Kim
TB-CompletionFormer: Improved Depth Completion based on Two-branch Backbone
Korean Society of Automotive Engineers (KSAE) Annual Fall Conference, 2023
- [6] **Seokyoung Kim**, Yeonggyu Park, Taehyun Park, Yuri Seo, Seongjun Kim, Kichun Jo, Chansoo Kim
Towards precise Depth Completion guided by dense Pointcloud based on LiDAR Accumulation
Korean Society of Automotive Engineers (KSAE) Annual Spring Conference, 2023

Teaching Experience

URP490: Undergraduate Research Participation Program	School of Computing, KAIST
- Student: Seungwoon Shin	Fall 2024
- Material: One KSC'24 paper	

Projects

DT-XR: Development of Dynamic Digital Twin for Realistic Untact XR Collaboration	
UVR Lab, KAIST	Mar. 2024 - Present
Collaborative Interfaces for AR Content Authoring Among SpaceTop Users	
SpaceTop Research Center, KAIST	Dec. 2024 - Present

Scholarships and Achievements

Best Paper Award	
Korea Computer Congress (KCC) Conference	2025
Grand Prize, Artificial Intelligence System Competition	
Chonnam National University	Nov. 2022
Silver Prize, International Electric Vehicle Expo Autonomous Driving Competition	
International e-Mobility Expo	Apr. 2022
CNU Scholarship for Academic Excellence	
Chonnam National University	All semesters of 2021-2023