

Seok-Young Kim

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Research Interests

Mixed Reality, Interactive 3D Reconstruction/Generation, 3D Scene Understanding, User-driven 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 (<i>Summa Cum Laude</i>)	

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 Conferences and Journals

- [1] **Seok-Young Kim** et al.
Zero-shot Interactive 3D Scene Reconstruction from a Single Image
(*Under Review*)
- [2] **Seok-Young Kim**, Dooyoung Kim, Woojin Cho, Hail Song, Suji Kang, Woontack Woo
SceneLinker: Compositional 3D Scene Generation via Semantic Scene Graph from RGB Sequences
IEEE Transactions on Visualization and Computer Graphics (TVCG) 2026

International Demos, Workshops and Posters

- [3] Jinseok Hong, Minju Baeck, **Seok-Young 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] **Seok-Young 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 Conferences and Journals

- [1] **Seok-Young 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, **Seok-Young Kim**, Woontack Woo
Speech-to-3D: Personalized 3D Scene Rendering based on User Speech Recognition
Korea Computer Congress (KCC) Conference, 2025
- [3] Seungwoon Shin, **Seok-Young Kim**, Woontack Woo
Scene Graph-based Interactive 3D Scene Reconstruction from RGB Sequences
Korea Software Congress (KSC) Conference, 2024

- [4] **Seok-Young 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] **Seok-Young Kim**, Chansoo Kim
TB-CompletionFormer: Improved Depth Completion based on Two-branch Backbone
Korean Society of Automotive Engineers (KSAE) Annual Fall Conference, 2023
- [6] **Seok-Young 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

- Student: Seungwoon Shin
- Material: One KSC'24 paper

School of Computing, KAIST

Fall 2024

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

Awards and Honors

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

Scholarship for Academic Excellence

Chonnam National University

All semesters of 2021-2023