

# 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 (*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 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	School of Computing, KAIST
- Student: Seungwoon Shin	Fall 2024
- Material: One KSC’24 paper	

## Projects

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

## Awards and Honors

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