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] **Seokyoung Kim** et al.
Zero-shot Interactive 3D Scene Reconstruction from a Single Image
(Under Review)

[2] **Seokyoung Kim** et al.
Linking the Real to Virtual Scene with 3D Scene Graph
(Under Review)

International Demos, Workshops and Posters

[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 Conferences and Journals

[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

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