Sebin Lee

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I am a Ph.D. candidate in the Scalable Graphics, Vision, and Robotics (SGVR) Lab at KAIST, advised by Prof. Sung-Eui Yoon. My research spans embodied AI, robotics, and 3D vision, aiming to build intelligent systems that perceive, reason, and act in complex environments.

RESEARCH INTERESTS

Embodied AI & Robot Foundation Models
Vision-language-action models, world models

3D Vision & Scene Generation
Semantic scenes, depth, optical flow

Neural & Differentiable Rendering
Dynamic radiance fields, deformable Gaussian splatting

EDUCATION

KAIST — Mar. 2022 – Present
Ph.D. in Computer Science · Advisor: Sung-Eui Yoon

KAIST — Mar. 2020 – Feb. 2022
M.S. in Robotics · Advisor: Sung-Eui Yoon

Hanyang University — Mar. 2013 – Feb. 2020
B.S. in Automotive Engineering · Military service: 2017–2019

Incheon Science High School — Mar. 2011 – Feb. 2013

PUBLICATIONS

1. **MorphGS: Morphology-Adaptive Articulated 3D Motion Transfer from Videos.**
   Taeyeon Kim*, Youngju Na*, Jumin Lee, **Sebin Lee**, Minhyuk Sung, and Sung-Eui Yoon.
   European Conference on Computer Vision (ECCV) 2026
   *Equal contribution
   Paper **Code** **Project**

2. **Visual-RRT: Finding Paths toward Visual-Goals via Differentiable Rendering.**
   Sebin Lee*, Jumin Lee*, Taeyeon Kim, Youngju Na, Woobin Im, and Sung-Eui Yoon.
   IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2026
   *Equal contribution
   Highlight paper **Paper** **Project**

3. **CLaD: Planning with Grounded Foresight via Cross-Modal Latent Dynamics.**
   Andrew Jeong, Jaemin Kim, **Sebin Lee**, and Sung-Eui Yoon.
   IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2026
   Highlight paper **Paper** **Project**

4. **CrossTrack-UAV: A Real-World Dataset and Baseline for Cross-View Multi-Object Tracking using Fixed-Wing UAVs.**
   Chungsu Jang, Youngjung Kim, **Sebin Lee**, Wonsuk Kwon, Tae Hyun Kim, Yong-Duk Kim, and Sung-Eui Yoon.
   IEEE Robotics and Automation Letters (RA-L) 2026
   Paper

5. **Beyond the Patch: Exploring Vulnerabilities of Visuomotor Policies via Viewpoint-Consistent 3D Adversarial Object.**
   Chanmi Lee, Minsung Yoon, Woo Jae Kim, **Sebin Lee**, and Sung-Eui Yoon.
   IEEE International Conference on Robotics and Automation (ICRA) 2026
   Paper **Project**

6. **SemCity: Semantic Scene Generation with Triplane Diffusion.**
   Jumin Lee*, **Sebin Lee***, Changho Jo, Woobin Im, Juhyeong Seon, and Sung-Eui Yoon.
   IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2024
   *Equal contribution
   Paper **Code** **Project**

PUBLICATIONS (continued)

7. **LiDAR-camera Online Calibration by Representing Local Feature and Global Spatial Context.**
SeongJoo Moon, **Sebin Lee**, Dong He, and Sung-Eui Yoon.
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2024
Paper

8. **Regularizing Dynamic Radiance Fields with Kinematic Fields.**
Woobin Im, Geonho Cha, **Sebin Lee**, Jumin Lee, Juhyeong Seon, Dongyoon Wee, and Sung-Eui Yoon.
European Conference on Computer Vision (ECCV) 2024
Paper **Code**

9. **Extending Segment Anything Model into Auditory and Temporal Dimensions for Audio-Visual Segmentation.**
Juhyeong Seon, Woobin Im, **Sebin Lee**, Jumin Lee, and Sung-Eui Yoon.
IEEE International Conference on Image Processing (ICIP) 2024
Paper **Code**

10. **CCTV-Informed Human-Aware Robot Navigation in Crowded Indoor Environments.**
Mincheul Kim, Youngsun Kwon, **Sebin Lee**, and Sung-Eui Yoon.
IEEE Robotics and Automation Letters (RA-L) 2024
Paper

11. **Multi-Resolution Distillation for Self-Supervised Monocular Depth Estimation.**
Sebin Lee, Woobin Im, and Sung-Eui Yoon.
Pattern Recognition Letters (PR-L) 2023
Paper

12. **Diffusion Probabilistic Models for Scene-Scale 3D Categorical Data.**
Jumin Lee, Woobin Im, **Sebin Lee**, and Sung-Eui Yoon.
Image Processing and Image Understanding (IPIU) 2023
Grand Prize Award **Paper** **Code**

13. **Semi-Supervised Learning of Optical Flow by Flow Supervisor.**
Woobin Im, **Sebin Lee**, and Sung-Eui Yoon.
European Conference on Computer Vision (ECCV) 2022
Paper **Code** **Video**

14. **Dynamic Humanoid Locomotion Over Rough Terrain With Streamlined Perception-Control Pipeline.**
Moonyoung Lee, Youngsun Kwon, **Sebin Lee**, JongHun Choe, Junyong Park, Hyobin Jeong, Yujin Heo, Min-su Kim, Jo Sungho, Sung-Eui Yoon, and Jun-Ho Oh.
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2021
Paper

15. **Self-Supervised Visual Odometry via Frame Interpolation.**
Sebin Lee, Woobin Im, and Sung-Eui Yoon.
Korea Robotics Society Annual Conference (KRoC) 2021
Paper

AWARDS & HONORS

College of Engineering Master's and Ph.D. Venture Research Program, KAIST 2025

Best Paper Award, KAIST 2024

NRF Ph.D. Fellowship, National Research Foundation of Korea 2024

Grand Prize Award, 35th Workshop on Image Processing and Image Understanding 2023

Full Tuition Scholarship, Hanyang University 2013–2020