Wonhyeok Choi *Researcher of Computer Vision & Deep learning*

Last update on February 13, 2025

Contact Information

DGIST (Daegu Gyeongbuk Institute of Science and Technology)
Dept. Electrical Engineering and Computer Science (EECS) Tel.: +82-10-2997-2903
E3-319, Techno jungang-daero 333, Hyeonpung-eup, E-mail: smu06117@dgist.ac.kr
Dalseong-gun, Daegu, Republic of Korea, 42988 h.p.: https://wonhyeok-choi.github.io/

Research Interests

Computer Vision (3D perception tasks, Scene Understanding)
Deep Learning (Multi-task Learning, Meta Learning, Dynamic Neural Networks)
Applications - Autonomous driving, AR/VR

Education

Visiting Scholar in Psychiatry & Behavioral Sciences, *Sep. 2024 – Dec. 2024*
Stanford, United States of America *Advisor: Prof. Kilian M. Pohl*

M.S. - Ph.D. Integrated Course in Electrical Engineering *Mar. 2022 – present*
& Computer Sciences (EECS), DGIST, South Korea *Advisor: Prof. Sunghoon Im*

Exchange Student, UC Berkeley, United States of America *Jun. 2018 – Aug. 2018*

Bachelor of Convergence Science, DGIST, South Korea *Mar. 2018 – Feb. 2022*

Publications

Wonhyeok Choi*, Kyumin Hwang*, Wei Peng, Minwoo Choi, Sunghoon Im. "Self-supervised Monocular Depth Estimation Robust to Reflective Surface Leveraged by Triplet Mining", International Conference on Learning Representations (**ICLR**), Apr 2025.

Wonhyeok Choi*, Kyumin Hwang*, Minwoo Choi, Kiljoon Han, Wonjoon Choi, Mingyu Shin, Sunghoon Im. "Intrinsic Image Decomposition for Robust Self-supervised Monocular Depth Estimation on Reflective Surfaces", The Association for the Advancement of Artificial Intelligence (**AAAI**), Feb 2025.

Wonhyeok Choi*, Mingyu Shin*, Hyukzae Lee, Jaehoon Cho, Jaehyeon Park, Sunghoon Im. "Multi-task Learning for Real-time Autonomous Driving leveraging Task-wise Attention Generator", IEEE International Conference on Robotics and Automation (**ICRA**), May 2024.

Wonhyeok Choi*, Mingyu Shin*, Sunghoon Im. "Depth-discriminative Metric Learning for Monocular 3D Object Detection", Neural Information Processing Systems (**NeurIPS**), Dec 2023.

Wonhyeok Choi, Sunghoon Im. "Dynamic Neural Network for Multi-Task Learning Searching across Diverse Network Topologies", IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), Jun 2023.

Seunghun Lee, **Wonhyeok Choi**, Changjae Kim, Minwoo Choi, Sunghoon Im. "ADAS: A Direct Adaptation Strategy for Multi-Target Domain Adaptive Semantic Segmentation", IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), Jun 2022.

Academic Activities

Awards

- Top Prize, 16th ICT Paper Competition and Grand Exhibition, *Dec. 2024*
  — Electronic News
- 3rd Prize, 30th HumanTech Paper Award, *Feb. 2024*
  — Samsung Electronics Co., Ltd.
- Outstanding Researcher Award, *Dec. 2023*
  — Electronic Engineering & Computer Sciences, DGIST
- Excellence Prize, 15th ICT Paper Competition and Grand Exhibition, *Dec. 2023*
  — Electronic News
- Kyu-Young Hwang Outstanding Research Award, *Oct. 2023*
  — Electronic Engineering & Computer Sciences, DGIST
- Top Prize, Autonomous Driving AI Development Challenge, *Oct. 2023*
  — Ministry of Land, Infrastructure and Transport
- Participation Prize, 28th HumanTech Paper Award, *Feb. 2022*
  — Samsung Electronics Co., Ltd.

Academic Activities

Reviewer

- International Conference on Learning Representations (ICLR) *2025*
- International Conference on Machine Learning (ICML) *2025*
- IEEE Robotics and Automation Letters (RA-L) *2024 – 2025*
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR) *2023 – 2025*
- IEEE International Conference on Computer Vision (ICCV) *2023 – 2025*
- IEEE International Conference on Robotics and Automation (ICRA) *2024*
- The European Conference on Computer Vision (ECCV) *2024*
- Neural Information Processing Systems (NeurIPS) *2024*

Skills

Languages: Python, C, C++, C#
Theory: Type theory, Operation systems, Data structures, and Computer algorithms.
Development: Pytorch, HTML, CSS

Patents

Registration

- METHOD FOR MONOCULAR DEPTH ESTIMATION,
  Publication date: Dec. 27, 2024 (10-2024-0098600)
- METHOD FOR MONOCULAR DEPTH ESTIMATION ON REFLECTIVE SURFACE,
  Publication date: Jul. 25, 2024 (10-2024-0098600)
- METHOD FOR MOBILITY DEVICES LEVERAGING ARTIFICIAL INTELLIGENCE-BASED MULTI-TASK PROCESSING,
  Publication date: Mar. 25, 2024 (10-2024-0040179)
- METHOD FOR ESTIMATING DEPTH FROM MONOCULAR CAMERA IMAGES,
  Publication date: Jul. 26, 2023 (10-2023-0087465)
- METHOD AND APPARATUS FOR MULTI-TASK LEARNING,
  Publication date: Feb. 17, 2023 (10-2023-0021790)
- METHOD AND APPARATUS FOR DOMAIN ADAPTATION,
  Publication date: Jul. 14, 2022 (10-2022-0087222)
- METHOD AND APPARATUS FOR DOMAIN ADAPTATION,
  Publication date: Jul. 13, 2022 (10-2022-0086614)