Changsuk Oh

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Research interest

- **Medical Image Analysis**
- **Generative AI**
- **Unsupervised Abnormal Detection in MRI**
- **AI-driven Prediction of Brain Metastases**

Education

Seoul National University — Seoul, Republic of Korea
Ph.D. in Aerospace Engineering — March, 2021 – August, 2024

- Dissertation: *Class-specific Object Remover and Automatic Mask Generation for Object Removal.*
- Advisor: H. Jin Kim

Seoul National University — Seoul, Republic of Korea
M.S. in Mechanical and Aerospace Engineering — March, 2019 – February, 2021

- Dissertation: *Automatic Pseudo-LiDAR Annotation: Generation of Training Data for 3D object Detection Networks beyond Autonomous Driving.*
- Advisor: H. Jin Kim

Seoul National University — Seoul, Republic of Korea
B.S. in Mechanical and Aerospace Engineering — March, 2012 – February, 2019

Experience

University of California, Los Angeles — Los Angeles, CA
Postdoctoral Researcher — September, 2025 – Present

- Co-advised by Prof. Kyung Sung (Radiological Sciences) and Prof. Ricky Savjani (Radiation Oncology)

University of California, Los Angeles — Los Angeles, CA
Visiting scholar — October, 2024 – August, 2025

- Co-advised by Prof. Kyung Sung (Radiological Sciences) and Prof. Ricky Savjani (Radiation Oncology)

Hyundai Motor Company — Namyang, KR
Undergraduate Intern — January, 2018 – February, 2018

Publications

[1] Y. Jang, **C. Oh**, G. C. Kim, and H. J. Kim, "Geometry- and scene-aware instance-level data augmentation for monocular 3d object detection", *International Journal of Control, Automation and Systems*, 2026, (Equal contribution by the first two authors).

[2] E. Jank, C. Bang, V. B. Raj, J. Gillett, C. V. Villafuerte III, **C. Oh**, A. Militchin, L. Chau, X. S. Qi, R. K. Chin, *et al.*, "Body composition metrics and overall survival in head and neck cancer radiotherapy", *JAMA Otolaryngology–Head & Neck Surgery*, 2026.

[3] **C. Oh**, Q. He, K. Zhao, K. Pang, C. Bang, E. Jank, V. Raj, R. Savjani, and K. Sung, "Beyond model stochasticity: External randomness for diffusion-based unsupervised mri anomaly detection", *Journal of Imaging Informatics in Medicine*, 2026.

[4] **C. Oh**, K. Pang, R. Savjani, and K. H. Sung, "Beyond zero-filled mask: Inpainting quality enhancement via neural implicit guidance prior", in *2026 23rd International Symposium on Biomedical Imaging*, 2026.

[5] K. Pang, Q. Miao, A. L. Y. Hung, **C. Oh**, K. Zhao, Q. He, M. D. Nickel, F. Han, and K. H. Sung, "Aicm: An anatomical-prior integrated conditional consistency model for self-supervised mri through-plane super-resolution", in *2026 23rd International Symposium on Biomedical Imaging*, 2026.

[6] K. Pang, K. Zhao, Q. Miao, A. L. Y. Hung, **C. Oh**, R. Ramirez, Q. He, J. Klein, W. Shao, W. Brisbane, *et al.*, "Micro-ultrasound super-resolution with geometry-driven consistency models", *Medical Image Analysis*, p. 104 333, 2026.

[7] J. Kim, H. Kim, **C. Oh**, C. Kim, and H. J. Kim, "Real-time moving object detection for 3-d lidar using occlusion accumulation in range image", *IEEE Transactions on Instrumentation and Measurement*, vol. 74, pp. 1–16, 2025.

[8] I. Jang, J. Kim, D. Lee, C. Kim, **C. Oh**, Y. Kim, S. Woo, H. Sung, and H. J. Kim, "Towards fully integrated autonomous excavation: Autonomous excavator for precise earth cutting and onboard landscape inspection", *IEEE Robotics & Automation Magazine*, pp. 2–16, 2024.

[9] **C. Oh**, Y. Jang, D. Shim, C. Kim, J. Kim, and H. J. Kim, "Automatic pseudo-lidar annotation: Generation of training data for 3d object detection networks", *IEEE Access*, vol. 12, pp. 14 227–14 237, 2024.

[10] **C. Oh** and H. J. Kim, *Task-decoupled image inpainting framework for class-specific object remover*, 2024. arXiv: 2410.02894 [cs.CV].

[11] **C. Oh**, D. Shim, T. Lee, and H. J. Kim, "Object remover performance evaluation methods using class-wise object removal images", *IEEE Sensors Letters*, 2024.

[12] **C. Oh**, D. Shim, and H. J. Kim, "Aura: Automatic mask generator using randomized input sampling for object removal", *arXiv preprint arXiv:2305.07857*, 2023.

[13] H. Kim, **C. Oh**, I. Jang, S. Park, H. Seo, and H. J. Kim, "Learning and generalizing cooperative manipulation skills using parametric dynamic movement primitives", *IEEE Transactions on Automation Science and Engineering*, vol. 19, no. 4, pp. 3968–3979, 2022.

[14] Y. Jang, **C. Oh**, Y. Lee, and H. J. Kim, "Multirobot collaborative monocular slam utilizing rendezvous", *IEEE Transactions on Robotics*, vol. 37, no. 5, pp. 1469–1486, 2021.

[15] **C. Oh**, D. Sim, and H. J. Kim, "Traffic light recognition based on one-dimensional convolutional neural network", in *2020 IEEE 23rd International Conference on Intelligent Transportation Systems (ITSC)*, 2020, pp. 1–6.

[16] **C. Oh**, Y. Jang, and H. J. Kim, "Rgb-d dense visual odometry through pixel level segmentation in dynamic environments", in *2019 19th International Conference on Control, Automation and Systems (ICCAS)*, 2019, pp. 1296–1300.

Projects

AI-driven MRI Quality Assessment **(Project Leader)**
Siemens Medical Solutions USA, Inc. July, 2026 – present

Learning-based Road Surface State Estimation **(Project Leader)**
Hyundai Motor Company May, 2021 – August, 2024

Driving Dataset Construction **(Project Leader)**
Korea Data Agency June, 2022 – December, 2022

Onboard Dump Truck and Human Detection for Autonomous Excavator
HD Hyundai XiteSolution March, 2020 – March, 2022

Honors, Awards, Scholarships

Human Resource Development Program for Industrial Innovation, (50,000 USD) 2024
Korea Institute for Advancement of Technology (KIAT)

Brain Korea 21 Plus (BK21+) Research Scholarship (8,300 USD) 2022
Seoul National University

Lecture & Research Scholarship (4,500 USD) 2021
Seoul National University

Silver Award, Samsung Humantech Paper Awards (4,200 USD) 2021
Title: Multi-robot Collaborative Monocular SLAM utilizing Rendezvous

1st Runner Up, BMW Korea Research Competition (4,200 USD) 2018
Title: Optimal Management for Electric Vehicle Charging Station using Approximate Dynamic Programming

Skills

- **Programming Languages:** Python, MATLAB
- **Frameworks:** PyTorch, TensorFlow
- **OS:** Windows, Linux, ROS
- **Tools:** Git, SOLIDWORKS
- **Sensors:** RGB camera, RGBD camera, LiDAR