

Kang-Won Lee

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Education

Dongguk University *Republic of Korea*

- Ph.D. in Mechanical Engineering *Fed. 2021 – Present*
Advisor: Prof. Soo-Chul Lim
- M.S in Mechanical Engineering *Mar.2019 - Fed.2021*
Advisor: Prof. Soo-Chul Lim
Thesis: Developing a Robotics Device Assessing Proprioception
Position Sense under External Torque
Cumulative GPA: 4.33/4.5
- B.S in Mechanical, Robotics, and Engineering *Mar.2013 - Fed.2019*
Cumulative GPA: 4.0/4.5

University of California, San Diego *United States of America*

- Visiting Graduate Student in Electrical & Computer Engineering *Mar.2022 - Dec.2022*
Advisor: Prof. Xiaolong Wang

Publications

Peer-Reviewed Journal Publications

- [5] **Kang-Won Lee**, Dae-Kwan Ko, Yong-Jun Kim, Jee-Hwan Ryu, Soo-Chul Lim
Latency-Free Driving Scene Prediction for On-Road Teledriving With Future-Image-Generation
IEEE Transactions on Intelligent Transportation Systems, early access, 2024.
[paper] [project page] [video] (IF: 7.9, IF(%): 2.5)
- [4] Dae-Kwan Ko, **Kang-Won Lee**, Dong Han Lee, Soo-Chul Lim
Vision-Based Interaction Force Estimation for Robot Grip Motion without Tactile/Force Sensor
Expert Systems with Applications, vol.211, pp.118441, 2023.
[paper] (IF: 6.954, IF(%): 8.152)
- [3] **Kang-Won Lee**, Seung-Chan Kim, and Soo-Chul Lim
DeepTouch: Enabling Touch Interaction in Underwater Environments by Learning Touch-Induced Inertial Motions
IEEE Sensors Journal, vol.22, no.9 pp.8924-8932, 2022.
[paper] (IF: 4.325, IF(%): 21.094)
- [2] **Kang-Won Lee**, Sang Hoon Kang, and Soo-Chul Lim
Simple and Reliable Position Sense Assessment Under Different External Torques: Toward Developing a Post-Stroke Proprioception Evaluation Device
IEEE Transactions on Neural Systems and Rehabilitation Engineering, vol.30, pp.823-832, 2022.
[paper] (IF: 3.802, IF(%): 9.559)
- [1] **Kang-Won Lee**, Dae-Kwan Ko, Soo-Chul Lim
Toward vision-based high sampling interaction force estimation with master position and orientation for teleoperation
IEEE Robotics and Automation Letters, vol.6, no.4, pp.6640-6646, 2021.
[paper] (IF: 3.741, IF(%): 30.357)

Peer-Reviewed Conference Publications

- [3] Ying Yuan, Haichuan Che, Yuzhe Qin, Binghao Huang, Zhao-Heng Yin, **Kang-Won Lee**, Yi Wu, Soo-Chul Lim, Xiaolong Wang
Robot synesthesia: In-hand manipulation with visuotactile sensing
in IEEE International Conference on Robotics and Automation (ICRA), 2024.
[paper] [project page]
- [2] **Kang-Won Lee**, Soo-Chul Lim
Learning Robot Object Manipulation Capabilities Using Reinforcement Learning Based on Tactile Information
in 1st Korea Haptics Conference (KHC), 2023.
Oral presentation(Oral Paper Session 1: Haptic Actuators, Control, and Rendering)
- [1] **Kang-Won Lee**, Dae-Kwan Ko, Soo-Chul Lim
Toward vision-based high sampling interaction force estimation with master position and orientation for teleoperation
in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2021.

Under-Reviewed Journal Publications

- [1] **Kang-Won Lee**, Yuzhe Qin, Xiaolong Wang, Soo-Chul Lim
DexTouch: Learning to Seek and Manipulate Objects with Tactile Dexterity
IEEE Robotics and Automation Letters, 2024.
[paper] [project page] [video]

Patent (Korea-Granted)

- [1] 임수철, 이정아, 조윤정, 임우철, **이강원**, 전준하
고유수용성 측정 장치 및 그 방법, 10-2068878, 2020.01.15

Research Experience

Dongguk University	2016 – Present
• Development of a High-Performance Multimodal Electronic Skin Sensor of Hybrid-Type and Intelligent module for robot manipulation <i>Sponsor: Korea Ministry of Trade, Industry and Energy</i>	2021 - 2023
• Real-time Image Generation without Time Delay using GAN Network based on Robot Status Information and User Input during Robot Teleoperation <i>Sponsor: National Research Foundation of Korea</i>	2020 - 2023
• Development of the artificial electronic skin that mimics human skin structure and functions for tactile and kinesthetic feedback in robotic surgery or prosthetic arm <i>Sponsor: Korea Ministry of Trade, Industry and Energy</i>	2017 - 2019
• Development of proprioception measurement system <i>Sponsor: National Rehabilitation Center of Korea</i>	2017

Services

Conference Reviewer
International Conference on Intelligent Robots and Systems (IROS)

Journal Reviewer
IEEE Robotics and Automation Letters (RA-L)

