

# Gwangbin Kim

<https://gwangbin.com>

## Education

- Ph.D. Student in Robotics Mar 2021 - Current  
Gwangju Institute of Science and Technology (GIST) Gwangju, Korea  
Advisor: Prof. SeungJun Kim
- M.S. in Robotics Mar 2019 - Feb 2021  
Gwangju Institute of Science and Technology (GIST) Gwangju, Korea  
*Thesis: Wayfinding Design Toolkit with Real-time Prediction of Visual Saliency as an Iterative Feedback [J.3]*  
Advisor: Prof. SeungJun Kim
- B.S. in Mechanical Engineering Mar 2015 - Feb 2019  
Gwangju Institute of Science and Technology (GIST) Gwangju, Korea

## Experience

- Human-Centered Intelligent Systems Laboratory, GIST Mar 2019 - Current | Dec 2018 - Feb 2019  
Research Assistant (Ph.D./M.S.) | Research Intern (Mentor: Prof. SeungJun Kim) Gwangju, Korea
- Advanced Technology Team, SOSLAB, Co., Ltd. Jun 2017 - Dec 2018  
Research Engineer (Mentor: Dr. Junhwan Jang, CTO)  
- Optical Triangulation LiDAR with embedded visual recognition [Pat.1, Pat.2, Pat5] Gwangju, Korea  
- I have joined as a 3<sup>rd</sup> employee of the company → The company is now enlisted in KOSDAQ (IPO)

## Peer-reviewed Journals and Conferences *\*Bold in the numbering denotes main author*

- [J.7] Decoding Your Ride: What Information Builds Human Trust on Real Roads?  
Gwangbin Kim, Dohyeon Yeo, Taewoo Jo, Daniela Rus, and SeungJun Kim  
*ACM GetMobile: Mobile Computing and Communications (Invited Paper)*
- [J.6] Semantic Hierarchy-guided Adversarial Attack for Autonomous Driving  
Gwangbin Kim and SeungJun Kim  
**IEEE RA-L 2025**: IEEE Robotics and Automation Letters (SCI(E), JCR 2025 Impact Factor: 5.3) [Invited to ICRA 2026]
- [C.7] I Want to Break Free: Enabling User-Applied Active Locomotion in In-Car VR through Contextual Cues  
Bocheom Gim, Seokhyun Hwang, Seongjun Kang, Gwangbin Kim, Dohyeon Yeo, and SeungJun Kim  
**ACM CHI 2025**: Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems
- [C.6] Flip-Pelt: Motor-Driven Peltier Elements for Rapid Thermal Stimulation and Congruent Pressure Feedback in Virtual Reality  
Seongjun Kang, Gwangbin Kim, Seokhyun Hwang, Jeongju Park, Ahmed Elsharkawy, and SeungJun Kim  
**ACM UIST 2024**: Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology
- [C.5] TimelyTale: A Multimodal Dataset Approach to Assessing Passenger's Demand for Explanations in Highly Automated Vehicles  
Gwangbin Kim, Seokhyun Hwang, Minwoo Seong, Dohyeon Yeo, Daniela Rus, and SeungJun Kim  
**ACM Ubicomp 2024**: Proceedings of the ACM on IMWUT 8(3), 109
- [C.4] WatchCap: Improving Scanning Efficiency in People with Low Vision through Compensatory Head Movement Stimulation  
Taewoo Jo, Dohyeon Yeo, Gwangbin Kim, Seokhyun Hwang, and SeungJun Kim  
**ACM Ubicomp 2024**: Proceedings of the ACM on IMWUT 8(2), 47
- [J.5] MultiSenseBadminton: Wearable Sensor-Based Biomechanical Dataset for Evaluation of Badminton Performance  
Minwoo Seong, Gwangbin Kim, Dohyeon Yeo, Yumin Kang, Heesan Yang, Joseph DelPreto, Wojciech Matusik, Daniela Rus, and SeungJun Kim  
**Scientific Data**, 11(1), 343, 2024 (SCI(E), JCR 2022 Impact Factor: 9.8)
- [J.4] How Do Background and Remote User Representations Affect Social Telepresence in Remote Collaboration?: A Study with Portal Display, a Head Pose-Responsive Video Teleconferencing System  
Seongjun Kang, Gwangbin Kim, Kyung-Taek Lee, and SeungJun Kim  
*Electronics* 12(20), 4339, 2023 (SCI(E), JCR 2022 Impact Factor: 2.9)
- [C.3] Giant Finger: A Novel Visuo-somatosensory Approach to Simulating Lower-body Movements in Virtual Reality  
Seongjun Kang, Gwangbin Kim, and SeungJun Kim  
**IEEE ISMAR 2023**: The 22<sup>nd</sup> IEEE International Symposium on Mixed and Augmented Reality
- [C.2] When and What to Explain? On-road Evaluation of Explanations in Highly Automated Vehicles  
Gwangbin Kim, Dohyeon Yeo, Taewoo Jo, Daniela Rus, and SeungJun Kim  
**ACM Ubicomp 2023**: Proceedings of the ACM on IMWUT 7(3), 104 [Distinguished Paper Award]
- [J.3] Simulating Urban Element Design with Pedestrian Attention: Visual Saliency as Aid for More Visible Wayfinding Design  
Gwangbin Kim, Dohyeon Yeo, Jieun Lee, and SeungJun Kim  
*Land* 12(2), 394, 2023 (SSCI, JCR 2021 Impact Factor: 3.905)

- [J.2] Logogram VR: Treadmill-Coupled VR with Word Reflective Content for Embodied Logogram Learning  
Gwangbin Kim, Eunsol An, and SeungJun Kim  
Applied Sciences 13(3), 1627, 2023 (SCI(E), JCR 2021 Impact Factor: 2.838)
- [J.1] Take-Over Requests after Waking in Autonomous Vehicles  
Won Kim, Eunki Jeon, Gwangbin Kim, Dohyeon Yeo, and SeungJun Kim  
Applied Sciences 12(3), 1438, 2022 (SCI(E), JCR 2020 Impact Factor: 2.679)
- [C.1] Toward Immersive Self-Driving Simulations: Reports from a User Study across Six Platforms  
Dohyeon Yeo, Gwangbin Kim, and SeungJun Kim  
**ACM CHI 2020**: Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems

#### Extended Abstracts: Posters, Demos, Workshop Papers, and Workshop Proposals (WP)

- [P.4] Magneto: Enabling Multimodal Haptic Feedback on Paper through Magnetic Fields  
Jeongju Park, Semoo Shin, Seongjun Kang, Gwangbin Kim, and SeungJun Kim  
*ACM CHI 2025 Late-breaking Work*
- [W.4] Intelligent Seat: Tactile Signal-Based 3D Sitting Pose Inference  
Minwoo Seong, Gwangbin Kim, Jaehee Lee, Joseph DelPreto, Wojciech Matusik, Daniela Rus, and SeungJun Kim  
*ACM UbiComp 2024 Workshop on Physical AI*
- [WP.1] Interpretable, Inclusive, and Immersive Interaction for Ubiquitous AI-infused Physical Systems  
Gwangbin Kim, Minwoo Seong, Dohyeon Yeo, Yumin Kang, and SeungJun Kim  
*ACM UbiComp 2024 Workshop Proposal*
- [P.3] Curving the Virtual Route: Applying Redirected Steering Gains for Active Locomotion in In-car VR  
Bocheon Gim, Seongjun Kang, Gwangbin Kim, Dohyeon Yeo, Seokhyun Hwang, and SeungJun Kim  
*ACM CHI 2024 Late-breaking Work*
- [W.3] Counterfactual Explanation-Based Badminton Motion Guidance Generation Using Wearable Sensors  
Minwoo Seong, Gwangbin Kim, Yumin Kang, Junhyuk Jang, Joseph DelPreto, and SeungJun Kim  
*ICRA 2024 Workshop on Wearables*
- [W.2] Dual-sided Peltier Elements for Rapid Thermal Feedback in Wearables  
SeongJun Kang, Gwangbin Kim, Seokhyun Hwang, Jeongju Park, Ahmed Elsharkawy, and SeungJun Kim  
*ICRA 2024 Workshop on Wearables*
- [P.2] Physiological Indices for Driver Situation Awareness in VR  
Gwangbin Kim, Jieun Lee, Dohyeon Yeo, Eunsol An, and SeungJun Kim  
*ACM Ubicomp 2023 Poster (People's Choice Award for Best Poster)*
- [P.1] Giant Finger: Visuo-proprioceptive congruent virtual legs for flying actions in virtual reality  
Seongjun Kang, Gwangbin Kim, Kyung-Taek Lee, and SeungJun Kim  
*IEEE VR 2023 Poster*
- [W.1] MAXIM: Mixed-reality Automotive driving Ximulation  
Dohyeon Yeo, Gwangbin Kim, and SeungJun Kim  
*IEEE ISMAR 2019 workshop on Augmenting Cities and Architectures with Immersive Technologies*

#### Patents

- [Pat.5] Multi-channel lidar sensor module  
Jiseong Jeong, Junhwan Jang, Dongkyu Kim, Sungui Hwang, Bumsik Won, and Gwangbin Kim  
US18150548: US patent App. filed 2023-01-05
- [Pat.4] Sign visibility test system  
SeungJun Kim, Gwangbin Kim, Eunsol An, Dohyeon Yeo, and Jieun Lee  
US18083637: US patent App. filed 2022-12-19  
KR102728055: KR patent App. filed 2021-12-30 issued 2024-11-08 **Patent granted**
- [Pat.3] Mixed reality based experience simulator  
SeungJun Kim, Gwangbin Kim, Dohyeon Yeo, and Jieun Lee  
US17015242: US patent App. filed 2020-09-09 issued 2023-08-22 **Patent granted**  
KR102517818: KR patent filed 2020-05-11 issued 2023-03-30 **Patent granted**
- [Pat.2] Multi-channel lidar sensor module  
Jiseong Jeong, Junhwan Jang, Dongkyu Kim, Sungui Hwang, Bumsik Won, and Gwangbin Kim  
US11579254: US patent filed 2019-06-13 issued 2023-02-14 **Patent granted**
- [Pat.1] Device and method for acquiring object information  
Jiseong Jeong, Junhwan Jang, Dongkyu Kim, Sungui Hwang, and Gwangbin Kim  
KR101980697: KR patent filed 2019-02-15 issued 2019-05-15 **Patent granted**

## Awards, Honors, and Scholarships

Outstanding RA Scholarship - Institute of Integrated Technology, GIST	Dec 2024
ACM IMWUT Distinguished Paper Award [C2] - UbiComp/ISWC 2024	Oct 2024
Top Student Award - Institute of Integrated Technology, GIST	Dec 2023
JEDI (Justice, Equity, Diversity, and Inclusion) Ambassador Recognition Award - UbiComp/ISWC 2023	Oct 2023
People's Choice for Poster - UbiComp/ISWC 2023	Oct 2023
Best Paper Award - The 14 <sup>th</sup> International Conference on Internet (ICONI 2022)	Dec 2022
2021 GIST Annual R&D Report - GIST's Research Highlights of 2020 [C.1, Pat.3]	Aug 2021
2020 GIST Annual R&D Report - GIST's Research Highlights of 2019 [W.1, Pat.3]	Aug 2020
Samsung Electronics Presidential Award - 2018 IoT Innovation Challenge	Oct 2018
National Excellence Scholarship for Science and Engineering	Apr 2017 - Feb 2019
Honor Scholarship - Awarded for the students with high GPA	Oct 2015
GIST Scholarship - 10 years (B.S./M.S./Ph.D.), full funding & stipend	Mar 2015 - Dec 2024

## Teaching Experience

Guest Lecture	
RT5302 Research Methods in Human-Computer Interaction, GIST	
- Title: Understanding AIly Research Methods: Conducting HCI Studies with Disabled Participants	Fall 2024
Teaching Assistant	
RT6304 Extended Reality Project, GIST	Fall 2021
CT4301/IR4203/FE5403/RT5301/AI6316 Human-Computer Interaction, GIST	Spring 2021 / Spring 2022
EC3202/MC3207 Signals and Systems, GIST	Spring 2019
GS1490 Software Basics and Coding, GIST	Spring 2018

## Invited Talks

Multimodal Beyond Visual, Auditory, and Tactile: Expanding Our Senses of Physical Interaction in Extended Reality with Sensory Intelligence and Robotic Actuators (Host: Prof. Paul Pu Liang)	MIT Media Lab May 2025
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## Academic Services

### Organizing Committee

Workshop Organizer (Program Chair)- ACM UbiComp 2024 Workshop on AI-infused Physical Systems

### Program Committee

Associate Chair - ACM IMX 2025 Technical Program Committee

Associate Chair - ACM CHI 2025 Late-breaking Work

### Operations

JEDI (Justice, Equity, Diversity, and Inclusion) Ambassador - ACM UbiComp 2023

Student Volunteer - ACM CHI 2021

### Reviewer

Special Recognition for Outstanding Review: ACM DIS (2024), ACM AutoUI (2023, 2022), ACM/IEEE HRI (2025x2)

Journal Papers: Proceedings of the ACM on HCI

Conference Papers: ACM DIS, ACM C&C, ACM Automotive UI, ACM VRST, ACM IDC, ACM IMX, ACM UIST

Posters and Demos: ACM CHI LBW, ACM VRST Posters and Demos, ACM ISWC Notes and Briefs