

Seongjun Kang

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Research Profile

I am a Ph.D. student in Artificial Intelligence at the HCIS Lab, GIST, advised by Prof. SeungJun Kim. My research sits at the intersection of haptics, XR, and embodied interaction. I am interested in how carefully designed physical cues can make digital experiences feel grounded in the body. I build wearable interfaces that use human perception as part of the design, allowing compact devices to create convincing sensations of movement, contact, and presence. More broadly, my work aims to move XR beyond visual realism toward experiences that feel physically coherent, responsive, and usable in everyday settings.

Education

2023 – Present	Ph.D. Student in Artificial Intelligence Gwangju Institute of Science and Technology (GIST), Gwangju, Korea Advisor: Prof. SeungJun Kim
2022 – 2023	M.S. in Robotics Gwangju Institute of Science and Technology (GIST), Gwangju, Korea Advisor: Prof. SeungJun Kim Thesis: Giant Finger: A Novel Visuo-Proprioceptive Approach to Simulating Lower-Body Movements in Virtual Reality
2018 – 2022	B.S. in Mechanical Engineering Gwangju Institute of Science and Technology (GIST), Gwangju, Korea Advisor: Prof. SeungJun Kim Thesis: Portal Display: Screen-based 3D Stereoscopic Conferencing System for Immersive Social Telepresence

Publications

Venue note: CHI and UIST are flagship conferences in Human-Computer Interaction (HCI). Numbering is reverse chronological within each category; higher numbers indicate newer work. Author name in bold indicates CV author.

Peer-reviewed Conferences

C.11 2026 UIST	Inertia in Your Hand: Rendering Virtual Tool Dynamics via In-Hand Cutaneous Deformation Seongjun Kang , Gwangbin Kim, Semoo Shin, Jeongju Park, Juwon Um, Daniela Rus, SeungJun Kim. ACM UIST 2026.
C.10 2026 CHI	When Fingers Become Tools: Rendering Virtual Tool Inertia with a Finger-Mounted Extending Rod Seongjun Kang , Gwangbin Kim, Bocheon Gim, Jeongju Park, Juwon Um, Semoo Shin, Chanyoung Park, SeungJun Kim. ACM CHI 2026.
C.9 2026 CHI	From Disruption to Immersion: Reimagining Vehicle Motion as Environmental Feedback through Force Mappings in In-Car VR Bocheon Gim, Seongjun Kang , Gwangbin Kim, Dohyeon Yeo, Yumin Kang, Ahmed Elsharkawy, SeungJun Kim. ACM CHI 2026.

- C.8**
2025 | ISMAR
Defying Gravity: Towards GravitoInertial Retargeting of Acceleration for Virtual Vertical Motion in In-Car VR
Bocheon Gim, **Seongjun Kang**, Dohyeon Yeo, Gwangbin Kim, Juwon Um, Jeongju Park, SeungJun Kim.
IEEE ISMAR 2025.
- C.7**
2025 | UIST
EarPressure VR: Ear Canal Pressure Feedback for Enhancing Environmental Presence in Virtual Reality
Seongjun Kang, Gwangbin Kim, Bocheon Gim, Jeongju Park, Semoo Shin, SeungJun Kim.
ACM UIST 2025.
- C.6**
2025 | UIST
AttraCar: Multisensory In-Car VR with Thermal, Airflow, and Motion Feedback through Built-In Vehicle Systems
Dohyeon Yeo, Gwangbin Kim, Minwoo Oh, Jeongju Park, Bocheon Gim, **Seongjun Kang**, Ahmed Elsharkawy, SeungJun Kim.
ACM UIST 2025.
Awards: People's Choice Best Demo; Demo Honorable Mention.
- C.5**
2025 | CHI
TelePulse: Enhancing the Teleoperation Experience through Biomechanical Simulation-Based Electrical Muscle Stimulation in Virtual Reality
Seokhyun Hwang*, **Seongjun Kang***, Jeongseok Oh*, Jeongju Park, Semoo Shin, Yiyue Luo, Joseph DelPreto, Sangbeom Lee, Kyoobin Lee, Wojciech Matusik, Daniela Rus, SeungJun Kim. (*equal contribution)
ACM CHI 2025.
Award: Best Paper Award (Top 1%).
- C.4**
2025 | CHI
I Want to Break Free: Enabling User-Applied Active Locomotion in In-Car VR through Contextual Cues
Bocheon Gim, Seokhyun Hwang, **Seongjun Kang**, Gwangbin Kim, Dohyeon Yeo, SeungJun Kim.
ACM CHI 2025.
- C.3**
2024 | UIST
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, SeungJun Kim.
ACM UIST 2024.
- C.2**
2024 | CHI
ErgoPulse: Electrifying Your Lower Body With Biomechanical Simulation-based Electrical Muscle Stimulation Haptic System in Virtual Reality
Seokhyun Hwang, Jeongseok Oh, **Seongjun Kang**, Minwoo Seong, Ahmed Elsharkawy, SeungJun Kim.
ACM CHI 2024.
Award: Honorable Mention (Top 5%).
- C.1**
2023 | ISMAR
Giant Finger: A Novel Visuo-Somatosensory Approach to Simulating Lower Body Movements in Virtual Reality
Seongjun Kang, Gwangbin Kim, SeungJun Kim.
IEEE ISMAR 2023.

Journal Articles

- J.1**
2023 | Electronics
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, SeungJun Kim.
Electronics 2023, 12(20), 4339.

Posters, Demos & Workshops

- W.9**
2025 | UIST Demo
Demonstration of EarPressure VR: Ear Canal Pressure Feedback for Enhancing Environmental Presence in Virtual Reality
Seongjun Kang, Gwangbin Kim, Bocheon Gim, Jeongju Park, Semoo Shin, SeungJun Kim.
ACM UIST 2025 Demos.
- W.8**
2025 | UIST Demo
Demonstration of AttraCar: Multisensory In-Car VR with Thermal, Airflow, and Motion Feedback through Built-In Vehicle Systems
Dohyeon Yeo, Gwangbin Kim, Minwoo Oh, Jeongju Park, Bocheon Gim, Seongjun Kang, Ahmed Elsharkawy, SeungJun Kim.
ACM UIST 2025 Demos.
- W.7**
2025 | CHI LBW
Magneto: Enabling Multimodal Haptic Feedback on Paper through Magnetic Fields
Jeongju Park, Semoo Shin, Seongjun Kang, Gwangbin Kim, SeungJun Kim.
CHI LBW 2025.
- W.6**
2025 | CHI LBW
TeleHopper: Simulating a Jumping Sensation as Proprioceptive Feedback for Teleportation in Virtual Reality via Electrical Muscle Stimulation
Juwon Um, Bocheon Gim, Seongjun Kang, Yumin Kang, Eunki Jeon, SeungJun Kim.
CHI LBW 2025.
- W.5**
2024 | UbiComp
LegSense: Inducing Walking Sensation in Seated VR by Providing Movement Illusion via Electrical Muscle Stimulation
Juwon Um, Eunki Jeon, Yumin Kang, Seongjun Kang, Ahmed Elsharkawy, Joseph DelPreto, Wojciech Matusik, Daniela Rus, SeungJun Kim.
UbiComp Companion 2024.
- W.4**
2024 | UbiComp
Proposal of a Framework for Enhancing Teleoperation Experience with Biomechanical Simulation-Based Electrical Muscle Stimulation in Virtual Reality
Seokhyun Hwang, Seongjun Kang, Jeongseok Oh, Jeongju Park, Semoo Shin, Yiyue Luo, Joseph DelPreto, Wojciech Matusik, Daniela Rus, SeungJun Kim.
UbiComp Companion 2024.
- W.3**
2024 | ICRA WS
Dual-sided Peltier Elements for Rapid Thermal Feedback in Wearables
Seongjun Kang, Gwangbin Kim, Seokhyun Hwang, Jeongju Park, Ahmed Elsharkawy, SeungJun Kim.
IEEE ICRA Workshop on Wearable 2024.
- W.2**
2024 | CHI LBW
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, SeungJun Kim.
CHI LBW 2024.
- W.1**
2023 | IEEE VRW
Giant Finger: Visuo-Proprioceptive Congruent Virtual Legs for Flying Actions in Virtual Reality
Seongjun Kang, Gwangbin Kim, SeungJun Kim.
IEEE VRW 2023.

Domestic

- D.3**
2025 | KCC
TherMusic: A Valence-Arousal-Based Music Emotion Classifier and Thermal Feedback Headset System
Seongjun Kang, Bocheon Gim, Juwon Um, SeungJun Kim.
KIISE KCC 2025.
Award: Best Paper Award.

D.2 2025 KCC	Utilizing Real-Time Video Matting to Create a Scalable System for Real Hand Visualization and Interaction within Augmented Virtuality Bocheon Gim, Seongjun Kang , Juwon Um, SeungJun Kim. KIISE KCC 2025.
D.1 2022 ICONI	Portal Display: Screen-based 3D Stereoscopic Conferencing System for Immersive Social Telepresence Seongjun Kang , Gwangbin Kim, Kyung-Taek Lee, SeungJun Kim. ICONI 2022. <i>Award: Best Paper Award (1st).</i>

Awards, Honors, and Scholarships

Dec 2025	Outstanding RA Scholarship Department of AI Convergence, GIST
Oct 2025	Best Demonstration Award IEEE ISMAR 2025
Sep 2025	People’s Choice Best Demo Award ACM UIST 2025
Sep 2025	Jury’s Choice Demo Honorable Mention Award ACM UIST 2025
May 2025	Best Paper Award ACM CHI 2025
May 2024	Best Paper Honorable Mention Award ACM CHI 2024
Jul 2025	Best Paper Award KIISE Korea Computer Congress (KCC) 2025
Dec 2022	Best Paper Award (1st) The 14th International Conference on Internet (ICONI 2022)
2018 – Present	GIST Scholarship Full funding & stipend (B.S./M.S./Ph.D.)

Teaching Experience

Fall 2024	Guest Lecturer, GIST RT5302 Research Methods in Human-Computer Interaction – “Rapid Prototyping Tool”
Spring 2025	Guest Lecturer, GIST CT4301/IR4203/FE5403/RT5301/AI6316 Human-Computer Interaction – “Interactive Devices that Integrate with the User’s Body”
Fall 2024	Teaching Assistant, GIST RT6304 Extended Reality Project

Invited Talks

HCI Korea 2025 Top-Conference Program

Feb 2025

“Flip-Pelt: Motor-Driven Peltier Elements for Rapid Thermal Stimulation and Congruent Pressure Feedback in Virtual Reality”

KCC 2025 Top-Conference Session

Jul 2025

“TelePulse: Enhancing the Teleoperation Experience through Biomechanical Simulation-Based Electrical Muscle Stimulation in Virtual Reality”