

Jiwan Lee

Contact Information

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Research Interests

Haptics, HCI, VR/AR, Multisensory Perception, Haptic Experience Design, Automatic Haptic Generation

Education

2021.03–25.08	Ph.D. in Computer Science and Engineering, POSTECH, Pohang, South Korea Thesis: <i>“Perceptually-grounded Motion Effect Generation for Multisensory Experience Design”</i> Advisor: Seungmoon Choi
2018.09–21.02	M.S. in Computer Science and Engineering, POSTECH, Pohang, South Korea Thesis: <i>“Quantifying Self-motion Perception of Motion Effects in 4D Experiences”</i> Advisor: Seungmoon Choi
2014.03–18.02	B.S. in Computer Science, Sookmyung Women’s University, Seoul, South Korea

International Publications

Journal Articles

[J6] Lee, J., & Choi, S. (2026). How inertial motion and vibration shape perceptual experience alone and when coupled in multisensory content. (*Under Submission*)

[J5] Lee, J., Yun, G., & Choi, S. (2026). Audiovisual-haptic simultaneity perception: effects of body site and haptic parameters with applications. (*Under Submission*)

[J4] Sohn, H., Kim, H., Lee, J., Lee, D., Jo, E., Park, D. C., & Choi, S. (2026). Evaluating semantic and spatial haptic feedback in audiovisual content with deaf and hard-of-hearing users. (*Under Submission*)

[J3] Lee, J., Kim, J., Kang, J., Jo, E., Park, D. C., & Choi, S. (2024). Telemetry-based haptic rendering for racing game experience improvement. *IEEE Transactions on Haptics*, 17(1), 72-79. doi: [10.1109/TOH.2024.3357885](https://doi.org/10.1109/TOH.2024.3357885)

[J2] Lee, J., Han, S. H., & Choi, S. (2023). Sensory cue integration of visual and vestibular stimuli: a case study for 4D rides. *Virtual Reality*, 27(3), 1671-1683. doi: [10.1007/s10055-023-00762-7](https://doi.org/10.1007/s10055-023-00762-7)

[J1] Han, S.*., Lee, J.*., Yun, G.*., Han, S. H., & Choi, S. (2022). Motion effects: Perceptual space and synthesis for specific perceptual properties. *IEEE Transactions on Haptics*, 15(3), 626-637. (*first) doi: [10.1109/TOH.2022.3196950](https://doi.org/10.1109/TOH.2022.3196950)

Conference Proceedings

[C3] Lee, J., Jeong, D., Han, S. H., & Choi, S. (2025). Automatic tuning of haptic motion effects to evoke specific feelings in multisensory content. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems* (pp. 1-19). doi: [10.1145/3706598.3713908](https://doi.org/10.1145/3706598.3713908) (Acceptance rate 25.1%)

[C2] Lee, J., Yun, G., & Choi, S. (2024). Audiovisual-haptic simultaneity perception across the body for multisensory applications. In *Proceedings of 2024 EuroHaptics*. doi: [10.1007/978-3-031-70058-3_4](https://doi.org/10.1007/978-3-031-70058-3_4) (Acceptance rate 26.1%)

[C1] Lee, J., Park, J., & Choi, S. (2021). Absolute and differential thresholds of motion effects in cardinal directions. In *Proceedings of the 27th ACM Symposium on Virtual Reality Software and Technology* (pp. 1-10). doi: [10.1145/3489849.3489870](https://doi.org/10.1145/3489849.3489870) (Acceptance rate 26.2%)

Demonstration and Posters

[D3] Lee, J., Park, J., Ahn, J., Sohn, H., Han, S., Lee, J., Yun, G., Lim, B., & Choi, S. (2025). Automatic authoring of motion effects for virtual reality. *IEEE 2025 World Haptics Conference (People’s Choice Award)*, 2025 Korea Haptics

Conference (Best Demo Award)

[D2] Lee, J., Kim, J., Kang, J., Jo, E., Park, D. C., & Choi, S. (2024). Demonstrating telemetry-based haptic rendering for racing game experience improvement. IEEE Haptics Symposium. video: <https://www.youtube.com/watch?v=oaYZmG0hIMw>

[D1] Lee, J., & Choi, S. (2020). Absolute thresholds of motion effects in cardinal directions. Work in Progress, IEEE Haptics Symposium.

Patents

[P1] Apparatus and methods for controlling haptic feedback. KR Patent Application No. 10-2023-0181229; US Patent Application No. 18/820,825

Honors and Awards

- 2025 **Next-Generation Engineering Researcher, Best Award**
Institute for Promotion of Engineering and Science of Korea
- 2023 **POSTECHIAN Fellowship**
POSTECH, Awarded to graduate students with excellent research performance
- 2023 **Research Connector Award**
Samsung Global Technology Symposium
- 2014–17 **Scholarship for Academic Excellence; graduated *magna cum laude***
Sookmyung Women's University

Research Projects

2025– **Generative Haptics and Fine Response Inference for Flexible Tactile Interfaces**

Supported by Institute of Information & Communications Technology Planning & Evaluation (IITP) (No. IITP-RS-2025-02214780)

Role: Postdoctoral Researcher

- Multisensory cue reliability for haptic rendering in virtual reality

2022– **Automatic Semantic Conversion of Sound to Haptic Effects: Metaverse, Full-body Haptics, and Accessibility**

Supported by National Research Foundation of Korea (NRF), Mid-Career Program (No. 2022R1A2C2091161)

Role: Research Assistant (2022–2023), Student Lead Researcher (2024–2025)

- Motion–vibration interplay in unimodal and bimodal experience [J6]
- Multisensory time perception and tolerance to delay [C2, J5]
- Accessibility barriers and user experience of deaf and hard-of-hearing users with hearing-centered systems [J4]

2023 **A Hyperconnected Metaverse-Based Hospital Society for Patient Happiness**

Supported by Korea Evaluation Institute of Industrial Technology (KEIT)

Role: Student Lead Researcher

- Pain perception and its experiential aspects

2022–23 **Function Advancement to Improve the Marketability of Vibration Seat**

Supported by Hyundai Motor

Role: Student Lead Researcher

- Automatic vibration authoring [J3, P1]

2018–23 **Automatic Authoring of Physical and Perceptual/Affective Motion Effects for Virtual Reality**

Supported by Samsung Research Funding and Incubation Center (No. SRFC-IT1802-05)

Role: Research Assistant (2018–2023), Lead for the Perceptual and Affective Section (2020–2023)

- Motion (vestibular) perception [C1]
- Motion-visual cue integration [J2]
- Perceptually-grounded authoring and tuning of motion effects [J1, C3]
- Motion sickness and discomfort

Academic Service

Reviewer for ACM CHI, IEEE Transactions on Haptics, Springer Multimedia Systems

Teaching Experience

2022 Fall	Virtual Reality , Teaching Assistant
2022 Spring	Haptics , Teaching Assistant
2021 Fall	Human-Computer Interaction , Teaching Assistant
2019 Fall	C Programming , Teaching Assistant

Skills

Programming	C/C++, C#, Unity, Java, Python, R, MATLAB, HTML/CSS, Shell
Libraries	PyTorch, OpenGL, WPF/Other UIs
Hardware/Sensors	Motion Platforms, Vibrotactile Actuators, Acceleration/Force Sensors, Arduino/Raspberry
Research Methods	Psychophysics, Quantitative & Qualitative User Studies, System Evaluation
Statistical Analyses	R, MATLAB, SAS
Languages	Korean (Native), English (Intermediate), Chinese/Japanese (Elementary)