

# 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: “*Perceptually-grounded Motion Effect Generation for Multisensory Experience Design*”  
 Advisor: Seungmoon Choi
- 2018.09–21.02    **M.S. in Computer Science and Engineering, POSTECH, Pohang, South Korea**  
 Thesis: “*Quantifying Self-motion Perception of Motion Effects in 4D Experiences*”  
 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

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

## Skills

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