

Dajin Lee, Ph. D. Candidate

Curriculum Vitae
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Current Position and Contact Information

Position Ph. D. Candidate
Department of Convergence IT Engineering
Pohang University of Science and Technology (POSTECH)

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Research Interests

Multisensory Integration

- Spatial Audio-Tactile Alignment for Directional Cueing (TVCG'25)
- Modulating Body-Penetrating Tactile Sensation Using Sound (WHC'25)

Haptic Perception & Rendering

- Effects of Contact Force Across Upper Body (TOH'24a)
- Heart Activity Modulation Using Haptic Biofeedback (UIST'24)
- Body-Penetrating Phantom Sensation on Feet (WHC'21)

Human-Computer Interaction

- Embodied and Tangible Learning for Children (IJHCS'25)
- Haptic Exhibit for Learning Physics (TOH'24b)
- Participatory Design for Vibrotactile Warning (Eurohaptics'24)

Education

2021.03 - Present **Ph. D. Candidate, Interaction Laboratory**
Computer Science and Engineering
Pohang University of Science and Technology (POSTECH)
Advisor: [Prof. Seungmoon Choi](#)

2013.03 - 2020.02 **Bachelor of Science**
Industrial Management and Engineering
Pohang University of Science and Technology (POSTECH)
Advisor: Prof. Chihyuk Jun

Publications

International Journal Articles

- [J1] **Dajin Lee**, Gyeore Yun, and Seungmoon Choi, "Effects of Contact Force on Vibrotactile Perceived Intensity Across the Upper Body," *IEEE Transactions on Haptics*, 2024 (Also presented in the IEEE Haptics Symposium 2024; **Candidate for the Best Paper Award**).
[Paper](#), [Presentation Slides](#)
- [J2] **Dajin Lee**, Daehyeon Nam, Jinhyuk Yoon, Dukchan Yoon, Seokwon Jeong, Keehoon Kim, and Seungmoon Choi, "A Comparative Study of Physical and Haptic Exhibits in an Informal Learning Environment," *IEEE Transactions on Haptics*, 2024 (Also presented in the 2025 *IEEE World Haptics Conference*).
[Paper](#), [Demo Video](#)
- [J3] **Dajin Lee** and Seungmoon Choi, "Perceptual Alignment of Spatial Auditory and Tactile Stimuli for Effective Directional Cueing," *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2025 (Also presented in the 2025 *IEEE Conference on Virtual Reality and 3D User Interfaces*).
[Paper](#), [Presentation Video](#)
- [J4] **Dajin Lee**, Daehyeon Nam, and Seungmoon Choi, "Augmenting Outdated Museum Exhibits with Embodied and Tangible Interactions for Prolonged Use and Learning Enhancement," *International Journal of Human-Computer Studies (IJHCS)*, 2025.
[Paper](#), [Demo Video](#)

International Conference Papers

- [C1] **Dajin Lee**, Seungjae Oh, Seungmoon Choi, and Bum-Jae You, "Vibrotactile Metaphor of Physical Interaction Using Body-Penetrating Phantom Sensations: Stepping on a Virtual Object," *IEEE World Haptics Conference (WHC)*, 2021.
[Paper](#), [Presentation Video](#)
- [C2] **Dajin Lee**, Jaejun Park, Jeonggoo Kang, Taekun Yun, Dong-Chul Park, and Seungmoon Choi, "Participatory Design for In-Vehicle Vibrotactile Warnings on Driver's Seat," *EuroHaptics*, 2024.
[Paper](#), [Presentation Video](#), [Demo Video](#)
- [C3] Andreia Valente, **Dajin Lee**, Seungmoon Choi, Mark Billingham, and Augusto Esteves, "Modulating Heart Activity and Task Performance Using Haptic Heartbeat Feedback: A Study Across Four Body Placements," *ACM Symposium on User Interface Software and Technology (UIST)*, 2024.
[Paper](#), [Presentation Video](#)
- [C4] Hyunuk Kim, **Dajin Lee**, and Seungmoon Choi, "Enhancing Body-Penetrating Phantom Sensations Through Multisensory Integration of Sound and Vibration," *IEEE World Haptics Conference (WHC)*, 2025.

Domestic Conference Papers (Republic of Korea)

- [DC1] Dong Yeong Jeong, Sung H. Han, Seungmoon Choi, Mingyu Lee, Haewoo Kang, Sangyoon Han, Gyeore Yun, Hyo Seung Lee, Jiwan Lee, and **Dajin Lee**, "Motion and Haptic Effects Classification of a 4D Cinema Seat," *Ergonomics Society of Korea*, 2019.
- [DC2] Daehyeon Nam, **Dajin Lee**, and Seungmoon Choi, "Improving the Design of Science Museum Exhibits Through Digital Augmentation," *Korea Software Congress (KSC)*, 2022.
- [DC3] **Dajin Lee**, Gyeore Yun, and Seungmoon Choi, "Effects of Contact Force on Vibrotactile Perceived Intensity Across Upper Body," *Korea Haptics Conference (KHC)*, 2023.
- [DC4] **Dajin Lee** and Seungmoon Choi, "Differential Thresholds of Azimuth between Auditory and Tactile Stimuli," *Korea Haptics Conference (KHC)*, 2024 (**Best Paper Award**).

Posters & Demonstrations

- [P1] **Dajin Lee**, Daehyeon Nam, Seokwon Jeong, Keehoon Kim, and Seungmoon Choi, "A Comparative Study of Physical and Haptic Exhibits in Informal Learning Environment," *IEEE World Haptics Conference (WHC)*, 2023 (Work in Progress).
- [D1] **Dajin Lee**, Jaejun Park, Jeonggoo Kang, Taekun Yun, Dong-Chul Park, and Seungmoon Choi, "Participatory Design for In-Vehicle Vibrotactile Warnings on Driver's Seat," *EuroHaptics*, 2024.
[Paper](#), [Presentation Video](#), [Demo Video](#)
- [D2] Hyunuk Kim, **Dajin Lee**, and Seungmoon Choi, "Body-Penetrating Tactile Phantom Sensations Enhanced by Sound," *IEEE World Haptics Conference (WHC)*, 2025.

Invited Talks and Tutorials

1. Seungmoon Choi and **Dajin Lee**, "Incorporating Qualitative Analysis in Haptics Research," *IEEE World Haptics Conference (WHC)*, 2025.

Honors & Awards

- 2024 **Differential Thresholds of Azimuth between Auditory and Tactile Stimuli**
Best Paper Award (2nd place)
Korea Haptics Conference
- 2024 **Effects of Contact Force on Vibrotactile Perceived Intensity Across the Upper Body**
Best Paper Award (Finalist)
IEEE Haptics Symposium
- 2023 **HapCinema: Multimedia Haptic Rendering Using In-Vehicle Haptic Interfaces**
Hyundai Student Innovation Challenge (Participation Award)
Korea Haptics Conference (KHC)
- 2019 **Homepage for Stary Cats at POSTECH**
POSTECH Hackathon (Popularity Award)
- 2018 **StairX: Automatic Stair Recognition and Map Service Using User's Walking Data**
POSTECH Hackathon (2nd Place)
- 2018 **Prediction of Swell Wave Events Using Deep Learning Analysis of Time Series Data**
Student Innovation Challenge (2nd Place)
Korean Institute of Industrial Engineers (KIIE)

Research Experiences

Research Internships

- 2017.12 - 2018.02 **Ship Routing Problem with Split Delivery and Time Windows**
Logistics Laboratory, Industrial Management Engineering Department
Pohang University of Science and Technology (POSTECH)
Advisor: Prof. Byung-In Kim
- 2019.01 - 2019.06 **Motion and Haptic Effects Classification of a 4D Cinema Seat**
2020.03 - 2020.08 Interaction Laboratory, Computer Science and Engineering Department
Pohang University of Science and Technology (POSTECH)
Advisor: Prof. Seungmoon Choi
- 2019.06 - 2019.08 **3D Graphical User Interface in Virtual Reality**
Center for Intelligent & Interactive Robotics
Korea Institute of Science and Technology (KIST)
Advisor: Dr. Jung-Min Park
- 2020.09 - 2020.12 **Laboratory Rotation**
Medical Assistant Robotics and Cognitive Haptics (MARCH) Laboratory,
Mechanical Engineering
Pohang University of Science and Technology (POSTECH)
Advisor: Prof. Keehoon Kim

Fund Projects

2019.01 - 2019.06	Automatic Authoring of Physical and Perceptual/Affective Motion Effects for Virtual Reality Samsung Research Funding & Incubation Center for Future Technology
2021.01 - 2022.12	Development and Validation of Real-Virtual Blended Exhibits for In-Depth Embodied Learning of Scientific Principles (Team Leader) Support Program for Reinforcement of Science Culture Exhibition Service, National Research Foundation (NRF)
2022.7 - 2023.6	Research on Function Advancement to Improve the Marketability of Vibration Seat (Team Leader) Hyundai Automobile Company
2022.9 - Present	Semantic Sound-to-Haptic Automatic Conversion: Metaverse, Full-body Haptic Effects, and Accessibility Mid-Career Researcher Program, National Research Foundation (NRF)
2025.01 - Present	Advanced Research on Vibration Perception on Steering Wheel (Team Leader) Hyundai Automobile Company

Teaching Experiences

2019.09 - 2021.09	Introduction to Statistics for Data Science (Teaching Assistant) POSTECH & POSCO Group University
2024.09 - Present	Introductions to Haptics (Teaching Assistant) Pohang University of Science and Technology (POSTECH)

Academic Service

Reviewer **Eurohaptics** (2024)

Skills

Haptic Interaction	Tactile rendering/perception, Embodied learning, Authoring tool
Multisensory Perception	Spatial audio-tactile perception, Visuo-haptic illusion
Programming	C/C++/C#, MATLAB, Python, R
Statistics	Statistical analysis, Design of experiment