

Dajin Lee, Ph. D. Candidate

Curriculum Vitae

Last Updated on September 15, 2025

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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Laboratory	https://interaction.postech.ac.kr/



Research Interests

Multisensory Integration

- Perceptual Effects of Co-Located Vibrotactile and Auditory Cues (Under review)
- Spatial Audio-Tactile Alignment for Directional Cueing (TVCG'25)
- Modulating Body-Penetrating Tactile Sensation Using Sound (WHC'25)

Haptic Perception & Rendering

- Spatial Tactile Rendering for Multiple Targets (Under review)
- 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**, Gyeong 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**, Jaehun 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

- 2025 **Braile Ring: An Intelligent Tactile Assistant for the Visually Impaired**
AWS Prize (4th place)
Institute of Information & communications Technology Planning & Evaluation (IITP)
- 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
2020.03 - 2020.08 **Motion and Haptic Effects Classification of a 4D Cinema Seat**
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
- 2025.07 - 2025.08 **Development of a Taxonomy of Social Touch**
Multimodal Interaction (MI) Laboratory, Department of Computer Science
University of Texas at Dallas
Advisor: Prof. Jin Ryong 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)
- 2022.07 - 2023.06 **Research on Function Advancement to Improve the Marketability of Vibration Seat (Team Leader)**
Hyundai Automobile Company
- 2022.09 - 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)
Reviewer	IEEE Transactions on Haptics (2025)

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