

JINWOOK KIM

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RESEARCH INTEREST

Human-Computer Interaction

- Virtual / Augmented Reality (VR/AR)
- Telepresence, Virtual Space Exploration, Multisensory Integration

Cognitive Perception & Bio-sensor

- EEG (Event-related potential (ERP)), Eye tracking, Behavioral
- Brain-Computer Interface: Steady state visual evoked potential (SSVEP)

Research Goal: Augment human performance, perception, and immersive experience by using multimodal I/O in VR

EDUCATION

Ph.D. KAIST, Graduate School of Culture Technology Advisor: Visual Cognition Lab, Prof. Jeongmi Lee	2021.02 - (Candidate)
M.S. KAIST, Graduate School of Culture Technology Thesis: Multisensory Pseudo-Haptic Feedback for Weight Perception of Virtual Objects Advisor: Visual Cognition Lab, Prof. Jeongmi Lee	2019-21
B.S. Chungnam National University, Computer Science & Engineering Global SW Track member / CNU Eng. Student of the Year (Dean award)	2014-18

SELECTED AWARDS & SCHOLARSHIP

IEEE Virtual Reality 2024 Conference Best Paper Award	2024.03
ACM CHI Play Student Game Design Competition Audience Choice Award	2022.11
NCSOFT Ph.D. Scholarship NC-KAIST Scholarship (10M Won)	2021.06
Junction x Seoul Hackathon (NAVER Z) 2 nd Prize (Web Game with Pose estimation)	2019.05
NEXON Idea Challenge 1st Award	2017.08
2016 Microsoft Imagine Cup TOP 7 – Semi Finalist	2016.03

PROFESSIONAL EXPERIENCE

ibs Center for Cognition & Sociality, Daejeon, Korea 2020.01 to 2022.12

Research Assistant

- Learned basic EEG data analysis and conducted ERP experiment (e.g., P3, SSVEP) in virtual reality using dry electrodes.
- Conducted an experiment that probe an effect of multisensory vection on VR motion sickness with behavioral and EEG data analysis (e.g., Decoding, MVPA)

ZER01NE, Seoul, Korea 2021.05 to 2022.12

Researcher/Creator

- Creator supported program funded by HYUNDAI Motors
- Developed Automatic Sonata (Future Mobility UX, 2021) and Holobot (XR Telepresence robot, 2022) and exhibit at ZER01NE Day 2021 ([link](#)) and 2022 ([link](#)).

Companoid Labs, Suwon, Korea 2018.06 to 2018.12

Researcher

- Develop a social robot (Petbe) and published paper at HRI2020
- Analyzed ‘Doctor Diary’ application user data for UX redesign

STUDY ABROAD

Purdue University, USA 2017.01 to 2017.02

CNU Global SW Capstone Project

- Conducted research about ‘Group Membership and Authentication’ (Intel)
- Attend ‘Design & Innovation’, ‘Data mining & Machine Learning’ lecture

Lakehead University, Canada 2016.09 to 2016.12

CNU Global Talent Program

- Attend ESL, ‘Intro to Engineering Design’ and ‘Big Data’ lecture

Northern Arizona University, USA 2016.01

CNU Honors Program

- Attend ‘Special Topics’, English Writing & Speaking class
- Special Topics: Class about US culture, history etc.

PUBLICATIONS (*TELEPRESENCE*, *MULTISENSORY*, *SPATIAL EXPLORATION*, *VR INTERFACE*)

Peer-reviewed Conference & Journal Papers

[1] Lee, C.*, Kim, J.*, Yi, H., & Lee, W. (2024, May) Viewer2Explorer: Designing a Map Interface for Spatial Navigation in Linear 360 Exhibition Video. In *Proceedings of the 2024 CHI conference on human factors in computing systems* (pp. 1-15).

[2] Jung, S., Kim, J., & Lee, J. (2024). The Differential Effects of Multisensory Attentional Cues on Task Performance in VR Depending on the Level of Cognitive Load and Cognitive Capacity. *IEEE transactions on visualization and computer graphics*. (**Best Paper Award IEEE VR2024**)

[3] Jang, H. *, **Kim, J. ***, & Lee, J., (2024). Effects of Multisensory Feedback on the Perception and Performance of Virtual Reality Hand-Retargeted Interaction. *arXiv preprint arXiv:2209.02966*. (Under Review).

[4] Lee, S., **Kim, J.**, Lee, J., (2023). Effects of Reward Schedule and Avatar Visibility on Joint Agency During VR Collaboration Task. *IEEE transactions on visualization and computer graphics*. **(Nominated for Best Journal Paper ISMAR23)**

[5] Kim, D., Kim, S., Shin, J. E., Yoon, B., **Kim, J.**, Lee, J., & Woo, W. (2023). The effects of spatial configuration on relative translation gain thresholds in redirected walking. *Virtual Reality*, 27(2), 1233-1250.

[6] **Kim, J.**, Kim, D., Jang, H., & Lee, J. (2023). Exploration of the Virtual Reality Teleportation Methods using Hand-tracking, Eye-tracking, and EEG. *International Journal of Human-Computer Interaction*, 1-14.

[7] **Kim, J.**, Kim, S., & Lee, J. (2022). The Effect of Multisensory Pseudo-Haptic Feedback on Perception of Virtual Weight. *IEEE Access*, 10, 5129-5140.

[8] Kim, D., **Kim, J.**, Shin, J. E., Yoon, B., Lee, J., & Woo, W. (2022, March). Effects of virtual room size and objects on relative translation gain thresholds in redirected walking. In *2022 IEEE conference on virtual reality and 3D user interfaces (VR)* (pp. 379-388). IEEE.

[9] **Kim, J. ***, Hwang, E. *, Shin, H., Gil, Y. H., & Lee, J. (2021). Top-down, bottom-up, and history-driven processing of multisensory attentional cues in intellectual disability: An experimental study in virtual reality. *PLOS One*, 16(12), e0261298.

Extended Abstracts, Posters, and Demo

[1] **Kim, J.**, Kim, T., & Lee, J. (2024, May). VR-SSVEPeripheral: Designing Virtual Reality Friendly SSVEP Stimuli using Peripheral Vision Area for Immersive and Comfortable Experience. In *Extended Abstracts of the 2024 CHI Conference on Human Factors in Computing Systems* (pp. 1-7).

[2] **Kim, J.** (2024, March). [DC] Exploring and Designing VR Locomotion Method based on Bio-signal for Hands-free Context and its Improvement. In *2024 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)* IEEE.

[3] **Kim, J.**, Lee, J., Kim, Y. J., & Lee, J. (2023, October). Influence of Cross-Modal Correspondence between Auditory and Visual Stimuli on Vection Perception in Virtual Reality. In *2023 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)* (pp. 604-608). IEEE Computer Society.

[4] Lee, J., **Kim, J.**, & Lee, J. (2023, October). Comparison of Virtual Reality Teleportation Targeting Method Performance depending on the Teleport Distance. In *2023 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)* (pp. 742-745). IEEE Computer Society.

[5] Seo, K., Vanichvoranun, N., Kim, Y., Jung, K., **Kim, J.**, Kim, H., & Yoon, S. H. (2023, October). GoGoHand+: Designing Haptic Feedback to Enhance the GoGoHand Interaction Technique. In *2023 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)* (pp. 736-741). IEEE Computer Society.

[6] Kim, J.*, Kim, D.*, Kim, B., Kim, H., & Lee, J. (2023, March). Holobot: Hologram based extended reality telepresence robot. In *Companion of the 2023 ACM/IEEE International Conference on Human-Robot Interaction* (pp. 60-64).

[7] Kim, J., Koh, S., Kang, S., Jang, H., Lee, J., Nam, J., & Doh, Y.Y., (2022). Seung-ee and Kkaebi: A Cross-platform Game between Virtual Reality and Mobile. In *ACM CHI PLAY 2022 Interactivity*. **(Audience Choice Award)**

[8] Kim, J., & Lee, J. (2021, March). The Effect of the Virtual Object Size on Weight Perception Augmented with Pseudo-Haptic Feedback. In *2021 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)* (pp. 575-576). IEEE.

[9] Kim, J., Baek, K., & Jang, J. (2020, March). Petbe: Projecting a real being onto a social robot using contextual data for a pet monitoring method. In *Companion of the 2020 ACM/IEEE International Conference on Human-Robot Interaction* (pp. 290-292).

[10] Kim, J., Han, Y., Lee, S.H., Yoo, J., Song, J. (2018). Public IoT Service System using SNS Chatbot Application. In *HCI Korea Conference* 631-633.

[11] Lee, S., Kim, J., Han, Y., Lee, S., Kim, J., (2016). IoT Public Washing Machine Management System using Smart Meter. *Proceedings of the Korean Information Science Society Conference*, 171-173.

TECHNIQUES AND SKILLS

Programming: Java, C/C++, Unity C#, Python, HTML, Pytorch

IoT Applications: Sensors, Arduino & Raspberry Pi, Flask (REST API), Communication

EEG Data Acquisition & Analysis: Cognionics (EEG Quick-30), Emotiv, NextMind, MNE, SPSS, MATLAB (EEGLAB, ERPLAB)

ACADEMIC SERVICES

Invited Talks & Lecture

- CSE333 Intro to HCI, UNIST, 2023.06.01
- Psychological Experiment Implementation with Unity, CNU, 2024.02~03

Reviewer

- International Journal of Human-Computer Interaction
- EuroHaptics 2024 Technical Papers
- CSCW 2024 Full Paper
- ACM CHI 2020, 2022, 2024 LBW
- ACM CHI 2023, 2024 Full Paper
- IEEE VR 2024 Full Paper
- IEEE ISMAR 2023 Journal Track
- ACM/IEEE HRI 2020, 2023 LBW

Student volunteer

- ACM TEI 2021

Mentoring

- Naver Connect Foundation (Python, C, Data Analysis)
- KAIST Gifted Youth Camp (Block Programming, Unity Basic)
- MODU Lab - LG ML/AI bootcamp
- 2020 Young-In Upcycling Hack-A-Thon Mentor
- 2021 ARKO Art Center ART TALK Program Mentor

Teaching material Produce @KAIST Cyber Talented Center

- Unity Game Programming with LEGO Course
- Unity Basic Programming with C# Course
- Unity Advance C# Game Development Programming Course