Seo Young Oh

✉ seoyoung.oh@kaist.ac.kr 🔗 linkedin.com/in/ohseo

RESEARCH INTERESTS

Interaction Techniques, 3D User Interfaces, Augmented Reality, Ubiquitous Virtual Reality, Human-Computer Interaction

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST)   Daejeon, Republic of Korea

Ph.D. Candidate, *Graduate School of Culture Technology*   Mar 2020 – Present

M.S., *Graduate School of Culture Technology*   Mar 2014 – Mar 2016, Mar 2019 – Feb 2020
· Thesis: "Finger Contact in 3D Gesture Interaction to Improve Temporal Input Accuracy in HMD-based Augmented Reality"

B.S., *Mechanical Engineering*   Feb 2009 – Feb 2014

WORK EXPERIENCE

Naru EMS Inc.   Daejeon, Republic of Korea
Research Engineer   Apr 2016 – Feb 2019
· Ported engineering system simulation algorithms to C and implemented user interfaces.
· Developed an AR-based demo for a spatial audio system.

TECHNICAL SKILLS & LANGUAGES

Programming: C#, Python, C++, C, Java   **Development Tools:** Unity, ARCore, ARKit, OpenXR, Mixed Reality Toolkit

Design & Graphics: Illustrator, Photoshop, Premiere Pro   **Languages:** Korean (Native), English (Proficient)

SELECTED PROJECTS

Real-time XR Interface Technology Development for Environmental Adaptation   Apr 2024 – Present
Funded by Institute for Information and Communications Technology Promotion (IITP)
· Currently developing a finger-level virtual object control technique for realistic interaction in XR.

WISE AR UI/UX Platform Development for Smartglasses   Jan 2022 – Dec 2023
Funded by Institute for Information and Communications Technology Promotion (IITP)
· Contributed to developing a multi-device system and hand interaction for an adaptive smartglasses interface.

Human Reconstruction for Telepresent Interaction   Mar 2019 – Dec 2020
Funded by National Research Foundation (NRF)
· Contributed to developing a hand interaction system focusing on usability and presence in remote collaboration systems.
                    Full project list available upon request.

SELECTED PUBLICATIONS

· **Papers**

Seo Young Oh, Junghoon Seo, Boram Yoon, Sang Ho Yoon, and Woontack Woo, 2025. "ForceCtrl: Precision Control of Hand-Raycasting with User-Adaptive Force Input," *Under Review*.

Hyung-il Kim, Boram Yoon, **Seo Young Oh**, and Woontack Woo, 2023. "Visualizing Hand Force with Wearable Muscle Sensing for Enhanced Mixed Reality Remote Collaboration," *IEEE Transactions on Visualization and Computer Graphics*. DOI: 10.1109/TVCG.2023.3320210.

Boram Yoon, Jae-eun Shin, Hyung-il Kim, **Seo Young Oh**, Dooyoung Kim, and Woontack Woo, 2023. "Effects of Avatar Transparency on Social Presence in Task-centric Mixed Reality Remote Collaboration," *IEEE Transactions on Visualization and Computer Graphics*. DOI: 10.1109/TVCG.2023.3320258.

Hui-Shyong Yeo, Erwin Wu, Daehwa Kim, Juyoung Lee, Hyung-il Kim, **Seo Young Oh**, Luna Takagi, Woontack Woo, Hideki Koike, and Aaron John Quigley, 2023. "OmniSense: Exploring Novel Input Sensing and Interaction Techniques on Mobile Device with an Omni-Directional Camera," *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. DOI: 10.1145/3544548.3580747.

Boram Yoon, Hyung-il Kim, **Seo Young Oh**, and Woontack Woo, 2020. "Evaluating Remote Virtual Hands Models on Social Presence in Hand-based 3D Remote Collaboration," *2020 IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*. DOI: 10.1109/ISMAR50242.2020.00080.

Jae-eun Shin, Hayun Kim, Callum Parker, Hyung-il Kim, **Seo Young Oh**, and Woontack Woo, 2019. "Is Any Room Really OK? The Effect of Room Size and Furniture on Presence, Narrative Engagement, and Usability During a Space-Adaptive Augmented Reality Game," *2019 IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*. DOI: 10.1109/ismar.2019.00-11.

· **Posters/Demos**

Eunhwa Song, Minju Baeck, Jihyeon Lee, **Seo Young Oh**, Dooyoung Kim, Woontack Woo, Jeongmi Lee, and Sang Ho Yoon, 2023. "Memo: me, an AR Sticky Note With Priority-Based Color Transition and On-Time Reminder," *2023 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*.

Hyuckjin Jang, Taehei Kim, **Seo Young Oh**, Jeongmi Lee, Sunghee Lee, and Sang Ho Yoon, 2022. "Sense of Embodiment Inducement for People with Reduced Lower-body Mobility and Sensations with Partial-Visuomotor Stimulation," *ACM SIGGRAPH 2022 Emerging Technologies*.

Seonji Kim, Hyuckjin Jang, Kyung Taek Oh, **Seo Young Oh**, Dooyoung Kim, Woontack Woo, Jeongmi Lee, Jaehong Ahn, and Sang Ho Yoon, 2022. "Bring Store in My Room: AR Store Authoring System for Spatial Experience in Mobile Shopping," *2022 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)*.

Zofia Marciniak, **Seo Young Oh**, and Sang Ho Yoon, 2022. "Guide Ring: Bidirectional Finger-worn Haptic Actuator for Rich Haptic Feedback," *Proceedings of the 28th ACM Symposium on Virtual Reality Software and Technology*.

Seo Young Oh, Boram Yoon, and Woontack Woo, 2022. "AR-HMD Multitask Viewing System Concept with a Supporting Handheld Viewport for Multiple Spatially-Anchored Workspaces," *2022 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)*.

Hyung-il Kim, Taehei Kim, Eunhwa Song, **Seo Young Oh**, Dooyoung Kim, and Woontack Woo, 2021. "Multi-scale Mixed Reality Collaboration for Digital Twin," *2021 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)*.

Seo Young Oh, Boram Yoon, Hyung-il Kim, and Woontack Woo, 2020. "Finger Contact in Gesture Interaction Improves Time-domain Input Accuracy in HMD-based Augmented Reality," *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*.

KyoungHee Son, **Seo Young Oh**, Yongkwan Kim, Hayan Choi, Seok-Hyung Bae, and Ganguk Hwang, 2015. "Color Sommelier: Interactive Color Recommendation System Based on Community-Generated Color Palettes," *Adjunct Proceedings of the 28th Annual ACM Symposium on User Interface Software & Technology*.

HONORS AND AWARDS

Best Implementation Award - Student Design Competition   Oct 2022
The International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI)

ACADEMIC SERVICES AND EXPERIENCES

Teaching Assistant at KAIST
· Undergraduate Research Participation Program   Spring 2015, Spring 2022, Spring 2025
· CTP445 Augmented Reality   Fall 2020, Spring 2022
· GCT565 Augmented Humans   Fall 2021
· GCT700 Topics in Culture Technology Project Planning: AR Project   Spring 2021
· ID216 Product Design Engineering   Fall 2013, Fall 2014

Graduate Mentor at Korea Science Academy of KAIST
· High School Research Participation Program   Fall 2015

Volunteering
· Reviewer: CHI, CHI Late-Breaking Work, KSC (Korea Software Congress)
· Academic Event Assistant: KAIST GSCT Post-Metaverse Forum

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