MINJU BAECK

minjubaeck@kaist.ac.kr | LinkedIn | Google Scholar

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) | **Mar. 2024 – Present**
Ph.D. Candidate, Graduate School of Culture Technology
Ubiquitous Virtual Reality Lab (UVR Lab), Advised by Prof. Woontack Woo; Co-advised by Prof. Sang-Ho Yoon

Korea Advanced Institute of Science and Technology (KAIST) | **Mar. 2022 – Feb. 2024**
M.S. in Graduate School of Culture Technology
Ubiquitous Virtual Reality Lab (UVR Lab), *Advised by Prof. Woontack Woo*

Chungnam National University | **Mar. 2015 – Feb. 2020**
B.S. in Physics & **B.F.A.** in Creative Design (Double Major)

JOURNAL PAPERS

2026 **[j.4] Sharing Roughness with Hand-Outline Visualization to Reduce Sensory Asymmetry in VR Collaboration**
Minju Baeck, Yoonseok Shin, Hyunjin Lee, Boram Yoon, Sang Ho Yoon*, and Woontack Woo*
IEEE Transactions on Visualization and Computer Graphics (TVCG), accepted. Presented at IEEE ISMAR 2026.

[j.3] Understanding Organizational Strategies Across Multimodal Artifacts in Immersive Computational Notebooks
Sungwon In, **Minju Baeck**, Yalong Yang, Sang Ho Yoon, Woontack Woo, and Mallesham Dasari
IEEE Transactions on Visualization and Computer Graphics (TVCG), accepted. Presented at IEEE ISMAR 2026.

[j.2] Event-Based Referred Vibrotactile Feedback for Bare-Hand XR Interaction
Juyoung Lee, Hyunseo Seo, Hyunjin Lee, **Minju Baeck**, Hui-Shyong Yeo, and Woontack Woo
IEEE Transactions on Visualization and Computer Graphics (TVCG), accepted. Presented at IEEE VR 2026.

2025 **[j.1] Visuo-Tactile Feedback with Hand Outline Styles for Modulating Affective Roughness Perception**
Minju Baeck, Yoonseok Shin, Dooyoung Kim, Hyunjin Lee, Sang Ho Yoon, Woontack Woo
🏆 **IEEE Transactions on Visualization and Computer Graphics (TVCG), presented at IEEE ISMAR 2025.**

CONFERENCES

2024 **[c.2] Whirling Interface: Hand-based Motion Matching Selection for Small Targets on XR Displays**
Juyoung Lee, Seo Young Oh, **Minju Baeck**, Hui-Shyong Yeo, Hyung-Il Kim, Thad Starner, Woontack Woo
IEEE International Symposium on Mixed and Augmented Reality (ISMAR 2024)

[c.1] GestureMark: Shortcut Input Technique using Smartwatch Touch Gestures for XR Glasses
Juyoung Lee, **Minju Baeck**, Hui-Shyong Yeo, Thad Starner, Woontack Woo
Augmented Humans International Conference (AHs 2024), pp. 63–71

Domestic Publications (Korea) *(* indicates equal contribution)*

2025 **[d.8] Real-time Authoring System for Context-Aware Sentimental Haptic Feedback**
Minju Baeck*, Yoonseok Shin*, Hanseok Jeong*, Woontack Woo, Sang Ho Yoon. Korea Software Congress (KSC), 2025.

[d.7] Scene Graph Diffusion Transformer for Controllable 3D Virtual Scene Generation
Seokyoung Kim, Jinseok Hong, **Minju Baeck**, Woontack Woo. Korea Software Congress (KSC), 2025.

[d.6] Motion-Adaptive Multimodal Feedback for Roughness Recognition during Object–Hand Interaction in Virtual Environments
Yeonwoo Shin, **Minju Baeck**, Woontack Woo. Korea Computer Congress (KCC), 2025.

2024 **[d.5] Far-distance Interaction Using Smartwatch Touch and Gaze for Exploring AR Artwork Information**

Minju Baeck*, Jihyeon Lee*, Jieun Park*, Woontack Woo. Korea Computer Congress (KCC), 2024.

[d.4] Undo Slider for Multi-step Editing in Collaborative AR Environments

Selin Choi*, **Minju Baeck***, Woontack Woo. Korea Software Congress (KSC), 2024.

2023 **[d.3] Wearable Augmented Reality-based Multimodal Interface Design for Information Searching in Multi-user Communication Scenarios**

Minju Baeck*, Jihyeon Lee*, Woontack Woo. Korea Software Congress (KSC), 2023.

[d.2] Interactive 3D Voxel Drawing System with Bare-hand Interaction Using AR Glasses

Selin Choi*, **Minju Baeck***, Hyungwoo Jin, Taewook Ha, Woontack Woo. Korea Software Congress (KSC), 2023.

[d.1] Immersive Metaverse Reading Platform Design Based on Wearable AR

Minju Baeck*, Haneul Park*, Woontack Woo. The HCI Society of Korea (HCIK), 2023.

Posters / Demos / Workshops

2025 **[e.d.1] Collaborative Scene Mood Authoring with Voice-driven Multimodal Feedback Design in Virtual Reality**

Jinhyeok Hong*, **Minju Baeck***, Seungwon Kim*, Yoon Shin*, Woontack Woo

Demo, SIGGRAPH Asia 2025 XR, 2025 (*: contributed equally)

[e.p.3] Region-Guided Interactive Docent for Paintings in Mixed Reality

Yoonseok Shin, **Minju Baeck**, Woontack Woo

2025 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct), 2025

[e.p.2] Architectural Elements Augmentation from 2D Artworks for Spatial Experience of AR Exhibition

Young Bin Kim, Suji Kang, **Minju Baeck**, Seonji Kim, Woontack Woo

2025 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct), 2025

2023 **[e.p.1] Memo:me, an AR Sticky Note With Priority-Based Color Transition and On-Time Reminder**

Eunhwa Song*, **Minju Baeck***, Jihyeon Lee*, Seo Young Oh, Dooyoung Kim, Woontack Woo, Jeongmi Lee, Sang Ho Yoon

IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 2023 (Presenter)

(*: contributed equally)

RESEARCH EXPERIENCE

Expressive computing Lab (UNIST, EXPC), Ulsan Korea, Intern **Aug. 2021 - Dec. 2021**

(Supervisor: Prof. Kyungho Lee)

- *Designed elderly-centered interaction scenarios and conducted focus group interviews.*
- *Prototyped mini social robots and implemented AI-robot systems using IBM design processes.*

Human-Centered Intelligence Systems Lab (GIST), Gwangju Korea, Intern Mar. 2021 - Aug. 2021

(Supervisor: Prof. SeungJun Kim)

- *Analyzed biometric data for gaze-aware public signage design in autonomous shuttle scenarios and developed VR exhibition content; showcased at the Gwangju Biennale.*

Quantum Control Materiality Laboratory, Daejeon Korea, Intern **Aug. 2020 - Dec. 2020**

- *Research performance management, data collection, organization, processing*

Design and Human Engineering, UNIST, Ulsan Korea, Intern **Jan. 2019 - Feb. 2019**

- *Design of Healthcare Wearable Device and APP Service, Electric Vehicle Exterior design sketch*

ETRI, Daejeon Korea, Intern **Jan. 2018 - Feb. 2018**

- *Measuring and Laser Diode and RF Equipment, Data Visualization*

HONORS & AWARDS

Best Paper Award (Top 1%), IEEE ISMAR 2025 (TVCG) **| Oct. 2025**

SKYST Joint Hackathon, ***Second Prize*** **| May. 2025**

- *Developed an AI-based audio recommendation app service using ML algorithms.*

Metaverse Developer Contest, *First Prize* **| Oct. 2023**

- Developed an AR voxel-based 3D drawing app (Michelangelo's Glasses) using Snapdragon Spaces (Unity/XR) for creating and sharing printable 3D artworks.

KAIST SW Competition, Excellence Award (4th Place) **| Mar. 2021**

- Designed, planned, and prototyped mobile application services.

LG Global Challenger, Finalist **| Oct. 2019**

- Conducted a two-week overseas research tour visiting Philips, Berlin Institute of Technology, and LYS.

WTA Daejeon High-Tech Fair Idea Competition, Participation Prize **| Oct. 2019**

- Poster presentation and patent filing for a capstone project.

National University Student DIY SEM Competition, *First Prize* **| Oct. 2018**

- Completed a 10-month research project and presented at the Korean Society of Microscopy.

COLLATHON, First Prize | Oct. 2018

- Implemented a movie-based social web service utilizing the Naver Map API.

F1 Model Car Race, The Best Convergent Team **| Oct. 2018**

- Designed an F1 car 3D model and delivered a project presentation.

Make-A-Thon Start-up Camp, First Prize **| May 2018**

- Developed 'Smart Emotional Lighting' using Arduino during a 2-day intensive start-up camp.

INVITED TALKS

2025 Korea Software Congress: Top-Conference Session **| Dec. 2025**

TEACHING EXPERIENCE

Teaching Assistant, [GCT 600/MV 600] Augmented Reality Project, KAIST **| Fall 2025**

Instructor: Prof. Woontack Woo

PAPER REVIEWS

IEEE Conference on Virtual Reality and 3D User Interface (VR) - 2025

LEADERSHIP & COMMUNITY

Global Shaper (Daejeon Hub) @ World Economic Forum **Jan. 2024 - Present**

- ***Vice Curator (2025–2026)*** *Lead and connect young leaders under 30 to drive local dialogue and impactful change as part of the World Economic Forum's global initiative.*

Member, Google Developer Groups (GDG) — Daejeon/KAIST **Jan. 2024 - Present**

President, Graduate School of Culture Technology Student Association **Jul. 2022 - Dec. 2022**

Deputy Chief of Staff, LG Global Challenger (25th) **Jul. 2019 - Feb. 2020**

President, Physics Student Association **Jan. 2017 - Dec. 2017**

President, Society for the Advancement of Education **Jan. 2016 - Feb. 2016**

Student Council Member, College of Natural Sciences **Jan. 2016 - Feb. 2016**

Design & Prototyping

Skills: XR interaction design & UI/UX prototyping; data analysis (R).

Tools: Figma; Photoshop; Illustrator; After Effects; Adobe XD; Rhino 3D; Cinema 4D; Unity.

CERTIFICATE

Secondary School Teacher's Certificate (Grade II) in Science, Ministry of Education (2020)

Class 1 Ordinary Driver's License, Korean National Police Agency (2015)