

Minyoung Joo

XR Researcher | Embodied Interaction, Spatial Cognition, and Human-AI World Models

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RESEARCH PROFILE

XR researcher and designer investigating how embodied and multisensory experience shapes spatial perception, presence, navigation, and memory, and how human spatial representations compare with world models formed by artificial agents. Experienced in building immersive systems in Unity, conducting human-subject studies, collecting behavioral and physiological data, and collaborating across cognitive science, HCI, visualization, and design. Current work explores how embodied AI agents construct, retrieve, and use semantic spatial memory from first-person experience in generated 3D environments.

EDUCATION

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|-----------|---|
| 2023-2025 | ArtCenter College of Design - Pasadena, CA
MFA in Media Design Practice. Graduated with Distinction, GPA 4.0. Graduate Fellow (2025). |
| 2018-2023 | Hongik University - Sejong, South Korea
BFA in Design Convergence, with a focus on Industrial Design and UX Research. Full-year scholarship with additional stipend. Student Council President. |

RESEARCH EXPERIENCE

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|--------------|---|
| 2026-Present | Researcher & XR / Embodied AI Developer - Seekr
Co-developing an embodied AI framework in which autonomous agents explore interconnected Gaussian-splat environments from a first-person perspective. Investigating how agents associate visual observations and semantic landmarks with spatial locations, retrieve prior experience, and use persistent spatial knowledge for context-dependent navigation. Contributing to the research framing and manuscript development around the construction, representation, retrieval, and use of spatial memory in embodied urban agents. |
| 2025-2026 | Bolder Futures Fellow - AAPI Data (UC Berkeley)
Led research framing for a VR project on urban visibility and safety; explored social innovation related to homelessness in Los Angeles. |
| 2025 | Extended Reality Intern - University of Notre Dame
Designed and developed an immersive learning experience for Meta Quest 3 using Unity and the Meta SDK. |
| 2025 | Independent Researcher - Embodiment of Virtuality (MFA Thesis, ArtCenter)
Developed a VR thought experiment examining how sensory engagement, touch, and the perceived absence of the physical body shape presence and the experience of inhabiting digital space. Exhibited for six months in ArtCenter's REVEAL exhibition. |
| 2024 | Immersion Lab Resident Researcher - ArtCenter College of Design (with Jenny Rodenhouse)
Designed and ran a human-subject study of unconscious bodily responses during immersive learning; measured content-dependent micro-variations in hand pressure during on-screen reading. |
| 2024 | Design Researcher - ArtCenter College of Design (with Maxim Safioulline)
Investigated embodied human-AI interaction through a real-time generative AI installation; work published at ACM IMX 2025. |
| 2024 | External Research Collaborator - Data to Discovery (Caltech, NASA JPL & ArtCenter)
Collaborated on scientific data visualization for carbon-cycle science and climate-model exploration (CLOVE and CliMAScope); resulted in two IEEE VIS 2025 publications. |
| 2024 | Design Researcher - ArtCenter College of Design (with Elise Co)
Co-created <i>Spolia Lounge</i> , a physical installation examining digital materiality; on continuous display at ArtCenter since Summer 2024. |
| 2022 | Design Researcher - Samsung Card
Conducted UX research for the ID Platinum Card launch, informing product positioning and experience decisions for a service reaching 100K+ users. |

- 2021
- Student Researcher - IDAS & LG Home Entertainment**
Led Gen Z research for a new wellness brand using interviews, persona modeling, journey mapping, and service blueprinting; proposed the brand concept 'Petit a petit.'

PUBLICATIONS

- Pham, Hu, **Joo**, White, et al. (2025). Interactive Visual Analytics of Carbon Cycle Science. *IEEE VIS 2025*, 86-90. doi:10.1109/VIS60296.2025.00023
- Pham, Hu, **Joo**, White, et al. (2025). Visualizing Climate Model Outputs with CliMAScope. *IEEE VIS 2025*, 201-205. doi:10.1109/VIS60296.2025.00046
- Safioulaine, **Joo**, Kim (2025). Emanation and Extinction: Exploring the Possibilities of Real-Time Generative AI for Interactive Experiences. *ACM IMX 2025*, 424-429. doi:10.1145/3706370.3731640
- **Joo**, Kim, Park, Song, Chung (2021). Personalized Running Coaching Service Centered on the Running Process. *KSDS Conference Proceedings*, Seoul. (First author)

SKILLS & METHODS

Immersive Systems	Unity, C#, Meta SDK, Meta Quest 3, VR prototyping, interactive installations
Spatial / Embodied AI	First-person agent environments, Gaussian-splat worlds, semantic landmarks, spatial-memory and navigation prototyping
Research Methods	Human-subject study design, behavioral and physiological data collection, interviews, journey mapping, service blueprinting
Data & Visualization	Scientific data visualization, behavioral data processing and analysis
Design & Prototyping	Figma, Rhino, Grasshopper, Arduino, 3D modeling, physical prototyping
Languages	Korean (native), English (fluent)

AWARDS & HONORS

- 2025
- Graduate Fellow - ArtCenter College of Design**
Tuition-free additional term awarded to exceptional graduates; used to complete two IEEE VIS 2025 publications.
- 2023
- Korean Institute of Design Award - Winner**
- 2021
- Spark Design Awards - Winner**
- 2020
- Cultural Heritage Art Renewal Awards - Grand Prize**
- 2020
- International Design Awards (IDA) - Bronze**
- 2020
- Indigo Design Awards - Bronze**