GEONSUN LEE

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RESEARCH INTEREST

**Human-Computer Interaction, Computer-Supported Cooperative Work,
Virtual Reality, Augmented Reality, Mixed Reality, Social VR/XR, Human-Centered AI**

EDUCATION

University of Maryland   College Park, MD, USA
· **Ph.D. Candidate in Computer Science** *(Advisor: Dinesh Manocha)*   Sep 2020 - Present
·   (Expected Graduation May 2025)

Korea University   Seoul, South Korea
· **M.E. in Computer Science and Engineering** *(Advisor: JungHyun Han)*   Mar 2018 - Feb 2020
  Research Assistant Scholarship
· **Bachelor of Business Administration**   Mar 2014 - Feb 2018
  B.S in Computer Science and Engineering
  Graduated with Honors, Veritas Program Scholarship, Creative Challenger Scholarship

WORK EXPERIENCE

Dolby   Sunnyvale, CA, USA
ATG Imaging Research Intern (Mentor: **DaeYeol Lee**)   Jun 2023 - Aug 2023
· Devised a novel multi-modal attention guidance method to support turn-taking in social VR group conversations.
· Paper accepted at IEEE VR 2024.

Meta Reality Labs   Toronto, ON, Canada
Research Scientist Intern (Mentor: **Michael Glueck**, **Rorik Henrikson**)   Sep 2022 - Apr 2023
· Implemented interfaces tailored to collaborator needs for enhanced workspace-awareness in VR.

Adobe Research   *(Remote)* San Jose, CA, USA
Research Intern (Mentor: **Jennifer Healey**)   May 2022 - Aug 2022
· Worked on developing a novel interactive document viewer interface for multi-user VR Learning systems.
· Paper accepted at IEEE VR 2024.

Adobe Research   *(Remote)* San Jose, CA, USA
Research Intern (Mentor: **Jennifer Healey**)   May 2021 - Aug 2021
· Investigated and developed gaze-based interaction tools to enhance users' reading experience in VR.
· Paper accepted at ISMAR 2022.

PUBLICATIONS

[10] **Geonsun Lee**, Yuran Ding, Jun Nishida, Dinesh Manocha, Rueofei Du. "Interactive Integration of Presenters and Slides Using LLM/VLMs for Online Presentations", Under Submission, 2024.

[9] **Geonsun Lee**, Yue Yang, Jennifer Healey, Dinesh Manocha. "Augmenting Context-Aware Transcriptions for Re-Engaging in Immersive VR Meetings", Under Submission, 2024.

[8] **Geonsun Lee**, Dae Yeol Lee, Guan-ming Su, Dinesh Manocha. ""May I Speak?: Multi-modal Attention Guidance in Social VR Group Conversations", In *IEEE Transactions on Visualization and Computer Graphics (TVCG), IEEE, 2024.*

[7] **Geonsun Lee**, Jennifer Healey, Dinesh Manocha. "DocuBits: VR Document Decomposition for Procedural Task Completion", In *2024 IEEE Conference on Virtual Reality and 3D User Interfaces (VR).* IEEE, 2024.

[6] **Geonsun Lee**, Jennifer Healey, Dinesh Manocha. "VRDoc: Gaze-based Interactions for VR Reading Experience." In *2022 International Symposium on Mixed and Augmented Reality (ISMAR).* IEEE, 2022. [link]

[5] **<u>Geonsun Lee</u>**, HyeongYeop Kang, Jongmin Lee and JungHyun Han. "A User Study on View-sharing Techniques for One-to-Many Mixed Reality Collaborations." In *2020 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*. IEEE, 2020. [<u>link</u>] (***Best Conference Paper Nominee***)

[4] HyeongYeop Kang, **<u>Geonsun Lee</u>**, and JungHyun Han. "Obstacle Detection and Alert System for Smartphone AR Users." In *25th ACM Symposium on Virtual Reality Software and Technology*, p. 2. ACM, 2019. [<u>link</u>]

[3] HyeongYeop Kang, **<u>Geonsun Lee</u>**, and JungHyun Han. "Visual Manipulation for Underwater Drag Force Perception in Immersive Virtual Environments." In *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, pp. 38-46. IEEE, 2019. [<u>link</u>] (***Best Conference Paper Nominee***)

[2] HyeongYeop Kang, **<u>Geonsun Lee</u>**, Dae Seok Kang, Ohuna Kwon, Jun Yeup Cho, Ho-Jung Choi, and JungHyun Han. "Jumping Further: Forward Jumps in a Gravity-reduced Immersive Virtual Environment." In *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, pp. 699-707. IEEE, 2019. [<u>link</u>] (***Best Conference Paper Nominee***)

[1] HyeongYeop Kang, **<u>Geonsun Lee</u>**, Seongsu Kwon, Ohung Kwon, Seongpil Kim, and JungHyun Han. "Flotation Simulation in a Cable-driven Virtual Environment–A Study with Parasailing." In Proceedings of *the 2018 CHI Conference on Human Factors in Computing Systems*, p. 632. ACM, 2018. [<u>link</u>]

EXTENDED ABSTRACT

[1] HyeongYeop Kang, **<u>Geonsun Lee</u>**, and JungHyun Han. "SafeAR: AR Alert System Assisting Obstacle Avoidance for Pedestrians." In *2019 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)*, IEEE, 2019 (**Poster Presenter**)

RESEARCH EXPERIENCE

GAMMA Lab, University of Maryland College Park, MD, USA

Research Assistant (Advisor: **Dinesh Manocha**) Aug 2020 - Present

· Currently working on developing interactions to facilitate the social aspect of VR/MR. Ongoing projects include: Using Generative AI for avatar shader generation in social VR to enable expressive communications between VR users and creating a multi-user AR meeting system for context-aware meeting summaries using LLM.

· Developed a set of gaze-based interactions, using HTC Vive Pro Eye, alongside object manipulation methods and investigated its effect on users' reading performance, perception of system usability, and workload.

Interactive 3D Media Lab, Korea University Seoul, South Korea

Research Assistant (Advisor: **JungHyun Han**) Mar 2018 - Feb 2020

· [*Project: Tele-presence Interaction*]

· Built a Mixed Reality(MR) system, using Microsoft HoloLens and HTC Vive, that supports one-to-many collaboration with remotely located users and compared different view-sharing techniques to identify the method that most facilitate user instructions.

· Developed an Android application for detecting obstacles using Google AR Core and Unity to alert pedestrians playing AR games from dangerous situations.

· Created a pseudo-haptic VR system that creates natural underwater movement in VR, implemented virtual avatar movements based on the equation of drag force.

Undergraduate Researcher (Advisor: **JungHyun Han**) Apr 2017 - Feb 2018

· [*Project: Scaled Jump and Flying*]

· Investigated on human cognition manipulation in multi-modal virtual experience, collaborated with Korea Institute of Industrial Technology (KITECH) to develop user flotation simulation.

· Designed and conducted user studies to validate vertical visual gains that provides the most natural virtual parasailing experience.

TECHNICAL SKILLS

Programming   C/C++, C#, Python, HTML/CSS/JavaScript, Java
Software&Tools   Unity3D, Blender, Unreal, Maya, SPSS, LaTeX

HONOR & AWARDS

WiGRAPH's Rising Stars in Computer Graphics 2024	2024- 2025
Diversity Conference Scholarship (Grace Hopper Celebration), University of Maryland, College Park	Jun 2024
Dean's Fellowship, University of Maryland, College Park (USD 2,500)	Fall 2020
Best Conference Paper Nominee (IEEE VR 2020)	Mar 2020
Best Conference Paper Nominee (IEEE VR 2019) ×2	Mar 2019
Research Assistant Scholarship, Korea University (KRW 6,897,000)	Spring 2018
Veritas Program Scholarship, Korea University (KRW 1,000,000)	Fall 2017
Creative Challenger Scholarship, Korea University (KRW 1,500,000)	Fall 2016

SERVICE

Conference Peer Reviewer

· CHI(2025), SIGGRAPH(2024), IMX(2024), SIGGRAPH Asia(2023), CHI LBW(2022), IEEE VR(2021).

Student Volunteer

· ISMAR(2024), Pacific Graphics (2019, Head of Student Volunteer).

TEACHING EXPERIENCE

CMSC838C: Advances in XR — University of Maryland
Teaching Assistant for *Ming C. Lin* — Spring 2023, 2024

· Graduate level course for introduction to recent XR developements.

· Responsible for lecturing Unity programming with VR HMDs, and holding discussion sessions for students' research projects.

CMSC434: Introduction to Human-Computer Interaction — University of Maryland
Teaching Assistant for *Evan Golub* — Fall 2024, Fall 2020, Spring 2021

· Responsible for grading, holding discussion sessions for students' prototyping projects

COSE434: Game Programming — Korea University
Teaching Assistant for *Junghyun Han* — Fall 2019

· Tutored introductory level Unity programming and VR game developing.