

Kyunghwan Kim

PH.D. STUDENT @ SCHOOL OF COMPUTING, KAIST

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“ I connect **Humans** with **Computers** through novel **Input Devices** and **Physical Interaction** techniques!! ”

Education

Korea Advanced Institute of Science and Technology (KAIST)

Mar. 2023 ~ Present

Ph.D. in COMPUTER SCIENCE (SCHOOL OF COMPUTING)

(Mar. 2025 ~ Present)

M.S. in COMPUTER SCIENCE (SCHOOL OF COMPUTING)

(Mar. 2023 ~ Feb. 2025)

· M.S. Thesis: Virtual Rolling Temple (VRT): Expanding the Vertical Input Space of a Thin Smart Glasses Touchpad

Gwangju Institute of Science and Technology (GIST)

Mar. 2017 ~ Feb. 2023

B.S. in ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Minor in CULTURE TECHNOLOGY (CT), Integrated Minor in ECONOMICS and BUSINESS ADMINISTRATION

· B.S. Thesis: Analysis of the Effect of Vection Generated by Directional Optical Flow in the VR Redirected Walking Scenario

· 🏆 **Best B.S. Thesis Award (1st place)** | 🏆 Graduated **Cum Laude**

University of California, Berkeley

Summer 2018

2018 Summer Session Program in COMPUTER SCIENCE (CS61C) and STATISTICS (STAT20)

Research Experiences

Human Computer Interaction (HCI) Lab, KAIST

Mar. 2023 ~ Present

M.S. STUDENT & PH.D. STUDENT | Advisor: Prof. Geehyuk Lee

- Identifying the transfer gap of motor skills from real-world interaction to AR/VR, focusing on how input sensing and system feedback are constrained by technical and environmental limitations.
- Designing and prototyping interaction schemes that preserve and leverage users' existing motor skills under AR/VR-specific limitations.
- Validating the schemes and hardware prototypes through iterative hardware prototyping and user studies, aiming to enable fast, low-effort skill transfer in AR/VR.

Human-Centered Intelligent Systems (HCIS) Lab, GIST

May. 2021 ~ Dec. 2022

UNDERGRADUATE INTERN | Advisor: Prof. Seungjun Kim

- Visited MIT for on-site joint development of the sensor, as part of a GIST-MIT Joint Research Project on explainable AI services for drivers.
- Developed a VR experiment environment for the research on augmented sense at Redirected Walking. (Unity, Arduino, VIVE Pro Eye)
- Developed a 3D depth-based in-car AR environment that synchronizes to the movement of the car. (Unity, ZED Mini, Meta Quest 2)

Human-Centered Computer Systems (HCS) Lab, Seoul National University (SNU)

Winter 2022

UNDERGRADUATE INTERN | Advisor: Prof. Youngki Lee

- Built *UnityEagleEye*, an XR pipeline that overlays AI perception outputs on 360° VR video in Unity. (Unity, Meta Quest 2)

Computer Vision Lab, GIST

Summer 2017

UNDERGRADUATE INTERN | Advisor: Prof. Kin Choong Yow

- Assisted research on the implementation of Free Viewpoint TV via OpenCV.

Awards & Honors

RESEARCH & ACADEMIC

- 2025 **MSIT Minister's Award (Top 5/206 Teams)**, Team Geppetto, ICT Challenge 2025, Ministry of Science and ICT (MSIT) [LINK]
- 2024 **Outstanding TA of the Semester Award (Top 22/154 TAs)**, School of Computing, KAIST
- 2024 **Honorable Mention: Jury's Best Demo Recognition**, CHI 2024 Interactivity, ACM SIGCHI
- 2022 **Best B.S. Thesis Award (1st place)**, School of Electrical Engineering and Computer Science, GIST

PROFESSIONAL & EXTRACURRICULAR

- 2025 **Commendation for Excellence in Science & Technology Reserve Forces Training**, ROK Army Consolidated Logistics School
- 2021 **Honorable Mention (Video Category)**, The 6th KOSMA Student Competition, Korean Society of Media and Arts (KOSMA)
- 2019 **Distinguished Trainee Award (8th/1,560 Recruits)**, ROK Air Force Basic Military Training Wing

Publications

- [6] **Ball20: An In-Hand Near-Spherical 20-Sided Tangible Controller for Diverse Gesture Interaction in AR/VR**
Sunbum Kim, [Kyunghwan Kim](#), Changsung Lim, and Geehyuk Lee
CHI '25 LBW (Extended Abstracts) [LINK]
- [5] **Pro-Tact: Hierarchical Synthesis of Proprioception and Tactile Exploration for Eyes-Free Ray Pointing on Out-of-View VR Menus**
Yeonsu Kim, Jisu Yim, [Kyunghwan Kim](#), Yohan Yun, and Geehyuk Lee
UIST '24 [LINK]
- [4] **STButton: Exploring Opportunities for Buttons with Spatio-Temporal Tactile Output**
Yeonsu Kim, Jisu Yim, Jaehyun Kim, [Kyunghwan Kim](#), and Geehyuk Lee
CHI '24 Interactivity (Extended Abstracts) [LINK]
🏆 **Honorable Mention:** Jury's Best Demo Recognition
- [3] **Evaluation of visual, auditory, and olfactory stimulus-based attractors for intermittent reorientation in virtual reality locomotion**
Jieun Lee, Seokhyun Hwang, [Kyunghwan Kim](#), and SeungJun Kim
Springer Virtual Reality '24 [LINK]
- [2] **Virtual Rolling Temple: Expanding the Vertical Input Space of a Smart Glasses Touchpad**
[Kyunghwan Kim](#), and Geehyuk Lee
UIST '23 Demo (Adjunct) [LINK]
- [1] **Auditory and Olfactory Stimuli-Based Attractors to Induce Reorientation in Virtual Reality Forward Redirected Walking**
Jieun Lee, Seokhyun Hwang, [Kyunghwan Kim](#), and SeungJun Kim
CHI '22 LBW (Extended Abstracts) [LINK]

Patents

- [3] **System for Providing Interaction (Spatiotemporal Tactile-Output Button for Feedforward and Feedback)**
Geehyuk Lee, Yeonsu Kim, Jisu Yim, Jaehyun Kim, and [Kyunghwan Kim](#)
KR 10-2024-0176351, Application Date: 02 Dec. 2024
- [2] **Utilizing the Think-aloud Protocol and Generative AI Models to Identify Problematic Moments in Lengthy Recordings of XR User Study**
Geehyuk Lee, Sunbum Kim, and [Kyunghwan Kim](#)
KR 10-2024-0030536, Application Date: 04 Mar. 2024
- [1] **Method and Device for Enabling 2D Input Using Linear Touch Sensor and Laser Speckle Sensor**
Geehyuk Lee, and [Kyunghwan Kim](#)
KR 10-2024-0006763, Application Date: 16 Jan. 2024

Academic Services

Student Volunteer **UIST '25**
 ISMAR '25
 SIGCHI Korea Local Chapter '25

Skills

Extended Reality	Unity & C# (with Meta Quest 2, VIVE Pro Eye, HoloLens 2, ZED Mini, Mixed Reality Toolkit, and OpenXR)
Programming	C, Arduino , Python (+ Tensorflow, Pytorch), JavaScript, VBS
Design & Prototyping	Adobe: Premiere, Photoshop , Illustrator Autodesk: Fusion 360, Eagle , Sketchbook
Linguistic	Native: Korean Fluent: English (TOEIC 970/990 (April 2022), New TEPS 448/600 (May 2022))

Teaching Experiences

Wearable User Interface (CS486), KAIST

Spring 2024

TEACHING ASSISTANT

- Organized hands-on practice sessions on Arduino physical user interfaces and provided comments on class team projects for CHI LBW.
- 🏆 **Outstanding TA of the Semester Award** (Top 22/154 TAs)

Introduction to System Programming (CS230), KAIST

Spring 2023 and Spring 2025

TEACHING ASSISTANT

- Coordinated the course project on building a simple machine language compiler.

Computer Programming (GS1401), GIST

Spring 2018 and Spring 2022

TEACHING ASSISTANT

- Assisted weekly lab sessions, supported lecture Q&A, and developed practice questions across two semesters (85 and 108 students)

Open GIST Science Lab, GIST

Jul. 2017

SESSION ASSISTANT

- Assisted local high school students' Raspberry Pi experiments in a social contribution event of GIST.

Extracurricular Activities

Daedeok Toastmasters: International Association to Develop Public Speaking Skills

Jul. 2023 ~ Present

VICE PRESIDENT OF EDUCATION

(Sep. 2023 ~ Mar. 2024)

- Provided feedback on public speeches and managed members' *Pathway* progress, along with club materials design.

EAT (English Adventure Time): GIST English Conversation Club

Dec. 2020 ~ Dec. 2022

PRESIDENT, MENTORING & FEEDBACK MANAGER | Advisor: Prof. Ellis Lee, Prof. John Wills

- Provided counsel for student hosts of each session about conversational skills and overall speech management.
- Planned and designed various club activities and help-out materials in collaboration with the professors.

GDSC (Google Developer Student Clubs) GIST

Oct. 2021 ~ Jul. 2022

CORE TEAM: RESEARCH & DEVELOPMENT DIVISION

- Planned and managed the club's technical roadmap, co-led the AI/ML division, and maintained the club website.
- Hosted a 'CV Yourself With Overleaf' session for college students, delivering core CV concepts and guidance to draft CVs with a template.

G.OnNaRae: GIST Student Ambassador

Sep. 2017 ~ Dec. 2018

FOREIGN GUEST PROTOCOL MANAGER, WEB CONTENTS DESIGNER, AND OFFICIAL BLOG MANAGER

- Provided on-site protocol support for international/VIP visitors, conducting guided tours and assisting scheduled visits.
- Planned and ran various on/offline promotional events, and designed SNS content for the school's branding and communication.

GIST Toastmasters: International Association to Develop Public Speaking Skills

Sep. 2017 ~ Dec. 2018

VICE PRESIDENT OF IT AND DESIGN

- Supported club operations and member development by delivering regular speech evaluations and constructive feedback.
- Designed and established foundational club materials and homepage, including branding assets, templates, and event materials.

My Little GIST: GIST Infinite Challenge Project

May. 2017 ~ Jan. 2018

TEAM LEADER, EXECUTIVE PRODUCER, AND VIDEO EDITOR

- Produced 10 video clips ranging from daily campus life to short films, receiving positive feedback from the campus community.

Scholarships & Fundings

Government Funded Scholarship for KAIST Graduate Students

Spring 2023 ~ Present

KAIST

KRW 8,800,000 (USD 6,500) per semester

Funding for Student Projects on Enhancing the UX of Productivity Tools in AR

Jul. 2024 ~ Dec. 2024

KAIST SPACETOP RESEARCH CENTER

KRW 7,000,000 (USD 5,200) in total

Government Funded Scholarship for GIST Undergraduate Students

Spring 2017 ~ Fall 2022

GIST COLLEGE

KRW 3,400,000 (USD 2,500) per semester

Scholarship for High Academic Achievement

Fall 2017 and Spring 2021

GIST COLLEGE

KRW 720,000 (USD 540) per semester

Funding for Summer Session Program at UC Berkeley

Summer 2018

GIST COLLEGE (More details in the Education section)

KRW 8,000,000 (USD 6,000) in total

Funding for GIST Infinite Challenge Project

May. 2017 ~ Jan. 2018

GIST COLLEGE (More details in the Extracurricular Activities section)

KRW 7,000,000 (USD 5,200) in total

Military Service

Republic of Korea Air Force (ROKAF) – Obligation Fulfilled

Jan. 2019 ~ Nov. 2020

AIR FORCE OPERATIONS COMMAND (AFOC) S&S GROUP, GROUND TRANSPORT MANAGEMENT TEAM

- Automated vehicle managerial workflow with HanCell VBA (similar to Excel VBS) scripting.
- 🏆 *Distinguished Trainee Award* (8th/1,560 Recruits)