

Kyunghwan Kim

MASTER'S STUDENT @ SCHOOL OF COMPUTING, KAIST

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

Education

Korea Advanced Institute of Science and Technology (KAIST)

Mar. 2023 ~ Present

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

Daejeon, Republic of Korea

· Human Computer Interaction Lab (HCIL) | Advisor: Prof. Geehyuk Lee

Gwangju Institute of Science and Technology (GIST)

Mar. 2017 ~ Feb. 2023

B.S. in ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Gwangju, Republic of Korea

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

- Human-Centered Intelligent Systems (HCIS) Lab | Advisor: Prof. Seungjun Kim
- 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)

Berkeley, CA, USA

Research Experiences

Human Computer Interaction Lab (HCIL), KAIST

Mar. 2023 ~ Present

M.S. STUDENT | Advisor: Prof. Geehyuk Lee

Daejeon, Republic of Korea

- Leading the 'Virtual Rolling Temple (VRT)' project, expanding the limited vertical on-device touch input space on narrow temples of smart glasses. Please refer to the Publications and Patents sections for more projects I have been involved in.

Human-Centered Intelligent Systems (HCIS) Lab, GIST

May. 2021 ~ Dec. 2022

UNDERGRADUATE INTERN | Advisor: Prof. Seungjun Kim

Gwangju, Republic of Korea

- 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, Oculus Quest 2)
- Assisted research on Contextual Visibility of Public Signage.

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

Winter 2022

UNDERGRADUATE INTERN | Advisor: Prof. Youngki Lee

Seoul, Republic of Korea

- Conducted research on designing Human-AI Interaction (HAI) and User Interface (UI) in an XR environment. (Unity, Oculus Quest 2)

Computer Vision Lab, GIST

Summer 2017

UNDERGRADUATE INTERN | Advisor: Prof. Kin Choong Yow

Gwangju, Republic of Korea

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

Publications

- [5] **Pro-Tact: Hierarchical Synthesis of Proprioception and Tactile Exploration for Eyes-Free Ray Pointing on Out-of-View VR Menu**
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] **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
- [2] **Button System Providing Spatiotemporal Tactile Output for Feedforward and Feedback**
 Geehyuk Lee, Yeonsu Kim, Jisu Yim, Jaehyun Kim, and Kyunghwan Kim
KR 10-2024-0012988, Application Date: 29 Jan. 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

Teaching Experiences

Wearable User Interface (CS486), KAIST

Spring 2024

TEACHING ASSISTANT

- Organized hands-on practice sessions on Arduino physical user interfaces and provided general comments on class team projects.
- 🏆 **Outstanding TA of the Semester Award** (22 out of 154 TAs selected)

Introduction to System Programming (CS230), KAIST

Spring 2023

TEACHING ASSISTANT

- Coordinated overall project on building a simple machine language compiler.

Computer Programming (GS1401), GIST

Spring 2018 and Spring 2022

TEACHING ASSISTANT

- Assisted weekly lab sessions and made a few practice questions for the lectures of 85 and 108 students in total, respectively.

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 speeches at the meeting and managed members' *Pathway* progress along with designing club materials.

EAT (English Adventure Time): GIST English Conversation Club

Dec. 2020 ~ Dec. 2022

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

- Provided counsel for student hosts of each session about conversational skills and overall session management.
- Planned and designed various club help-out materials and the recruiting process, in company with the professors.

GDSC (Google Developer Student Clubs) GIST

Oct. 2021 ~ Jul. 2022

CORE TEAM: RESEARCH & DEVELOPMENT DIVISION

- Managed & planned the overall technical progress and the homepage of the club, as well as its AI/ML department.
- Hosted a 'CV Yourself With OverLeaf' session for college students, so that they can learn about and make their own CVs with a template.

G.OnNaRae: GIST Student Ambassador

Sep. 2017 ~ Dec. 2018

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

- Had exclusive responsibility for foreign tasks and foreign guest protocol.
- Planned and implemented various designs of SNS contents and on/offline events to promote GIST.

GIST Toastmasters: International Association to Develop Public Speaking Skills

Sep. 2017 ~ Dec. 2018

VICE PRESIDENT OF IT AND DESIGN

- Took general care of the club as vice president, along with designing club material and managing the club homepage.

My Little GIST: GIST Infinite Challenge Project

May. 2017 ~ Jan. 2018

TEAM LEADER, EXECUTIVE PRODUCER, AND VIDEO EDITOR

- Produced 10 short video clips that can closely relate to the daily lives of people in GIST, and got favorable reactions.

Skills

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

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 Abroad (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

Coursera Certificates

User Interface Design	· Introduction to UI Design · Human-Centered Design: an Introduction
Extended Reality for Everybody	· User Experience & Interaction Design for AR/VR/MR/XR · Developing AR/VR/MR/XR Apps with WebXR, Unity & Unreal
DeepLearning.AI Professional	· Natural Language Processing in TensorFlow

Military Service

Republic of Korea Air Force (*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.