

# 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

- Began a new journey as an M.S. student!

### 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 discussion and sensor development, as a GIST-MIT Joint Research Team 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

### [3] STButton: Exploring Opportunities for Buttons with Spatio-Temporal Tactile Output

Yeonsu Kim, Jisu Yim, Jaehyun Kim, **Kyunghwan Kim** and Geehyuk Lee  
CHI '24 Interactivity (Demo)

### [2] Virtual Rolling Temple: Expanding the Vertical Input Space of a Smart Glasses Touchpad

**Kyunghwan Kim** and Geehyuk Lee  
UIST '23 Adjunct (Demo) [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 Extended Abstracts (LBW) [LINK]

## Patents

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- [3] **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
- [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 10-2023-0158729, Application Date: 16 Nov. 2023
- [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

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### Wearable User Interface (CS486), KAIST

TEACHING ASSISTANT

Spring 2024

Daejeon, Republic of Korea

- Assisted hands-on practice sessions on Arduino physical user interfaces and provided general comments on class team projects.

### Introduction to System Programming (CS230), KAIST

TEACHING ASSISTANT

Spring 2023

Daejeon, Republic of Korea

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

### Computer Programming (GS1401), GIST

TEACHING ASSISTANT

Spring 2018 and Spring 2022

Gwangju, Republic of Korea

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

### Open GIST Science Lab, GIST

SESSION ASSISTANT

Jul. 2017

Gwangju, Republic of Korea

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

## Extracurricular Activities

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### Daedeok Toastmasters: International Association to Develop Public Speaking Skills

Jul. 2023 ~ Present

VICE PRESIDENT OF EDUCATION

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

### 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.

### 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.

### 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

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<b>Extended Reality</b>	<b>Unity</b> & C# (with SteamVR, VIVE Pro Eye, Oculus Quest 2, and ZED Mini)
<b>Programming</b>	<b>C, Arduino</b> , Python (with Tensorflow and Pytorch), VBS, Java
<b>Design &amp; Media</b>	Adobe: <b>Premiere, Photoshop</b> , Illustrator   Autodesk: <b>123D</b> , Sketchbook
<b>Linguistic</b>	Native: <b>Korean</b>   Fluent: <b>English</b> (TOEIC 970/990 (April 2022), <b>New TEPS 448/600</b> (May 2022))

## Scholarships & Fundings

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<b>Government Funded Scholarship for KAIST Graduate Students</b> KAIST	<i>Spring 2023 ~ Present</i>
<b>Government Funded Scholarship for GIST Undergraduate Students</b> GIST COLLEGE	<i>Spring 2017 ~ Fall 2022</i>
<b>Funding for Business Trip to Massachusetts Institute of Technology (MIT)</b> GIST INSTITUTE OF INTEGRATED TECHNOLOGY (As Part of the GIST-MIT Joint Research Program)	<i>Jul. 2022</i>
<b>GIST Scholarship for High Academic Achievement</b> GIST COLLEGE	<i>Fall 2017 and Spring 2021</i>
<b>GIST Scholarship for Summer Session Program Abroad</b> GIST COLLEGE (More details in the Education section)	<i>Summer 2018</i>
<b>GIST Scholarship for GIST Infinite Challenge Project</b> GIST COLLEGE (More details in the Extracurricular Activities section)	<i>May. 2017 ~ Jan. 2018</i>

## Coursera Certificates

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<b>User Interface Design</b>	<ul style="list-style-type: none"><li>· Introduction to UI Design</li><li>· Human-Centered Design: an Introduction</li></ul>
<b>Extended Reality for Everybody</b>	<ul style="list-style-type: none"><li>· User Experience &amp; Interaction Design for AR/VR/MR/XR</li><li>· Developing AR/VR/MR/XR Apps with WebXR, Unity &amp; Unreal</li></ul>
<b>DeepLearning.AI Professional</b>	<ul style="list-style-type: none"><li>· Natural Language Processing in TensorFlow</li></ul>

## Military Service

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<b>Republic of Korea Air Force (Obligation Fulfilled)</b> AIR FORCE OPERATIONS COMMAND (AFOC) S&S GROUP, GROUND TRANSPORT MANAGEMENT TEAM	<i>Jan. 2019 ~ Nov. 2020</i>
<ul style="list-style-type: none"><li>· Automated vehicle managerial workflow with HanCell VBA (similar to Excel VBS) scripting.</li></ul>	