Taewan Kim

김태완 - HCI Researcher | PhD Candidate at KAIST

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About
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I am a Human-Computer Interaction (HCI) researcher with an industrial design background. Currently, I am researching **User-centered Human-AI Interaction** at KAIST. Drawing on strengths in Mixed Methods Research and Human-Centered Design, I develop research artifacts, interactions, and methodologies that benefit both researchers and practitioners. During my doctoral program, I conducted research **exploring new opportunities and possibilities offered by AI technology** in the healthcare domain. Recently, I have been conducting research on the use of **Large Language Models (LLM)** technology to enhance mental well-being.

Specialty
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- **Human-AI interaction design**
- HCI/UX Research & Planning
- Mental and Physical Wellbeing & Healthcare
- Rapid Prototyping & Evaluation
- Mixed Method Research (Qualitative x Quantitative)
- Research paper writing and communication

Skills & Tools
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- LLM-based Feature Pipeline Design: OpenAI- GPT, NAVER-HyperCLOVA
- Development: React.js, ReactNative, Tailwind CSS, FastAPI, Firebase, HTML&CSS
- Qualitative/Quantitative Analysis: Prism, SPSS, R, ATLAS.ti
- UX/UI Design & Prototyping: Adobe suite, Sketch, Figma, Framer, 3D Modeling (SIEMENS NX, Rhino), Arduino

Experience
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● **NAVER AI LAB - HCI TF**

PhD Research Intern | Jan 2023 - Jul 2023 | Mentor: Dr. Young-Ho Kim

Conducted HCI x LLM research projects
- Developed and prototyped **LLM-based** conversation pipelines (HyperCLOVA, GPT-4)
- First-authored paper has been accepted to CHI 2024 (Preprint)

Education
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● **KAIST**

Ph.D. | Industrial Design, *specializing in Human-Computer Interaction* | Sep 2021 - Feb 2024

Research field: Human-computer Interaction · Human-AI Interaction · Large language model (LLM) · Healthcare & Well-being · Positive computing
Advisor: Prof. Hwajung Hong

● **Seoul National University**

Ph.D. (All but dissertation) | Cognitive Science, *specializing in Human-Computer Interaction* | Sep 2018 - Aug 2021

Advisor: Prof. Hwajung Hong (*Transferred to KAIST due to adviser's move. Finished coursework)

● **UNIST**

M.E. | Creative Design Engineering | Mar 2016 - Feb 2018

● **Handong University**

B.S. | Product Design | Mar 2011 - Feb 2016

Journal Articles / Conference Papers (Peer-Reviewed)

MindfulDiary: Harnessing Large Language Model to Support Psychiatric Patients' Journaling
Taewan Kim, Seolyeong Bae, Hyun AH Kim, Su-woo Lee, Hwajung Hong, Chanmo Yang, Young-Ho Kim
ACM CHI 2024 (Cond. accept) - Preprint

DiaryMate: Understanding User Perceptions and Experience in Human-AI Collaboration for Personal Journaling
Taewan Kim, Donghoon Shin, Young-Ho Kim, and Hwajung Hong
ACM CHI 2024 (Cond. accept) - Preprint

Promoting Self-Efficacy of Individuals with Autism in Practicing Social Skills in the Workplace Using Virtual Reality and Physiological Sensors: A Feasibility Study
Sung-In Kim, So-youn Jang, **Taewan Kim**, Bogoan Kim, Dayoung Jeong, Taehyung Noh, Mingon Jeong, Kaely Hall, Meelim Kim, Hee Jeong Yoo, Kyungsik Han, Hwajung Hong, Jennifer G. Kim
JMIR Formative Research 2023 - DOI

Prediction for Retrospection: Integrating Algorithmic Stress Prediction into Personal Informatics Systems for College Students' Mental Health
Taewan Kim, Haesoo Kim, Hayeon Lee, Hwarang Goh, Shakhboz Abdigapporov, Mingon Jeong, Hyunsung Cho, Kyungsik Han, Youngtae Noh, Sung-Ju Lee and Hwajung Hong
ACM CHI 2022 - DOI, PDF

Sad or just jealous? Using Experience Sampling to Understand and Detect Negative Affective Experiences on Instagram
Mintra Ruensuk, **Taewan Kim**, Hwajung Hong, and Ian Oakley
ACM CHI 2022 - DOI, PDF

The Workplace Playbook VR: Exploring the Design Space of Virtual Reality to Foster Understanding and Support of Autistic People in the Workplace
Jennifer G. Kim, **Taewan Kim**, Sungin Kim, Soyeon Jang, Stephanie Lee, Heejung Yoo, Kyungsik Han, and Hwajung Hong
ACM CSCW 2022 - DOI, PDF

VISTA: Understanding Characteristics of Autistic People through a VR-based Interactive Social Skills Training System
Bogoan Kim, Dayoung Jeong, Mingon Jeong, Taehyung Noh, Sung-In Kim, **Taewan Kim**, So-youn Jang, Hee Jeong Yoo, Jennifer G Kim, Hwajung Hong, and Kyungsik Han
ACM VRST 2022 - DOI, PDF

Understanding University Students' Experiences, Perceptions, and Attitudes Toward Peers Displaying Mental Health-related Problems on Social Network Sites: Online Survey and Interview Study
Taewan Kim, and Hwajung Hong
JMIR Mental Health 2021 - DOI, PDF

In Helping a Vulnerable Bot, You Help Yourself: Designing a Social Bot as a Care-Receiver to Promote Mental Health and Reduce Stigma
Taewan Kim, Mintra Ruensuk, and Hwajung Hong
ACM CHI 2020 - DOI, PDF

Design Constraints and Their Influence upon Design Outcome
Taewan Kim, James Andrew Self, and Hwajung Hong
Archives of Design Research 2018 - DOI, PDF

Extended Abstracts, Position Paper, Poster (Lightly Peer-Reviewed)

DiaryMate: Exploring the Roles of Large Language Models in Facilitating AI-mediated Journaling
Taewan Kim, Donghoon Shin, Young-Ho Kim, and Hwajung Hong
ACM CHI 2023 Workshop on Intelligent and Interactive Writing Assistants(In2Writing) - PDF

Designing a Personalized Stress Management System for Call Center Workers
Kwangyoung Lee, Hyunseung Lim, Sooyeon Ahn, **Taewan Kim**, and Hwajung Hong
IEEE 2023 International Conference on Big Data and Smart Computing (BIGCOMP) - DOI

Leveraging challenges of an algorithm-based symptom checker on user trust through explainable AI
Youjin Hwang, **Taewan Kim**, Junhan Kim, Joonhwan Lee, and Hwajung Hong
ACM CHI 2021 Workshop on Realizing AI in Healthcare: Challenges Appearing in the Wild - PDF

An exploratory study on the algorithm user experience of a symptom checker application for self-diagnosis
Taewan Kim, Youjin Hwang, Junhan Kim, Joonhwan Lee, and Hwajung Hong
The Proceedings of HCI KOREA 2021 - PDF

Studying Students Experiencing Mental Health Problems
Taewan Kim, and Hwajung Hong
CSCW 2018 Workshop on Conducting Research with Stigmatized Populations - PDF

Calm Station: An Interactive Perpetual Desk Object that Reduces Digital Distractions
Taewan Kim, Young-Woo Park, and Hwajung Hong
ACM DIS 2017 DEMO - DOI, PDF, Video

FamCom: A Communication Service Enhancing Conversation Quality Between Elders Residing in Care Hospital and Their Family Member
Mingu Kanng, **Taewan Kim**, Youngjae Kim, and Junghwan Ahn
ACM CHI 2015 Student Design Competition - DOI, PDF, Video

Patents

COMPUTER SYSTEMS FOR INTELLIGENT STRESS PREDICTION AND MANAGEMENT BASED ON SMARTPHONE DATA, AND METHOD OF THE SAME
Patent application (US: 18101359, Korea: 10-2022-0033731)

Research Project

Jan 2023 – Present

● **MindfulDiary - LLM-based Journaling System for Enhancing Mental Well-being**

Partner: NAVER AI LAB · Department of Psychiatry at Wonkwang University Hospital · KAIST DxD LAB

- **Development of a LLM-based Self-Reflection Support Program for Mental Health Enhancement**
- Developed LLM chatbot guidelines based on domain expertise in collaboration with the medical staff of the Department of Mental Health Medicine at Wonkwang University Hospital
- Development of a GPT-4 based LLM conversation pipeline, features and a mobile application operating on React and a Python-based server
- Conducted a 28-day field study evaluation and analysis with 50 patients with depression

My role: Project Lead (First author of research paper) · UX research design and analysis · UI design, Patient Front-end development · LLM Pipeline design and API development
Full paper (CHI 2024) · Video: Youtube

Jan 2023 – Dec 2023

● **DiaryMate - Research on Collaborative Human-LLM Interaction in Personal Writing**

Partner: NAVER AI LAB · University of Washington · KAIST DxD LAB

- Exploration of interaction, user experience, and perception between LLM and users in a personal and subjective context
- Development and evaluation of an LLM-based prototype using Technology Probe (Hyper CLOVA)
- Conducted a 10-day field study evaluation and analysis with 24 potential users

My role: Project Lead (First author of research paper) · Research Design · UI/UX Design
Full paper (CHI 2024), Extended Abstract (ACM CHI 2023 Workshop on Intelligent and Interactive Writing)
System Video: Youtube

Apr 2023
– Present

● **AQUA – LLM-based Q&A System for Domain Expert Knowledge**

Partner: LG AI Research · KAIST KIX LAB · KAIST DxD LAB

- **Development of an LLM-based Q&A platform** enabling authors to introduce domain-specific literature content to both the general public and experts
- Conducted UX research with potential users related to QA Interaction and expert knowledge delivery
- UI/UX design and prototype development
- Development of GPT-4, Lucy-based LLM features, and a web application operating on React and a Python-based server
- Conducted evaluations in a lab setting with 12 domain experts

My role: Participating Researcher · Interface and Interaction Design · Design and API development of LLM Pipeline for question and answer generation

Feb 2020
– Mar 2022

● **MindScope – Stress Prediction and Explainability (XAI)**

Partner: KAIST DxD LAB · KAIST IC LAB · KAIST NMSL LAB · Hanyang Univ. HCI LAB

- Development of a stress understanding and management program based on the concept of Explainable Artificial Intelligence (XAI) and algorithmic approach
- Design of human-AI interaction enabling collaborative stress understanding and management between users and AI
- Conducted a 25-day field study evaluation and analysis with 36 potential users

My role: Project Lead (First author of research paper) · Research Design · UI/UX Design · User Study Design
Full Paper (ACM CHI 2022) · Patent applications in USA and Korea

Feb 2020
– Mar 2023

● **Workplace Playbook VR – Research on Developing a VR Program for Enhancing Job-related Social Skills in ASD Adolescents**

Partner: SNU Bundang Hospital · Georgia Tech · KAIST DxD LAB · Hanyang Univ. HCI LAB

- Development of a VR training program aimed at improving job-related social skills in ASD (Autism Spectrum Disorder) adolescents
- Program developed with the goal of helping users understand their own behavior and autonomously and proactively improve it

My role: Participating Researcher · Interface and Interaction Design · Data Analysis and Research Documentation
Full Paper_1 (ACM VRST 2022) , Full Paper_2 (ACM CSCW 2022)

Feb 2019
– Mar 2020

● **Gloomy – Research on Online Social Bot Acting as a Care Receiver**

Partner: SNU DxD LAB, UNIST Interaction LAB

- Development and evaluation of an interaction where users actively support the Bot, rather than passively receiving mental health support, based on cognitive behavioral therapy techniques, enhancing their mental health management skills
- Conducted a 21-day field study evaluation and analysis with 55 college students

My role: Project Lead (First author of research paper) · Research Design and Execution · Research Documentation
Full paper (ACM CHI 2020)

May 2017
– May 2018

● **CalmStation – Research on an Interactive Perpetual Desk Object to Mitigate Digital Distraction**

Graduate coursework project (UNIST)

- Design and engineering of an interactive desk object, CalmStation, and evaluation of its effectiveness
- CalmStation connects via Bluetooth to the smartphone's alarm system and represents smartphone alarms with four different types of bead movements, depending on the type of alarm.

My role: Project Lead (First author of research paper) · Research Design and Execution · Development and Production of the Product and Interaction · Research Documentation
Extended Abstract (ACM DIS 2017), Video (Youtube)

Talks & Panals

Korean Neuropsychiatric Association Jeonbuk Branch
MindfulDiary: Harnessing Large Language Model to Support Psychiatric Patients' Journaling | Feb 2024

HAI LAB at Seoul National University of Science and Technology
Design for Mental Wellbeing: Exploring the Role of Artificial Intelligence for Self-reflection | Jul 2023

NAVER UX Designer Workshop
Exploring Opportunities for Generative AI for Mental Wellbeing | Jun 2023

NAVER Tech Talk
Exploring the Role of Large Language Models in Retrospective Writing | Jan 2023

Teaching

Course on Developing Practical Computing Skills in Collaboration with Hana Bank | KAIST
Topics included Introduction to UI/UX, Prototyping, and Usability Evaluation | May 2, 2022 - May 27, 2022

Undergraduate Teaching Assistant | KAIST
CS492(36.492): Smart Health: Data-Driven Service Design for Health and Wellbeing | Sep 2022 - Dec 2022

Undergraduate Teaching Assistant | Seoul National University
2114.409 Creative Research Practice | Sep 2019 - Dec 2022

Media

Can AI empower college students to be their own health agent?
KAIST BREAKTHROUGHS (Research Webzine of the KAIST College of Engineering)
Fall 2022 Vol. 19 (Link)

Academic Services

Peer Reviewing
ACM CHI 2023, 2024 Paper and LBW
ACM TEI 2018 Paper
Archives of Design Research (ADR) 2022, 2023 Paper
IASDR 2021 Paper