

Taewan Kim PhD Candidate

Department of Industrial Design, KAIST

Bldg. N25, 291 Daehak-ro, Yuseong-gu, Daejeon 34141, Republic of Korea

taewan@kaist.ac.kr | <https://taewankim.io>

Research Interests

As a researcher in **Human-Computer Interaction (HCI)** with a design background, I explore **human-centered AI interaction** design grounded on an in-depth understanding of people. Specifically, I focus on designing AI systems to support peoples' mental well-being. My research approach 1) designs a research artifact that enables exploration of human-AI interaction (HAI) design opportunities and 2) extracts empirical findings through in-the-wild study that enables an understanding of systems' impacts on people's behavior and cognition. I have presented my works at major conferences in the HCI field, including **ACM CHI, CSCW**, and **DIS**.

I investigated exploiting prediction algorithms and explainability that facilitate self-reflection for mental well-being (Accepted to the ACM CHI 2022 conference). Currently, my research focuses on exploring the role of **Large Language Models (LLM)** in fostering reflective behaviors among individuals. I am particularly interested in how LLM can be leveraged to support self-reflection and mental well-being.

Based on my strength in **mixed-method research** and **human-centered design**, I create artifacts, methodologies, and frameworks. My goal is to inspire meaningful and positive algorithmic experiences for HCI researchers and practitioners.

Keywords: Human-computer Interaction, User Experience Research, Human-centered Design, Human-AI interaction, Mental Well-being, Mental health, VR/AR, Autism, Social Computing,

Education

Sep. 2021 - 2023 (EST)	KAIST , Department of Industrial Design Ph.D. student <i>Adviser:</i> Prof. Hwajung Hong
Sep. 2018 - Aug. 2021	Seoul National University , Interdisciplinary Program in Cognitive Science Ph.D. Candidate (*Transferred to KAIST) <i>Adviser:</i> Prof. Hwajung Hong
Mar. 2016 - Feb. 2018	Ulsan National Institute of Science and Technology , School of Creative Design Engineering M.E. in Creative Design Engineering Dissertation: Helping Friends Suffering Mental Health Issues: Challenges and Opportunities for Social support on Social Media from the Peer's Point of View <i>Adviser:</i> Prof. Hwajung Hong
Sep. 2011 - Feb. 2016	Handong University , Department of Industrial Design B.S in Product Design (Cum laude)

Work Experience

Jan. 2023 - current	Research Intern at NAVER AI Lab (with Dr. Young-Ho Kim) Investigating the Efficacy of LLM-based Prompt Generation to Enhance Daily Reflection in Individuals with Depression
---------------------	--

Publications

Conference papers /

Journal articles

Taewan Kim, Haesoo Kim, Hayeon Lee, Hwarang Goh, Shakhboz Abdigapporov, Mingon Jeong, Hyunsung Cho, Kyungsik Han, Youngtae Noh, Sung-Ju Lee and Hwajung Hong. "Prediction for Retrospection: Integrating Algorithmic Stress Prediction into Personal Informatics Systems for College Students' Mental Health" *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems*. 2022.

Mintra Ruensuk, **Taewan Kim**, Hwajung Hong, and Ian Oakley. "Sad or just jealous? Using Experience Sampling to Understand and Detect Negative Affective Experiences on Instagram" *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems*. 2022.

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

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. "VISTA: Understanding Characteristics of Autistic People through a VR-based Interactive Social Skills Training System" *Proceedings of the ACM VRST 2022*

Taewan Kim, and Hwajung Hong. "Understanding University Students' Experiences, Perceptions, and Attitudes Toward Peers Displaying Mental Health-related Problems on Social Network Sites: Online Survey and Interview Study" *Journal of Medical Internet Research - Mental Health* 2021

Taewan Kim, Mintra Ruensuk, and Hwajung Hong. "In Helping a Vulnerable Bot, You Help Yourself: Designing a Social Bot as a Care-Receiver to Promote Mental Health and Reduce Stigma." *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. 2020.

Taewan Kim, James A. Self, and Hwajung Hong. "Design Constraints and Their Influence upon Design Outcome." *Archives of Design Research* 31.4 2018: 23-41.

Poster / Workshop

Taewan Kim, Donghoon Shin, Young-Ho Kim, and Hwajung Hong. "DiaryMate: Exploring the Roles of Large Language Models in Facilitating AI-mediated Journaling" *ACM CHI2023 Workshop on Intelligent and Interactive Writing Assistants(In2Writing)*. 2023

Youjin Hwang, **Taewan Kim**, Junhan Kim, Joonhwan Lee, and Hwajung Hong. "Leveraging challenges of an algorithm-based symptom checker on user trust through explainable AI" *ACM CHI2021 Workshop on Realizing AI in Healthcare: Challenges Appearing in the Wild*. 2021

Taewan Kim, Youjin Hwang, Junhan Kim, Joonhwan Lee, and Hwajung Hong. "질병의 자가 진단을 위한 알고리즘 기반 증상 확인 애플리케이션의 사용자 경험에 관한 탐색적 연구 (An exploratory study on the algorithm user experience of a symptom checker application for self-diagnosis)" *The Proceedings of HCI KOREA 2021*.

Taewan Kim, and Hwajung Hong. "Studying Students Experiencing Mental Health Problems" *ACM CSCW 2018 Workshop on Conducting Research with Stigmatized Populations*. 2018

Taewan Kim, Young-Woo Park, and Hwajung Hong. "Calm Station: An Interactive Perpetual Desk Object that Reduces Digital Distractions." *Proceedings of the 2017 ACM Conference Companion Publication on Designing Interactive Systems (DIS)*. 2017.

Mingu Kang, **Taewan Kim**, Youngjae Kim, and Junghwan Ahn. "FamCom: A Communication Service Enhancing Conversation Quality Between Elders Residing in Care Hospital and Their Family Member." *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems (CHI)*. 2015.

Research Project

Jan. 2023 - current **Research Intern** | NAVER AI Lab

Title: **Investigating the Efficacy of LLM-based Prompt Generation to Enhance Daily Reflection in Individuals with Depression**

- **Developed an interactive mental health care system** utilizing a **Large Language Model (LLM)** to generate prompts for daily reflection in individuals with depression.
- Designed a **field deployment study** to evaluate the system's effectiveness and potential impact on mental health improvement.
- **Collaborated with a multidisciplinary team** to ensure the system's appropriateness for deployment in clinical settings, taking into account **ethical considerations** and user privacy.

June. 2020 - Feb. 2023 **Research Assistant** | Grant Agency: National Research Foundation of Korea

Title: **Development and Evaluation of an Adaptive Virtual Reality System to Enhance the Job-Related Social Skills of Adults with Developmental Disorders**

- Participated as a **remote visiting researcher at Georgia Tech** due to the Covid-19 pandemic.
- Designed an immersive and adaptive **Virtual Reality (VR) program** tailored to the needs of users on the **autism spectrum**, focusing on enhancing their social and job-related skills.
- Developed sensor **data-driven feedback models** to provide personalized, real-time guidance and support during VR training scenarios, fostering continuous improvement and engagement.
- **Collaborated with a multidisciplinary team** of researchers, clinicians, and educators to ensure the system's effectiveness and usability while adhering to best practices for working with individuals with developmental disorders.

Nov. 2017 - Dec. 2020 **Research Assistant** | Grant Agency: National Research Foundation of Korea

Title: **Developing fundamental techniques and design guidelines of persuasive interaction in a positive computing platform**

- **Designed a positive computing system** aimed at enhancing **mental health** and **productivity** through persuasive interaction techniques.
- Developed **experimental design strategies** and **implementation guidelines** to assess the effectiveness of persuasive interaction design services within the positive computing platform.

Mar. 2018 - Nov. 2020 **Research Assistant** | Grant Agency: National Research Foundation of Korea

Title: **Toward Developing a Human-Centered Mental Healthcare Platform**

- Conducted **in-depth research on peer support interactions** in social media to identify opportunities for enhancing mental healthcare systems.
- Leveraged findings to design a mental healthcare system **utilizing a social media bot**, which facilitates user engagement and support.

- Collaborated with a multidisciplinary team to ensure the developed system was **human-centered, ethical**, and aligned with the needs of diverse user groups.

Teaching Experience

Sep. 2022 - Dec. 2022	Undergraduate Teaching Assistant KAIST CS492(36.492): Smart Health: Data-Driven Service Design for Health and Wellbeing
Sep. 2019 - Dec. 2019	Undergraduate Teaching Assistant Seoul National University 2114.409 Creative Research Practice
Apr. 2018 - Mar. 2019	Assistant Researcher Institute of Communication Research, Seoul National University

Awards

2015	Student Design Competition, Top4 ACM CHI 2015
2015	UNIST Creative Design and Engineering Competition, Silver UNIST
2014	Undergraduate Research Competition, Second Place Handong Univ.
2014	Samsung Tomorrow Solution Award, Excellence award SAMSUNG

Skills

Mixed Method User Research

Interview, Survey, Field deployment study, Contextual Inquiry,
Grounded theory, Thematic analysis, Statistics (SPSS, R, Prism)

UX/UI Design, Fabrication

2D graphic and interface design: Adobe Illustrator, Photoshop, Premiere, Sketch, Figma
3D modeling and fabrication: SIEMENS NX, Rhino, AutoCAD, 3D Printing, Laser cutting, Arduino

Programming

Python, JavaScript, React, React Native, SwiftUI, HTML & CSS
Prompt engineering (for LLM)

Patents

Smart phone data-based intelligent stress prediction and management method

US and Korea Patent application

Cardiopulmonary Resuscitation Plate for a First-aid Treatment

Korea Patent No. 10-1628073

AR simulator

Korea Design Protection No. 30-0938066

Academic Societies and Services

Peer Reviewing

ACM CHI 2023 Paper

IASDR 2021 Paper

ACM TEI 2018 Paper