

# HEIMIN KANG

✉: heimin.kang@gmail.com | 📞: +31 6 1790 9146 | 🌐 <https://heiminkang.github.io/>

## RESEARCH INTERESTS

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Collaborative Decision-Making; Data- & AI-Enabled Design Process; Human-Centered Design; Human Factors & Psychology; Socio-technical Systems.

## EDUCATION

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### Delft University of Technology (TU Delft)

*MSc in Strategic Product Design (SPD), Medesign Specialisation (GPA 8.21/10)*

- Thesis: Transforming the Mental Health Referral System through AI
- Supervisors: Prof. Dr. Judith Rietjens, Dr. ir. Jiwon Jung

**Delft, Netherlands**

*Sep 2023 - Aug 2025*

### Ulsan National Institute of Science and Technology (UNIST)

*MSc in Creative Design Engineering (PMD-E) (GPA 4.08/4.3)*

- Thesis: Mitigating Negative Emotions in Anxious Attachment
- Advisor: Prof. Dr. Chajoong Kim
- Thesis committee: Dr. KyungHo Lee, Dr. Dooyoung Jung

**Ulsan, South Korea**

*Aug 2018 - Feb 2021*

### Chung-Ang University (CAU)

*BA in Advertising & Public Relations; Interdisciplinary Major in Entrepreneurship (GPA 3.75/4.5)*

**Seoul, South Korea**

*Mar 2014 - Aug 2018*

## PUBLICATIONS

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### Journal

- **Kang, H.**, Yoon, J., & Kim, C. (2024). Mitigating Negative Emotions in Anxious Attachment through an Interactive Device. *International Journal of Design*, 18(2), 17-35.

*In Preparation / Under Review*

Perk, B., Simonse, L., **Kang, H.** (under review). How Future Visions are Received: Connecting Future Making to Commonplace Values.

Quijada-Fernandez, D., **Kang, H.**, Jung, J., Kleinsmann, M., van Os, H. (in preparation). The Impact of AI-Supported Digital Health on Efficiency in Mental Health Services: A Scoping Review.

### Conference

- **Kang, H.**, & Jung, J. (accepted). Exploring a Regulatory Mapping Approach for Designing Digital Mental Health Interventions within the EU Context. *To appear in Proceedings of DESIGN 2026*.
- **Kang, H.**, Lee, K., Jung, D., Kim, C., & Yoon, J. (2021). Exploring Design Opportunities for Mitigating Anxious Attachment. In *Proceedings of IASDR 2021* (pp. 810-832). Singapore: Springer Nature Singapore.
- **Kang, H.**, & Kim, C. (2019). Improving User's Well-being Through Leveraging Attachment to Interactive Products. In *Proceedings of IASDR 2019*. Manchester, UK.

## EXTENDED ABSTRACT

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### **Oral Presentation**

- **Kang, H.**, Rietjens, J., Jung, J. (August 2025). *Transforming the Mental Health Referral System for Community-Centered Care: A Strategic Design Approach Integrating AI*. Oral presentation at Europe-Korea Conference on Science and Technology (EKC 2025), Vienna, Austria.

### **Poster Exhibition**

- **Kang, H.** (November 2025). *Transforming the Mental Health Referral System through AI*. Poster exhibition at Healthcare in Shape Symposium 2025, Delft, Netherlands.
- **Kang, H.**, Jung, J. (November 2024). *Exploring the Relationship between EU Regulations and E-Mental Health Interventions*. Poster exhibition at Mobile Healthcare Festival 2024, Den Bosch, Netherlands.

## TECHNICAL & INDUSTRIAL PATENTS

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- **Kang, H.**, et al. (2021). *Play-learning Tool*. KR 30-2021-0019289(M001). Issued 2021. Co-inventor. Design Patent (Granted).
- **Kang, H.**, et al. (2020). *Cushion*. KR 30-2020-0004191(M001). Issued 2020. Co-inventor. Design Patent (Granted).
- **Kang, H.**, et al. (2020). *Apparatus and Method for Providing Contents*. KR 10-2020-0011677. Issued 2020. Co-inventor. Utility Model Patent (Granted).
- **Kang, H.**, et al. (2019). *Sound Reproducing Apparatus*. KR 10-2019-0102413. Issued 2019. Co-inventor. Utility Model Patent (Granted).
- **Kang, H.**, et al. (2018). *Medical Sound Reproducing Device*. KR 30-2018-0059543(M001). Issued 2018. Co-inventor. Design Patent (Granted, Expired).

## HONORS & AWARDS

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### **International Design Workshop Scholarship**

May 2024

TU Delft

- One of five MSc students competitively selected for a scholarship (approximately USD 350) supporting the one-week workshop “Design for Well-being,” co-hosted by Politecnico di Milano, Aalto University, and TU Delft.

### **UNIST CDE Graduate Scholarship**

Aug 2019 - Feb 2021

UNIST

- Full graduate scholarship covering tuition for the full duration of the program (approximately USD 14,000 in total), supplemented by a project-funded stipend and research funding for prototyping, conference participation, and publication expenses.

### **Professional Concept Finalist – 2019 Spark: Health**

Nov 2019

SPARK Awards — International Design Competition

- Finalist for “Sound Cushion for Dementia”, a research-driven project empowering memory recall through sound triggers.

## INDUSTRY EXPERIENCE

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### *Professional Experience*

#### **Korea Institute of Industrial Technology (KITECH)**

*Researcher, AI Robot Research Lab*

**Ansan, Korea**  
*Mar 2022 - Aug 2022*

- Researched human factors and user experience for AI-based companion robots supporting mental health and emotional well-being.
- Collaborated with robotics engineers to translate qualitative user insights into design specifications for human-AI interaction and care system innovation.

#### **HAHEHO, Inc.**

*Service Design Intern*

**Seoul, Korea**  
*Aug 2021 - Feb 2022*

- Conducted field research and co-design sessions with healthcare staff and patients to identify system barriers in care delivery.
- Developed service blueprints and workflow redesign proposals to improve staff autonomy, efficiency, and patient experience in clinical environments.

#### **NAVER, Inc.**

*Intern, Marketing Team*

**Sungnam, Korea**  
*Jan 2015 - Feb 2015*

- Conducted user studies on emotional and behavioral patterns in digital interactions among young adults.
- Contributed to early-stage concept validation and beta testing for an online social support service.

### *Other Industry Experience*

#### **H/H Start-up Team, UNIST**

*Team Member*

**Ulsan, South Korea**  
*Oct 2018 - Mar 2019*

- Led commercialization planning and partner outreach for sound-based dementia care concepts originating from a UNIST research project.
- Selected for startup incubation by the UNIST Entrepreneurship Center and awarded international field-exploration funding in Denmark.

#### **NOOM, Inc.**

*Short-term Visiting Contributor, Data Management Team*

**New York, USA**  
*Jul 2015 - Aug 2015*

- Maintained and standardized a nutrition database for a CBT-based digital health app.
- Assisted in translating behavioral insights into internal communications and product service improvements.

## SELECTED RESEARCH PROJECTS

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#### **Transforming the Mental Health Referral System through AI**

*Graduation Project (SPD); conducted at TU Delft*

*Feb 2025 - Aug 2025*

- Developed a strategic and tactical roadmap for integrating AI to address current structural and experiential challenges in the Dutch mental health referral system.

#### **An Explorative Study on the Relationship between EU Regulations and E-Mental Health Interventions**

*Research elective course; conducted at TU Delft*

*Sep 2024 - Feb 2025*

- Investigated how key EU regulations influence the design of e-mental health interventions to inform regulation-aware design practice.

- Making the Hospital Hero App more Inclusive for Children with Auditory or Visual Impairments** Nov 2024 - Jan 2025  
*eHealth Design course; conducted at TU Delft with Hospital Hero*  
 • Designed inclusive, stigma-free interaction concepts and developed user scenarios across the hospital journey.
- Improving a Day Structure in the Clinic** Sep 2024 - Nov 2024  
*Design in Health course; conducted at TU Delft with Amsterdam UMC*  
 • Analyzed nurses' daily workflow to identify pain points and designed a digital platform to enhance communication and collaboration between nurses and nurse students.
- Enhancing Trust in Mental Health Chatbots: Leveraging Emotional Support Insights from Online Mental Health Communities** Feb 2024 - June 2024  
*SPD Research course; conducted at TU Delft*  
 • Analyzed relationships among trust and emotional support factors in online mental health communities to derive design implications for mental health chatbots.
- Mitigating Negative Emotions in Anxious Attachment** Sep 2019 - Feb 2021  
*Master Graduation Project; conducted at UNIST*  
 • Investigated how an interactive device can support individuals with anxious attachment to cope with negative emotions in everyday interpersonal relationships.
- Designing Interior/Product of Mobile Clinic Module for COVID-19 Patients** Dec 2020 - Feb 2021  
*Funded research project; conducted at UNIST*  
 • Designed an ASMR-inspired ambient lighting system to alleviate patient anxiety in mobile medical spaces.
- Designing IoT Products for Dementia** Sep 2018 - Dec 2020  
*Funded research project; conducted at UNIST*  
 • Developed and prototyped interactive IoT concepts to support emotional and cognitive well-being in people with dementia.

## TEACHING EXPERIENCE

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- Teaching Assistant** Jan 2025 - May 2025  
*Tech-Enabled Innovation Studio (Master Course), TU Delft*  
 • Co-developed course materials with Prof. Jiwon Jung for a newly introduced master course with 60+ students on AI-supported design innovation, focusing on human-AI collaboration and co-design practices.  
 • Conducted market and case analysis on emerging AI tools in design practice, identifying implications for innovative design processes.
- Teaching Assistant** Nov 2024 - Jan 2025  
*Research Methods for Strategic Design (Master Course), TU Delft*  
 • Assisted Prof. Eva Kalmar in coordinating a mandatory research course for 100+ MSc students, supporting course operations and student engagement.  
 • Designed and facilitated workshops on qualitative, quantitative, and mixed-methods research, guiding students in developing research proposals and applying data analysis tools (e.g., SPSS).

## ACADEMIC SERVICE

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### Reviewer

*International Association of Societies of Design Research (IASDR 2023)*

- Peer reviewer for manuscripts on design's role in social, organizational, and policy transformation.

## SKILLS & TOOLS

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### Research & Analysis

- Qualitative methods: interviews, observations, co-creation workshops, thematic analysis
- Quantitative methods: survey & experiment design; statistical modeling and data analysis (SPSS)
- Mixed & computational methods: augmented qualitative analysis using online community data and NLP (e.g., sentiment analysis, topic modeling)

### Programming

- Data analysis & modeling: Python (sentiment & topic modeling), SPSS
- Prototyping & development: Arduino (interactive products); React Native (mobile interfaces); HTML/CSS/JS (web prototyping)

### Design & Communication

- CAD & prototyping: Onshape (cloud collaboration), Rhino, Keyshot
- Systems & strategic design: system, stakeholder & journey mapping; framework development; roadmapping
- Visualization & communication: Figma; Adobe Photoshop, Illustrator, Premiere Pro

## REFERENCES

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**Prof. Dr. ir. Chajoong Kim** [cjkim@unist.ac.kr](mailto:cjkim@unist.ac.kr)

*Professor and Department Head | Department of Design, UNIST*

**Dr. ir. Jiwon Jung** [J.Jung-1@tudelft.nl](mailto:J.Jung-1@tudelft.nl)

*Assistant Professor | Faculty of Industrial Design Engineering (IDE), TU Delft & Department of Surgery, Erasmus University Medical Center (Erasmus MC)*