HEIMIN KANG

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RESEARCH INTERESTS

Digital mental health; Human–AI interaction; Responsible AI integration; Data-enabled design; Participatory design.

EDUCATION

Delft University of Technology (TU Delft) — **Delft, Netherlands**
MSc in Strategic Product Design (SPD), Medisign Specialisation (GPA 8.21/10) — *Sep 2023 - Aug 2025*
- Thesis: Transforming the Mental Health Referral System through AI
- Supervisors: Prof. Dr. Judith Rietjens, Dr. ir. Jiwon Jung

Ulsan National Institute of Science and Technology (UNIST) — **Ulsan, South Korea**
MSc in Creative Design Engineering (PMD-E) (GPA 4.08/4.3) — *Aug 2018 - Feb 2021*
- Thesis: Mitigating Negative Emotions in Anxious Attachment
- Advisor: Prof. Dr. Chajoong Kim
- Thesis committee: Dr. KyungHo Lee, Dr. Dooyoung Jung

Chung-Ang University (CAU) — **Seoul, South Korea**
BA in Advertising & Public Relations; Interdisciplinary Major in Entrepreneurship (*GPA 3.75/4.5)* — *Mar 2014 - Aug 2018*

PUBLICATIONS

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

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. *Target journal: JMIR.*

Perk, B., Simonse, L., **Kang, H.** (in preparation). How Future Visions are Received: Connecting Future Making to Commonplace Values. *Target journal: Design Issues.*

Conference

- **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.

In Preparation / Under Review

Kang, H., & Jung, J. (under review). Exploring a Regulatory Mapping Approach for Designing Digital Mental Health Interventions within the EU Context. *Submitted to DESIGN 2026.*

EXTENDED ABSTRACT

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.

HONORS & AWARDS

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

Professional Experience

Korea Institute of Industrial Technology (KITECH) **Ansan, Korea**
Research Assistant, AI Robot Research Lab *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. **Seoul, Korea**
Service Design Intern *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. **Sungnam, Korea**
Intern, Marketing Team *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 **Ulsan, South Korea**
Team Member *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. **New York, USA**
Short-term Visiting Contributor, Data Management Team *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

Transforming the Mental Health Referral System through AI *Feb 2025 - Aug 2025*
Graduation Project (SPD); conducted at TU Delft
- 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 *Sep 2024 - Feb 2025*
Research elective course; conducted at TU Delft
- 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.

TECHNICAL & INDUSTRIAL PATENTS

- **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).

TEACHING EXPERIENCE

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

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

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

Prof. Dr. Judith Rietjens J.A.C.Rietjens@tudelft.nl
Professor | Faculty of Industrial Design Engineering (IDE), TU Delft & Department of Public Health, Erasmus University Medical Center (Erasmus MC)

Prof. Dr. ir. Chajoong Kim cjkim@unist.ac.kr
Professor and Department Head | Department of Design, UNIST

Dr. ir. Jiwon Jung J.Jung-1@tudelft.nl
Assistant Professor | Faculty of Industrial Design Engineering (IDE), TU Delft & Department of Surgery, Erasmus University Medical Center (Erasmus MC)