Heimin Kang

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Research Interests

Digital Mental Health; Health Systems Transformation; Data-enabled Design; Participatory Design; Human-AI Interaction; AI Policy & Regulation.

Education

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

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 (Department of Design, UNIST; Department Head),
• Thesis Committee: Dr. KyungHo Lee (Department of Design, UNIST), Dr. Dooyoung Jung (Department of Biomedical Engineering, UNIST; Director of UNIST Healthcare Center)

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

[1] **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.

Under Review / In Preparation

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

[2] **Kang, H.,** Lee, K., Jung, D., Kim, C., & Yoon, J. (2021). Exploring Design Opportunities for Mitigating Anxious Attachment. In *Congress of the International Association of Societies of Design Research* (pp. 810-832). Singapore: Springer Nature Singapore.

[3] **Kang, H.,** & Kim, C. (2019). Improving User's Well-being Through Leveraging Attachment to Interactive Products. In *Congress of the International Association of Societies of Design Research*. Manchester, UK.

Under Review / In Preparation

Kang, H., & Jung, J. (In preparation) Bridging Innovation and Regulation: An Exploratory Study on Regulatory Mapping Approach to Designing Digital Mental Health Interventions. *Target Conference: DESIGN 2026.*

Extended Abstract

Oral Presentation

[1] **Kang, H.,** Rietjens, J., Jung, J. (Aug, 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

[2] **Kang, H.** (Nov, 2025). *Transforming the Mental Health Referral System through AI.* Poster exhibition at Healthcare in Shape Symposium 2025, Delft, Netherlands.

[3] **Kang, H.,** Jung, J. (Nov, 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

[1] **Kang, H.,** et al. (2021). *Play-learning Tool.* KR 30-2021-0019289(M001), issued 2021. Co-inventor. Design Patent, Granted.

[2] **Kang, H.,** et al. (2020). *Cushion.* KR 30-2020-0004191(M001), issued 2020. Co-inventor. Design Patent, Granted.

[3] **Kang, H.,** et al. (2020). *Apparatus and Method for Providing Contents.* KR 10-2020-0011677, issued 2020. Co-inventor. Utility Model Patent, Granted.

[4] **Kang, H.,** et al. (2019). *Sound Reproducing Apparatus.* KR 10-2019-0102413, issued 2019. Co-inventor. Utility Model Patent, Granted.

[5] **Kang, H.,** et al. (2018). *Medical Sound Reproducing Device.* KR 30-2018-0059543(M001), issued 2018. Co-inventor. Design Patent, Granted (Expired).

Honors & Awards

International Design Workshop Scholarship   *May 2024*
TU Delft
• Competitively selected as one of five MSc students from TU Delft to receive a travel and participation scholarship for *Design for Well-being*, a joint healthcare design workshop co-hosted by Politecnico di Milano, Aalto University, and TU Delft.

Graduate Scholarship   *Aug 2019 - Feb 2021*
Korea Institute of Design Promotion (KIDP)
• Received tuition, living, and research support funded by KIDP as part of a national graduate education program in design at UNIST, covering the full duration of the master's program.

Professional Concept Finalist – 2019 Spark: Health   *Nov 2019*
SPARK Awards - International Design Competition
• Selected as a finalist for *Sound Cushion for Dementia: Empowering memory recall through ambient sound triggers*, a research-driven project funded by UNIST.

Academic Service

Reviewer
International Association of Societies of Design Research (IASDR 2023)
• Served as a peer reviewer for manuscripts addressing the role of design in enabling social, organizational, and policy transformation.

Funded Research Projects

Designing Play Equipment for Long-Term Pediatric Hospitalization *Jan 2021 - Feb 2021*
Funded by the National Research Foundation of Korea (NRF), conducted at UNIST
- Designed therapeutic play-based interventions to enhance the emotional wellbeing of long-term hospitalized children, integrating insights from developmental psychology and pediatric care practices.
- Conducted user-centered field research, including observations and interviews with children and caregivers, translating emotional and behavioral insights into design opportunities for therapeutic and supportive interactions.

Designing interior/product of mobile clinic module for COVID-19 patients *Dec 2020 - Feb 2021*
Funded by KAIST (Korea Advanced Institute of Science and Technology), conducted at UNIST
- Designed an ASMR-inspired ambient lighting system to alleviate patient anxiety and support emotional regulation in mobile healthcare settings.
- Identified psychological and environmental stressors, proposing sensory interaction strategies (light, sound) for adaptive and human-centered medical spaces.

Designing IoT products for dementia *Sep 2018 - Dec 2020*
Funded by the Excellent Research Idea Discovery Project, conducted at UNIST
- Developed interactive IoT concepts to promote emotional and cognitive well-being in people with dementia; one concept was recognized as a finalist in an international design competition and led to five registered patents.
- Conducted user research and sensory exploration to identify cognitive–emotional triggers (hand movement and sound) and translated findings into interactive design opportunities for mental support.

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 in AI-based companion robots to support mental health and emotional wellbeing.
- 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 Designer *Aug 2021 - Feb 2022*
- Conducted field research and co-design sessions with healthcare staff and patients at a major hospital 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 interaction 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 by the UNIST Entrepreneurship Center for startup incubation (secured an office at
  UNISpark); awarded team travel funding through an international field-exploration program
  for a Denmark field visit (company visits and partnership meetings).

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 (data
  entry, normalization, QA).
- Assisted translation of behavioral insights into internal communications and product
  messaging.

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, including project examples and design guidelines used for student
  learning.
- Conducted market and case analyses on AI use in design practice, exploring emerging tools
  and their implications for innovative design processes.

Teaching Assistant   *Nov 2024 - Jan 2025*
Research Methods for Strategic Design (Master Course), TU Delft
- Assisted Prof. Éva Kalmár in coordinating a mandatory research course for 100+ MSc
  students.
- Designed and facilitated workshops on qualitative and quantitative research methods,
  providing feedback and guidance on student research projects.

Skills & Tools

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

Programming
- Data analysis & modeling: Python (sentiment & topic modeling), SPSS (statistical modeling)
- Prototyping: Arduino (interactive products), React Native (mobile interfaces)

Design & Communication
- CAD & Prototyping: Onshape (cloud-based collaboration), Rhino, Keyshot
- Systems & Strategic Design: system, stakeholder, and journey mapping; framework development; roadmapping
- Visualization & concept communication: Figma; Onshape; Adobe Photoshop, Illustrator, Premiere Pro

Referees

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