Min Chul Cha

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Last Update: Oct. 10, 2023

EDUCATION

Yonsei University — Seoul, Korea
Ph.D. in Industrial Engineering — 2016-2023
Dissertation topic: Users' Modality Selection in Multimodal System
Advisor: Yong Gu Ji

Yonsei University — Seoul, Korea
B.S in Industrial Engineering — 2009-2016

RESEARCH INTERESTS

Human-computer interaction; Multimodal interaction; Voice user interface; Modality selection; automotive UI; Virtual Reality (VR)

EMPLOYMENT

Engineering Research Institute, Yonsei University — Seoul, Korea
Postdoctoral Fellow — Feb.2023 – present

Human Factors & Interaction Design Lab, Yonsei University — Seoul, Korea
Research Assistant. Mentor: Yong Gu Ji — Mar. 2016 – Feb.2023

GRANTS

G1. Responsive Multimodal Interface Technology to Improve the Safety and Usability of In-vehicle Interactions
National Research Foundation of Korea (NRF), $132,500 (2023-2026)

PUBLICATIONS

Journal Publications

J15. **Min Chul Cha**, Hyo Chang Kim, and Yong Gu Ji. "User Modality Selection in Touch and Voice-based Multimodal Systems: The Role of Modality Features and Menu." Computers in Human Behavior (Under Review)

J14. Young Woo Kim, **Min Chul Cha**, Sol Hee Yoon, and Seul Chan Lee. “Not Merely Useful but Also Amusing: Impact of Perceived Usefulness and Perceived Enjoyment on the Adoption of AI-Powered Coding Assistant” International Journal of Human-Computer Interaction (2024)

J13. Chae Heon Lim, **Min Chul Cha**, and Seul Chan Lee. “Physical loads on upper extremity muscles while interacting with virtual objects in an augmented reality context.” Applied Ergonomics,120(2024)

J12. **Min Chul Cha**, Chae Heon Lim, Young Woo Kim, Sol Hee Yoon, and Seul Chan Lee. “How Do Users Regulate Interaction Behaviors while Performing a Drag-and-Drop Task in a Virtual Reality Environment?” International Journal of Human-Computer Interaction (2024)

J11. Yulim Kim, Hyo Chang Kim, and **Min Chul Cha.** " Investigation of Modality Selection and the Point of Switching: Focused on Voice and Touch Modalities.” Journal of the Ergonomics Society of Korea 42.6 (2024): 539-548.

J10. Reza Kazemi, Chae Heon Lim, **Min Chul Cha**, and Seul Chan Lee. “Evaluation of Drag-and-Drop Task in Virtual Environment: Effects of Target Size and Movement Distance on Performances and Workload” International Journal of Human-Computer Interaction (2023)

J9. **Min Chul Cha** and Yong Gu Ji. “Context Matters: Understanding the effect of usage contexts on users' modality selection in multimodal systems.” International Journal of Human-Computer Interaction (2023)

J8. Seong Yong Bae, **Min Chul Cha**, Sol Hee Yoon, and Seul Chan Lee. “Investigation of Touch Button Size and Touch Screen Position of IVIS in a Driving Context.” Journal of the Ergonomics Society of Korea, 42.1 (2023)

J7. **Min Chul Cha**, Hyo Chang Kim, and Yong Gu Ji. “The unit and size of information supporting auditory feedback for voice user interface.” International Journal of Human-Computer Interaction (2023)

J6. Kim, Hyo Chang, **Min Chul Cha**, and Yong Gu Ji. “The impact of an agent’s voice in psychological counseling: Session evaluation and counselor rating.” Applied Sciences 11.7 (2021): 2893.

J5. Ji Yea Lee, Juhee Lee, Yeonsoo Jang, Eun Chae Kim, Yong Gu Ji Taezoon Park, Sang Yoon Um, **Min Chul Cha**, and Yielin Kim. “Status Quo and Innovative Directions for Inpatient Fall Interventions.” Journal of Korean Academy of Fundamentals of Nursing 27.4 (2020): 356-365.

J4. Kim, Hyo Chang, **Min Chul Cha**, and Yong Gu Ji. “The effect of empathy on human-agent interaction.” ICIC Express Letters, Part B: Applications 11.6 (2020): 551-557.

J3. Seul Chan Lee, **Min Chul Cha**, and Yong Gu Ji. “Investigating smartphone touch area with one-handed interaction: Effects of target distance and direction on touch behaviors.” International Journal of Human–Computer Interaction 35.16 (2019): 1532-1543.

J2. Ara Lee, Hyo Chang Kim, **Min Chul Cha,** and Yong Gu Ji "A Study on the Client Experience using Chatbot based on Counseling Theory." Journal of the Ergonomics Society of Korea 38.3 (2019).

J1. Seul Chan Lee, **Min Chul Cha**, Hwan Hwangbo, Sookhee Mo, and Yong Gu Ji. “Smartphone form factors: Effects of width and bottom bezel on touch performance, workload, and physical demand.” Applied ergonomics 67 (2018): 142-150.

Conference Publication

C4. 김효창, 김유림, & **차민철**. (2023). 자율주행 차량에서 운전자의 효과적인 차량 인터페이스 조작을 위한 멀티모달시스템 연구 방안. 202 년 대한산업공학회 춘계공동학술대회, 1405-1409.

C3. **Min Chul Cha**, Cherin Lim, Jae Moon Sim, Da Yeong Kim, and Yong Gu Ji "A Study on Sensibility Evaluation for Smartphone Camera Photography Based on Text Mining." Proceedings of 2021 Fall Conference of ESK (2021): 153-153.

C2. **Min Chul Cha**, Hwan Hwangbo, Seul Chan Lee, and Yong Gu Ji. "F8-3 The effects of smartphone edge display on EMG activity of thumb muscles in one-handed interaction." The Japanese Journal of Ergonomics 53.Supplement2 (2017): S672-S675.

C1. **Min Chul Cha**, Bo Myeong Kim, Jiin Lee, and Yong Gu Ji. "Usability evaluation for user interface of a drone remote controller." Proceedings of the ESK Conference. 2016.

PATENTS

P4. **Min Chul Cha**, Yong Gu JI, Hyo Chang Kim, Hyunjung Yang, Ji Geun Kim, and Ji-Won Lee**.** "Adaptive voice AI agent system according to conversation content and user type." Korean Patent (filled) (10-2020-0150490)

P3. **Min Chul Cha**, Yong Gu JI, Hyo Chang Kim, Hyunjung Yang, Ji Geun Kim, and Ji-Won Lee**.** "Method for Generating Conversation in Conversational AI agent system." Korean Patent (filled) (10-2020-0010959).

P2. **Min Chul Cha**, Yong Gu JI, Hyo Chang Kim, Hyunjung Yang, Ji Geun Kim, and Ji-Won Lee**.** "Device and Method of Scoring Emotion for Psychological Consultation." Korean Patent (granted) (10-2225603).

P1. **Min Chul Cha**, Yong Gu JI, and Hyo Chang Kim. "Wearable life logging device for baby and life logging method." Korean Patent (granted) (10-1748494) / PCT (filled) (PCT/KR2016/001409).

RESEARCH EXPERIENCE

Responsive Multimodal Interface Technology to Improve the Safety and Usability of In-vehicle Interactions *National Research Foundation of Korea (NRF) (2023.09~)*	Principal Investigator
Motion Features for Smartphone Objects to Enhance User Emotion *Samsung Electronics (2023.04~2023.10)*	Project Manager
Digital Transformation of Small and Medium Manufacturers *Gabo Corp. Korea (2022.03~2023.01)*	Project Manager
Interface Optimization Study for Autonomous Driving UX *Hyundai Motors (2021.05~2022.05)*	Project Manager
Perceived Image Quality of Smartphone Camera *Samsung Electronics (2021.04~2021.10)*	Project Manager
Emotional Intelligence Technology to Infer Human Emotion and Carry-on Dialogue Accordingly *MSIT(Korea) (2016.12~2020.12)*	Project Manager
Development of a Digital Transformation Maturity Model *KEPCO (2020.03~2020.07)*	Project Manager

Evaluation of Usability of Smartphone (A Study on the Proper Form Factor Level in Mobile Environment) — Project Assistant
LG Electronics (2016.12~2017.04)

Development of an User-Centered Product Design Support System based on Cognitive and Affective Information — Project Assistant
Ministry of Trade, industry and Energy (2015.12~2016.11)

TEACHING

Instructor, Yonsei University (Undergraduate)

- IIE4115: Human-Computer Interaction (2021S)
- IIE2002: UT seminar - HCI in the smart era (2019F)

ACADEMIC SERVICE

Organization & Committee

Student Volunteer Chair, AutoUI 2022 — 2022

Journal or Conference Reviewer

Internation Journal of Human-Computer Interaction (IJHCI) 2023 — 2023

Automotive User Interfaces (AutoUI) 2022 — 2022

SKILLS

Programming/Technologies
Language: Python, JavaScript, Unity(C#), HTML, CSS, PHP, MySQL, Google Apps Script; libraries: Flask, jQuery, TensorFlow, scikit-learn; Platform: Arduino, Proxmox VE, Docker
- Developed full-stack web services that processed, analyzed, and rendered data visually

Statistic: SPSS, R, MATLAB
Other: MS Office, Photoshop, Premiere, After Effect

Spoken Languages
Korean, English