CURRICULUM VITAE

Beom-Su Kim

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RESEARCH INTEREST

My research interests lie in Human-Computer Interaction, UI/UX, and similar areas. In particular, I focus on analyzing user needs from text data in detail using Natural Language Processing and Large Language Models and developing an evaluation framework that reflects the dynamic nature of user needs within the User-Centered Design process.

EDUCATION

2023 – Present **Kumoh National Institute of Technology** Gumi, Korea
Master of Engineering in Industrial Engineering, Industrial Engineering
Thesis: Examining the Influence of Communal User Needs on Quality of Experience (QoE) - The Moderating Effects of User's purpose and Innovativeness -
Advisor: Prof. Sang-Ho Kim
GPA: 4.44/4.5

2017 – 2023 **Kumoh National Institute of Technology** Gumi, Korea
Bachelor of Engineering in Industrial Engineering, Industrial Engineering
GPA: 4.23/4.5 (Rank: 1st in the Department)

RESEARCH EXPERIENCES

[Interaction Design and Ergonomic Assessment Lab] – Kumoh National Institute of Technology

2023 − 2025 *Graduate Researcher*

Project: Developing a System to Predict Worker's Intention and Sequence of Motion for Proactive Control of Wearable Robots (PI: Sang-Ho Kim, 2021.9 – 2025.2)

- Research on prediction of human motion of wearable robots and usability test
- Designed a systematic evaluation framework to capture overall user satisfaction by expanding usability testing
- Developed a Python-based web crawler to collect text data and applied topic modeling to extract user needs across various technologies
- Identified common user needs from different technologies to enhance usability evaluation methodologies

2021 – 2023 *Undergraduate Researcher*

Project: AI-Based User Adaptive Interaction Laboratory (PI: Sang-Ho Kim, 2020.3 – 2023.2)

- Research on adaptive interaction with voice assistant according to user's emotion
- Designed scripts and assisted in experiments for a voice interface study based on the Wizard-of-Oz method

Project: Biosignal-based Work Posture Evaluation Framework for the Prevention of Musculoskeletal Disorders (PI: Jong-Gyu Shin, 2022.6 – 2023.5)

- Research on a real-time monitoring system using non-contact sensors for work posture and context evaluation to prevent musculoskeletal disorders
- Reviewed posture types linked to musculoskeletal disorders through literature analysis

PUBLICATIONS (INTERNATIONAL JOURNAL)

[Published Manuscripts]

1. **Beom-Su Kim** & Sang-Ho Kim (2026). Examining the Influence of Communal User Needs on Quality of Experience (QoE): The Moderating Effects of User's Purpose and Innovativeness. *International Journal of Human-Computer Interaction, 1–28.* (SSCI, Q1, IF: 4.9)
2. **Beom-Su Kim**, In-Seok Heo, Krishna Sahithi Karur, & Sang-Ho Kim (2025). Identifying Communal User Needs for Quality of Experience (QoE) Assessment and Improvement focused on User-Centered Design. *Acta Psychologica*, *260*, 105622. (SSCI, Q2, IF: 2.7)
3. In-Seok Heo, Alivia Kirana Hartono Putri, **Beom-Su Kim**, Min-Seong Kwon, & Sang-Ho Kim (2024). Analysis of quality standards for industrial collaborative robots based on user-centered design framework. *Human Factors and Ergonomics in Manufacturing & Service Industries*, 34(2), 100-117. (SSCI, Q3, IF: 2.2)
4. Jong-Ha Woo, Krishna Sahithi Karur, Seong-Taek Kim, Geun-Ryeong Choi, **Beom-Su Kim**, Jong-Gyu Shin, & Sang-Ho Kim (2023). Machine Learning Based Recognition of Elements in Lower-Limb Movement Sequence for Proactive Control of Exoskeletons to Assist Lifting. *IEEE Access*, 11, 127107-127118. (SCIE, Q2, IF: 3.6)

[Under Review / Submitted]

1. Krishna Sahithi Karur, In-Seok Heo, **Beom-Su Kim**, & Sang-Ho Kim (2025). A Model for Identifying the Priorities of Communal User Needs for Quality of Experience (QoE) using BERTopic, Sentiment Analysis and Explainable AI (Submitted)
2. In-Seok Heo, Krishna Sahithi Karur, Alivia Kirana Hartono Putri, **Beom-Su Kim**, Min Seong Gwon, & Sang-Ho Kim (2025). Quality of Experience Models for User-Centered Design: A Comprehensive Review of Theoretical and Measurement Approaches (Under review)

PUBLICATIONS (DOMESTIC JOURNAL)

1. **Beom-Su Kim**, Alivia Kirana Hartono Putri, Krishna Sahithi Karur, Geun-Ryeong Choi, & Sang-Ho Kim (2024). A Review on Ergonomic Requirements of the Industrial Robots. *Journal of the Ergonomics Society of Korea*, 43(1), 41-60, 10.5143/JESK.2024.43.1.41

2. Ho-Jun Song, **Beom-Su Kim**, Jong-Gyu Shin, & Sang-Ho Kim (2022). Identification an Improvement Plan for the Risk Assessment System to Increase the Reduction Rate of Industrial Accidents: Focus on Small and Medium-size Companies. *Journal of Korea Safety Management & Science*, 24(2), 25-32

INTERNATIONAL CONFERENCES

1. **Beom-Su Kim**, In-Seok Heo, Sang-Hyun Choo, & Sang-Ho Kim (2024). Investigating Factors Influencing Shifts in the Relative Significance of User Needs using Large Language Model. *In The 22nd Triennial Congress of the International Ergonomics Association (IEA)*, Korea. (Oral Presentation)
2. Seong-Taek Kim, In-Seok Heo, **Beom-Su Kim**, Krishna Sahithi Karur, Alivia Kirana Hartono Putri, Min-Jun Kim, & Sang-Ho Kim (2024). A Study to Explore How Communal User Needs and Quality of Service Related across Various Domains using Text Mining. *In The 22nd Triennial Congress of the International Ergonomics Association (IEA)*, Korea. (Oral Presentation)
3. Krishna Sahithi Karur, In-Seok Heo, **Beom-Su Kim**, & Sang-Ho Kim (2023). A study on prioritizing the QoE features based on dynamic user requirements. *The 4th Asian Conference on Ergonomics and Design*, India. (Oral Presentation)
4. Alivia Kirana Hartono Putri, Karur Krishna Sahithi, **Beom-Su Kim**, In-Seok Heo, Jong-Ha Woo, Min-Seong Kwon, Jong-Gyu Shin, & Sang-Ho Kim (2023). A Conceptual Model for Assessing QoE in XR Environment. *The 25th Japan-Korea Joint Symposium and International Conference on Human Factors and Ergonomics / The 64th Conference of Japan Human Factors and Ergonomics*, Japan. (Poster Presentation)

DOMESTIC CONFERENCES

1. **Beom-Su Kim** & Sang-Ho Kim (2024). A Study on the Universality of User Needs for User-Centered Quality of Experience Evaluation: Focusing on the Wearable Device. *Proceedings of 2024 Fall Conference of ESK* (Oral Presentation)
2. Karur Krishna Sahithi, In-Seok Heo, Alivia Kirana Hartono Putri, **Beom-Su Kim**, & Sang-Ho Kim (2023). Dynamics of User Needs for Assessing the Quality of Experience (QoE) in New Technologies: A Review of Measurement Methods. *Proceedings of 2023 Fall Conference of ESK* (Oral Presentation)
3. Alivia Kirana Hartono Putri, In-Seok Heo, Karur Krishna Sahithi, **Beom-Su Kim**, & Sang-Ho Kim (2023). A Study on Identifying the Relationship between Communal User Requirements and Technical Requirements of Different Systems. *Proceedings of 2023 Fall Conference of ESK* (Oral Presentation)
4. **Beom-Su Kim**, In-Seok Heo, Alivia Kirana Hartono Putri, Karur Krishna Sahithi, & Sang-Ho Kim (2023). A Study on the Fundamental User Needs for User-Centered Quality of Experience Assessment. *Proceedings of KIIE Fall Conference* (Oral Presentation)
5. In-Seok Heo, Karur Krishna Sahithi, Alivia Kirana Hartono Putri, **Beom-Su Kim**, & Sang-Ho Kim (2023). A study on structuring user requirements to define QoE of industrial collaborative robots. *Proceedings of KIIE Spring Conference* (Oral Presentation)
6. **Beom-Su Kim**, Alivia Kirana Hartono Putri, Karur Krishna Sahithi, & Sang-Ho Kim (2023). Confirmation of User Needs Manifestation based on User Intention. *Proceedings of 2023 Spring Conference of ESK* (Oral Presentation)

7. **Beom-Su Kim**, Min-Seong Kwon, Seong-Taek Kim, Geun-Ryeong Choi, Jong-Gyu Shin, & Sang-Ho Kim (2022). Identification of primary working postures that need robotic exoskeleton application, *Proceedings of 2022 Spring Conference of ESK* (Poster Presentation)
8. In-Seok Heo, Jun-Mo Kang, **Beom-Su Kim**, Yeong-Jin Park, In-Gi Jeong, Jong-Gyu Shin, & Sang-Ho Kim (2021). Moderating effects of human factors on design parameters affecting the user emotion in voice-based human-AI interaction. *Proceedings of 2021 Fall Conference of ESK* (Oral Presentation)

TEACHING EXPERIENCE

2024 **Teaching Assistant,** Human Factors and Ergonomics,
Kumoh National Institute of Technology

2022 **Teaching Assistant,** Human Factors and Ergonomics,
Kumoh National Institute of Technology

2021 **Basic Academic Achievement Mentoring,** Industrial Statistics,
Kumoh National Institute of Technology

SKILLS AND TECHNIQUES

- Statistical Analysis Tool: SPSS, Python, AMOS, Smart PLS
- Programming Language: Python, R

AWARDS

[Academic Awards]

2022 **1st place,** Student Paper Competition**,** *Ergonomics Society of Korea*
(Motion sequence prediction of the lower limb using LSTM neural networks)

2022 **Encouragement Awards,** Student Paper Competition, *Ergonomics Society of Korea*
(A Study on the Effect of Introducing the Safety and Health Managers System for Small-sized Enterprises)

2022 **2nd place,** Poster Paper Competition, *Ergonomics Society of Korea*
(Identification of primary working postures that need robotic exoskeleton application)

[Government Awards]

2022 **2nd place,** Strategies for Reducing Safety Accidents Involving Elevator Users,
Korea Elevator Safety Agency

2021 **2nd place,** 2021 Smart Factory Innovation Experience Fam Tour Contest,
Ministry of SMEs and Startups

SERVICES TO COMMUNITY

2024 **Subreviewer,** *In The 22nd Triennial Congress of the International Ergonomics Association (IEA)*

2022 **Freshman Mentoring,** *Kumoh National Institute of Technology*

- Best Mentor Award (Representative of 64 Mentors)

2017 – 2019 **Military Service,** *Republic of Korea Army*

- Sergent, Mobilization Administration Soldier