

SOO IN HWANG

(updated 05/11/2025)

Industrial Design Engineering
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EDUCATION

- 03/2024-02/2026 **M.S. in Industrial Design Engineering**
Korea University of Technology and Education (KOREATECH), Cheonan, Korea
- Thesis: *Cognitive Response in Drivers Based on Head-Up Display Information Position*
 - Advisor: Prof. Kwang Tae Jung
- 03/2019-02/2024 **B.S. in Industrial Design Engineering**
Korea University of Technology and Education (KOREATECH), Cheonan, Korea
- Minor: Computer Science and Engineering, Human Resource Development
 - Capstone Project: *Sensor-based Resistance Training Tracking System*
 - Advisor: Prof. Joo Pyo Hong
- 05/2022-08/2022 **Exchange Program**
University of Ottawa, Ottawa, Canada

RESEARCH EXPERIENCE

- 03/2025-Present **Cognitive and EEG Responses of Drivers Based on the Information Position of Head-Up Displays**
Master's Thesis, Advisor: Prof. Kwang Tae Jung
- Examined drivers' cognitive load and attention across different HUD information positions using Stroop and Flanker tasks in a simulated driving experiment.
 - Analyzed behavioral metrics (RT, accuracy, IES/CEI, SDT) and EEG metrics (ERP, PSD, ERD/ERS, LI).
- 09/2025-Present **Research on Industrial Safety Advancement**
Collaborative Research, Korea Western Power & Industrial Safety Engineering, Advisor: Prof. Kwang Tae Jung
- 08/2025-12/2025 **Industrial Safety Advancement and Educational Strategies**
Collaborative Research, Industrial Safety Engineering, Advisor: Prof. Kwang Tae Jung
- Analyzed KOREATECH's industrial safety education system through surveys and interviews to identify emerging safety issues, assess safety awareness, and develop a campus-wide safety management roadmap.
- 09/2024-12/2024 **EEG-Based UX/UI Design Studies**
Independent Research, Advisor: Prof. Kwang Tae Jung
- Conducted a systematic review applying PICO to map EEG use in UX/UI, categorize metrics (cognitive load, emotion, UX).
- 08/2024-12/2024 **Vest-Type Weight Redistribution Device for Long-Term Use of Immersive Head-Mounted Displays**
Collaborative Research, An undergraduate Student, Advisor: Prof. Kwang Tae Jung
- Designed and evaluated a vest-type device to redistribute HMD weight, reducing cervical strain.
- 03/2024-06/2024 **BrainChat: Generative Brainstorming for HCD**
Independent Research, Advisor: Prof. Sung Joon Kim
- Developed BrainChat, a generative AI-based brainstorming tool for Human-Centered Design ideation.
- 06/2024-09/2024 **Adaptive Automotive Headrest for Shared Vehicles**
Collaborative Project, Korean Society of Mechanical Engineers (KSME) & Partner Universities
- Developed and validated adaptive TPU-based headrest prototypes for shared mobility.
- 01/2024-02/2024 **Automotive Lighting Interaction UX Study**
Collaborative Project, Hyundai UX Team & Partner Universities, Advisor: Prof. Ki Cheol Park

- Designed and evaluated LED-based outside door-handle interactions with an ergonomic design.

08/2022-
02/2024

BESPORTS: Sensor-based Strength Training Tracking System

Collaborative Project & Startup, BESPORTS, Advisor: Prof. Joo Pyo Hong

- Developed a multi-sensor system for real-time tracking on pin-loaded and plate-loaded strength machines with mobile feedback integration.

PUBLICATIONS AND CONFERENCE PRESENTATIONS

J=JOURNAL, C=CONFERENCE | O=ORAL, P=POSTER

- [J2] **Hwang, S.,** Lee, Y., & Jung, K. (2024, Nov). *"A Systematic Literature Review of EEG Utilization Studies in UX/UI Design."* Journal of the Korean Society of Human Factors and Ergonomics, 43(6), 575–587.
- [J1] **Hwang, S.,** & Kim, S. (2024, Aug). *"BrainChat: Proposal for Conceptual Design of AI-Based Generative Brainstorming Method and Service for Human-Centered Design."* Journal of Formative Media Studies, 27(3), 185–193.
- [C8] [O] **Hwang, S.,** Lee, Y., & Jung, K. (2025, Nov). Evaluation of Cognitive Response in Drivers Based on HUD Information Position. The Human Factors & Ergonomics Society of Korea (ESK).
- [C7] [O] **Hwang, S.,** Shin, M., & Jung, K. (2025, Nov). Vest-Type Weight Redistribution Device for Long-Term Use of Immersive HMDs. Society for Practical Engineering Education Conference.
- [C5] [O] **Hwang, S.,** & Jung, K. (2024, Nov). EEG-Based UX/UI Design Studies: A Systematic Review. The Human Factors & Ergonomics Society of Korea (ESK).
- [C4] [O] **Hwang, S.,** Kang, D., Bae, M., Seo, J., Youn, W., Jang, H., & Kim, C. (2024, Nov). Design of Adaptive Headrests with Additive Manufacturing in Shared Vehicles. The Korean Society of Mechanical Engineers (KSME).
- [C3] [O] **Hwang, S.,** Cha, J., Kim, H., Sim, M., Lee, J., & Park, K. (2024, May). Auto Flush Outside Door Handle for Automobiles: Enhancing User Experience through Ergonomic Design and Lighting Interaction. Korean Society of Design Science (KSDS).
- [C2] [P] **Hwang, S.,** & Hong, J. (2023, Nov). Besports: Strength Training Tracking System for Gym Users. The Korean Society of Mechanical Engineers (KSME).
- [C1] [O] **Hwang, S.,** & Hong, J. (2023, Nov). Besports: Strength Training Tracking System for Gym Users. Korean Society of Design Science (KSDS).

AWARDS AND HONORS

- 2024-2025 **Research Assistant Scholarship (Full Tuition)** | KOREATECH Graduate School
- 2024 **Excellence Award** | The Korean Society of Mechanical Engineers (KSME) Conference
- 2023 **Excellence Award** | Korean Society of Design Science (KSDS), Design University Student Symposium
- 2023 **Grand Prize** | KOREATECH Graduation Design Competition
- 2023 **Excellence Award** | LINC 3.0 National Capstone Design Competition
- 2023 **Grand Prize** | Chungcheong Region University Startup Competition
- 2023 **Design Right** | Korean Intellectual Property Office (KIPO), Pin-Loaded Strength Performance Device
- 2023 **Design Right** | Korean Intellectual Property Office (KIPO), Plate-Loaded Strength Performance Device
- 2019-2022 **Blue Lighthouse Scholarship (Full Tuition)** | Korea Student Aid Foundation (KOSAF)
- 2020 **Excellence Award** | KOREATECH Model Formula 1 Car Design and Racing Competition

ACADEMIC ACTIVITIES AND SERVICE

- 2025 **Participant** | Korean Society for Computational Neuroscience Winter School
- 2024 **Participant** | XR Commerce LAB with Apple Vision Pro (XRC lab), Seoul, Korea
- 2024 **Participant** | FutureDrill AI Experience (AIX lab) Newsletter & Workshops, Seoul, Korea
- 2024 **Volunteer** | The Human Factors & Ergonomics Society of Korea (ESK) Fall Conference
- 2024 **Participant** | Hyundai UX Team & HIDE lab (Hongik University), Seoul, Korea
- 2023 **Founder & Volunteer** | Community Craft & Child Engagement Club, KOREATECH
- 2023 **Founder & Leader** | UX/UI design and Full-Stack development team for IDE Graduation Exhibition, KOREATECH
- 2021-2022 **Vice President** | Department of Industrial Design Engineering, KOREATECH

2021	Volunteer Mural Volunteer Club, KOREATECH
2019-2021	Leader UX/UI design and Full-Stack development Club (BCSDlab), KOREATECH
2009-2019	Volunteer Love Shelter for People with Disabilities, Seoul, Korea
2018	Founder & Leader Creative Volunteer Club, Seoul, Korea
2017	Volunteer Sangil Community Child Center, Seoul, Korea

WORK EXPERIENCE

08/2022-01/2024	CO-Founder & Product Lead BESPORTS <i>Startup developing sensor-integrated strength training systems, Cheonan, Korea</i> • Co-founded startup developing sensor-integrated strength training systems for pin- and plate-loaded machines. • Led product design, hardware prototyping, and mobile feedback integration.
07/2023-10/2023	UX/UI Designer & Education Lead MADEALL <i>Startup manufacturing 3D printers and providing design education programs, Gyeonggi, Korea</i> • Designed UX/UI for company's education platform and official webpage. • Developed and delivered 3D modeling/printing workshops for K-12 students.

TEACHING EXPERIENCE

08/2020-Present	Teaching Assistant KOREATECH HRDI (<i>Vocational and Technical Education Program</i>) • AI-based video production, 3D modeling, Drone utilization, DSLR utilization.
06/2025	Instructor KOICA (Korea International Cooperation Agency, <i>Morocco Masters Program</i>) • 3D Printing and Scanning Workshop.
2024-2025	Teaching Assistant KOREATECH (Industrial Design Engineering, <i>Undergraduate Course</i>) • HCI (Spring 2024, 2025), Design Ergonomics (Fall 2024).
12/2024	Instructor Moducon 2024 (<i>Open Public Workshop</i>) • AI-based images production Workshop.
2024	Teaching Assistant DSC (Daejeon-Sejong-Chungnam University, Smart Human Interface, Undergraduate Course) • Affective Engineering (Fall 2024), Automotive Ergonomics (Spring 2024).

SKILLS

<i>Data Analysis</i>	EEG analysis (MNE-Python), Behavioral data analysis (Python), Qualitative methods, Classification modeling (MATLAB), Stress/strain analysis (SolidWorks, Ansys).
<i>Software Development</i>	Web development (HTML, CSS, JS), UX/UI prototyping (Figma), AR/VR (Apple Vision Pro via Xcode, Unity), Visualization (Adobe Suite, Keyshot), Data processing (Spark).
<i>Hardware Prototyping</i>	3D printing & scanning, Microcontroller prototyping (Arduino), CAD modeling (SolidWorks, AutoCAD, Rhino, 3ds Max, Blender), CNC machining, circuit assembly.