

Seokhyun (Shawn) Hwang

Ph.D. Student | University of Washington

- ▣ Human Computer Interaction

▣ Haptic Interface
- ▣ VR / AR

▣ Wearable Device

Email: seokhyun@uw.edu
Website: www.seokhyunhwang.com

EDUCATION

- ▣ University of Washington, United States | Information Science, Information School (Expected)

Sep 2024 – Present

Doctor of Philosophy (Ph.D.) (Advisor: Jacob O. Wobbrock)
- ▣ Gwangju Institute of Science and Technology, Korea | Intelligent Robotics, School of Integrated Technology

Sep 2021 – Aug 2023

Master of Science (M.S.) (Advisor: SeungJun Kim)
- ▣ Gwangju Institute of Science and Technology, Korea | Department of Mechanical Engineering

Mar 2017 – Aug 2021

Bachelor of Science (B.S.)

PROFESSIONAL EXPERIENCE

- ▣ University of Washington | Teaching Assistant

Sep 2024 – Present
- ▣ Gwangju Institute of Science and Technology | Research Associates

Sep 2023 – Aug 2024
- ▣ Gwangju Institute of Science and Technology | Teaching Assistant

Sep 2021 – Aug 2023
- ▣ Human-Centered Intelligence Systems Lab | Research Intern (Advisor: SeungJun Kim)

Jan 2021 – Aug 2021
- ▣ Intelligent Medical Robotics Lab | Research Intern (Advisor: Jungwon Yoon)

Jun 2020 – Dec 2020
- ▣ BA Energy Lab | Industrial-Academic Intern

Dec 2019 – Feb 2020
- ▣ National University of Laos | Experiment Instructor

Jul 2019

- Educational volunteer for college students of the NUOL and Khon, Kaen University of Thailand
 - Teaching & Experimental Assist in the production of Dye-Sensitized Solar Cells using Anthocyanin
- ▣ 2019 GIST Science Camp | Instructor, Experiment Team Leader, Design Team Leader

Jan 2019

- Providing experimental education to elementary and middle school students in the local community

TECHNICAL STRENGTHS

- ▣ Modeling & Designing | Autodesk Inventor, Fusion 360, Blender, KiCad
- ▣ Software & Tools | COMSOL Multiphysics, LABVIEW, MATLAB, Unity, Cubase, Adobe Premiere Pro, Final Cut Pro
- ▣ Programming Languages | C, C#, Python, JAVA, MATLAB

CONFERENCES & JOURNALS

- [c.8]

Kang, S., Kim, G., **Hwang, S.**, Park, J., Elsharkawy, A., and Kim, S. "Flip-Pelt: Motor-Driven Peltier Elements for Rapid Thermal Stimulation and Congruent Pressure Feedback in Virtual Reality"

Proceedings of the 2024 ACM Symposium on User Interface Software and Technology (Accepted)
- [c.7]


Kim, G., **Hwang, S.**, Seong, M., Yeo, D., Daniela Rus, and Kim, S. "TimelyTale: A Multimodal Dataset Assessing Passenger's Demands for Explanations in Highly Automated Vehicles"

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, Vol. 8, No.3
- [c.6]


Jo, T., Yeo, D., Kim, G., **Hwang, S.**, and Kim, S. "WatchCap: Improving Scanning Efficiency in People with Low Vision through Compensatory Head Movement Stimulation."

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, Vol. 8, No. 2
- [j.2]

Lee, J., **Hwang, S.**, Kim, K., and Kim, S. "Evaluation of Visual, Auditory, and Olfactory Stimulus-Based Attractors for Intermittent Reorientation in Virtual Reality Locomotion."

- [c.5] **Hwang, S.,** Oh, J., Kang, S., Seong, M., Elsharkawy, A., and Kim, S. "ErgoPulse: Electrifying Your Lower Body With Biomechanical Simulation-based Electrical Muscle Stimulation Haptic System in Virtual Reality."  **Honorable mention**


Proceedings of the 2024 CHI conference on Human Factors in Computing Systems

- [c.4] Elsharkawy, A., Ataya, A., Yeo, D., An, E., **Hwang, S.,** and Kim, S. "SYNC-VR: Synchronizing Your Senses to Conquer Motion Sickness for Enriching In-Vehicle Virtual Reality."  **Honorable mention**

Proceedings of the 2024 CHI conference on Human Factors in Computing Systems

- [j.1] Lee, J., **Hwang, S.,** Ataya, A., and Kim, S. "Effect of Optical Flow and User VR Familiarity on Curvature Gain Thresholds for Redirected Walking."

Virtual Reality 28, 35 (2024)

- [c.3] **Hwang, S.,** Kim, Y., Seo, Y., and Kim, S. "Enhancing Seamless Walking in Virtual Reality: Application of Bone-Conduction Vibration in Redirected Walking."  **Honorable mention**

2023 IEEE International Symposium on Mixed and Augmented Reality (ISMAR)

- [c.2] Kang, Y., Choi, S., An, E., **Hwang, S.,** and Kim, S. "Designing Virtual Agent Human-Machine Interfaces Depending on the Communication and Anthropomorphism Levels in Augmented Reality."  **Honorable mention**

Proceedings of the 2023 International Conference on Automotive UI

- [c.1] **Hwang, S.,** Lee, J., Kim, Y., Seo, Y., and Kim, S. "Electrical, Vibrational, and Cooling Stimuli-Based Redirected Walking: Comparison of Various Vestibular Stimulation-Based Redirected Walking Systems."

Proceedings of the 2023 CHI conference on Human Factors in Computing Systems

POSTERS & WORKSHOPS

- [w.4] **Hwang, S.,** Kang, S., Oh, J., Park, J., Shin, S., Yiyue Luo, Joseph DelPreto, Wojciech Matusik, Daniela Rus, and Kim, S. "Proposal of a Framework for Enhancing Teleoperation Experience with Biomechanical Simulation-Based Electrical Muscle Stimulation in Virtual Reality"

UbiComp '24: Companion of the 2024 on ACM International Joint Conference on Pervasive and Ubiquitous Computing

- [w.3] Elsharkawy, A., Ataya, A., Yeo, D., Seong, M., **Hwang, S.,** Joseph DelPreto, Wojciech Matusik, Daniela Rus, and Kim, S. "Adaptive In-Vehicle Virtual Reality for Reducing Motion Sickness: Manipulating Passenger Posture During Driving Events"

UbiComp '24: Companion of the 2024 on ACM International Joint Conference on Pervasive and Ubiquitous Computing

- [w.2] Choi, Y., Yeo, D., **Hwang, S.,** Seong, M., Moon, J., Yiyue Luo, Wojciech Matusik, Daniela Rus, and Kim, K. "Intelligence Walker: A Seamless Mobility Assist Device for the Elderly."

2024 IEEE ICRA Workshop on Wearable

- [w.1] Kang, S., Kim, G., **Hwang, S.,** Park, J., Elsharkawy, A., and Kim, S. "Dual-sided Peltier Elements for Rapid Thermal Feedback in Wearables."

2024 IEEE ICRA Workshop on Wearable

- [p.4] Kim, Y., **Hwang, S.,** Oh, J., and Kim, S. "GaitWay: Gait Data-Based VR Locomotion Prediction System Robust to Visual Distraction."

Extended Abstracts of the 2024 CHI conference on Human Factors in Computing Systems

- [p.3] Gim, B., Kang, S., Kim, G., Yeo, D., **Hwang, S.,** and Kim, S. "Curving the Virtual Route: Applying Redirected Steering Gains for Active Locomotion in In-Car VR."

Extended Abstracts of the 2024 CHI conference on Human Factors in Computing Systems

- [p.2] **Hwang, S.,** Lee, J., Kim, Y., and Kim, S. "REVES: Redirection Enhancement Using Four-Pole Vestibular Electrode Stimulation."

Extended Abstracts of the 2022 CHI conference on Human Factors in Computing Systems

- [p.1] Lee, J., **Hwang, S.,** Kim, K., and Kim, S. "Auditory and Olfactory Stimuli-Based Attractors to Induce Reorientation in Virtual Reality Forward Redirected Walking."

Extended Abstracts of the 2022 CHI conference on Human Factors in Computing Systems

PATENTS & COPYRIGHTED CONTENTS

- [pa.1] **Hwang, S.,** Lee, J., Kim, Y., Seo, Y., and Kim, S. "Method and System for Supporting Walking in Virtual Environment."

[cc.1, 2] Kim, S., Kang, S., Kang, Y., Kim, K., Seong, M., An, E., Yang, H., Yeo, D., Oh, J., Jeon, H., Jo, T., and **Hwang, S.** "Mobility-Linked Virtual Reality-Based Underwater Exploration Immersive Content Game Software (**cc.2**: Underwater Exploration & Ocean Trash Collection Game). & (**cc.1**: Underwater Exploration & Underwater Gem Collection Game)."

Copyright for Computer Program Works **cc.2**: C-2022-050134 & **cc.1**: C-2022-050133 (KR)

AWARDS & HONORS

▣ Gell Mason Endowed Fellowship, University of Washington	Sep 2024
▣ Provost-Funded Fellow, University of Washington	Sep 2024
▣ Startup Funding, University of Washington	Sep 2024
▣ Special Recognitions, ACM IMWUT Outstanding Reviews in 2024 IMWUT	Aug 2024
▣ Honorable Mentions, 2024 CHI conference on Human Factors in Computing Systems Top 5% of Conference Papers [c.5]	May 2024
▣ Honorable Mentions, 2024 CHI conference on Human Factors in Computing Systems Top 5% of Conference Papers [c.4]	May 2024
▣ Honorable Mentions, IEEE International Symposium on Mixed and Augmented Reality 2nd Prize of Conference Papers [c.3]	Oct 2023
▣ Honorable Mentions, International ACM Conference on Automotive UI Top 5% of Conference Papers [c.2]	Sep 2023
▣ Special Recognitions, ACM UIST Outstanding Reviews in 2023 UIST	May 2023
▣ President Award, GIST 1st Prize in Table Tennis Robot at the 4th GIST Creative Convergence Competition in 2020	Aug 2020
▣ Scholarship for Academic Excellence	Sep 2020 – Dec 2020
▣ Industry-Academic Cooperation Scholarship	Dec 2019 – Feb 2020
▣ Scholarship for Overseas Summer Semester Exchange Students Boston University Exchange Student Scholarship	Jun 2018 – Aug 2018
▣ Government Supported Scholarship, Korea Bachelor's Degree Government Scholarship	Mar 2017 – Aug 2021

INVITED TALKS

▣ University of Chicago, Human Computer Integration Lab Invited Presentation (hosted by Pedro Lopes)	Jan 2024
▣ HCI Korea 2024, ACM SIGCHI Invited Presentation on “Vestibular Stimuli-Based Redirected Walking” (hosted by Inseok Hwang)	Jan 2024