Hee-Seung Moon, Ph.D. Candidate

CONTACT INFORMATION

School of Integrated Technology
College of Engineering
Yonsei University
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EDUCATION

M.S./Ph.D. Student, School of Integrated Technology, College of Engineering
Yonsei University, Korea 2015 - present

B.S., School of Integrated Technology, College of Engineering
Yonsei University, Korea 2015
Highest GPA in the graduation class of 2015 in the School of Integrated Technology

RESEARCH INTEREST

Human-Robot Interaction, Deep Learning, Robotic Guidance

EXPERIENCE

Research Assistant, Intelligent Unmanned Systems Laboratory (Prof. Jiwon Seo)
Yonsei University 2015 - present
Developed deep learning-based haptic guidance assisting users in performing tasks
Developed imaginary rollout-based robot training method engaging with humans
Experimented on the effect of haptic information in human multitasking

Teaching Assistant, IIT4312 Mechatronics Project (Prof. Jiwon Seo)
Yonsei University Sprint 2017 & Spring 2018
Helped undergraduate students for their class projects about robot control and artificial intelligence

Teaching Assistant, IIT1301 Cognitive Science (Prof. Jongsoo Baek)
Yonsei University Spring 2016
Helped undergraduate students for their assignments about cognitive science

UX Designer, Samsung Design Membership (22nd) 2014 - 2016
Participated in user experience design research projects and industrial activities with the support of Samsung Electronics

INTERNATIONAL PUBLICATIONS

H.-S. Moon and J. Seo, "Optimal Action-based or User Prediction-based Haptic Guidance: Can You Do Even Better?," In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)*, accepted.

H.-S. Moon and J. Seo, "Dynamic difficulty adjustment via fast user adaptation," In *The Adjunct Publication of the 33rd Annual ACM Symposium on User Interface Software and Technology (UIST '20 Adjunct)*, 13–15, 2020.

H.-S. Moon and J. Seo, "Prediction of human trajectory following a haptic robotic guide using recurrent neural networks," In *2019 IEEE World Haptics Conference (WHC)*, 157–162, 2019.

H.-S. Moon and J. Seo, "Observation of human response to a robotic guide using a variational autoencoder," In *2019 Third IEEE International Conference on Robotic Computing (IRC)*, 258–261, 2019.

H.-S. Moon, W. Kim, S. Han, and J. Seo, "Observation of human trajectory in response to haptic feedback from mobile robot," In *2018 18th International Conference on Control, Automation and Systems (ICCAS)*, 1530–1534, 2018.

J. Lee, Y. J. Morton, J. Lee, **H.-S. Moon**, and J. Seo, "Monitoring and mitigation of ionospheric anomalies for GNSS-based safety critical systems: A review of up-to-date signal processing techniques," *IEEE Signal Processing Magazine*, 34(5), 96–110, 2017.

H.-S. Moon and J. Seo, "Effect of local-adaptive haptic guidance on a path-following task," In *2017 17th International Conference on Control, Automation and Systems (ICCAS)*, 1276–1280, 2017.

H.-S. Moon, J. Baek, and J. Seo, "Effect of redundant haptic information on task performance during visuo-tactile task interruption and recovery," *Frontiers in Psychology*, 7, 1924, 2016.

H.-S. Moon and D. Y. Ju, "Adaptive UI from human behavior pattern on small screen interface: Focused on double-swipe interface," In *International Conference on Human-Computer Interaction (HCII)*, 39–44, 2015.

Domestic Publications

H.-S. Moon and J. Seo, "Observation of pedestrian trajectory according to the speed of mobile robot contacting and guiding the pedestrian," In *2018 Korea Navigation Institute (KONI) Conference*, 2018.

S. Han, **H.-S. Moon**, and J. Seo, "Development of human following mobile robot utilizing haptic signals," In *2018 Korea Navigation Institute (KONI) Conference*, 2018.

H.-S. Moon and J. Seo, "Software development to generate haptic guidance on a path-following task," In *2017 Korea Navigation Institute (KONI) Conference*, 2017.

M. Gil, D. Kim, Y. Na, H. Park, **H.-S. Moon**, and J. Seo, "Implementation of A-star algorithm using mobile robot platform and ultrasonic sensors," In *2017 Korea Navigation Institute (KONI) Conference*, 2017.

H.-S. Moon and J. Seo, "Relationship between interruption period and resumption cost during task interruption specialized in haptic sensory," In *Summer Annual Conference of Institute of Electronics and Information Engineers (IEIE)*, 1893–1895, 2016.

H.-S. Moon and D. Y. Ju, "Suggestion for adaptive UI with analysis of gesture error pattern," In *Proceedings of HCI KOREA 2015*, 21–23, 2014.

H.-S. Moon and D. Y. Ju, "Adaptive user interface with personalizing gesture on the mobile device," In *2014 Korea Society of Design Science (KSDS) Spring Conference*, 80–81, 2014.

Preprints

H.-S. Moon and J. Seo, "Sample-efficient training of robotic guide using human path prediction network," *arXiv preprint arXiv:2008.05054*, 2020.

Patents

H.-S. Moon and J. Seo, Apparatus and method for predicting walking paths using of user moving along a robot guide, 10-2020-0015720, Filed on 10 February 2020, Korea.

Awards and Honors

Best Paper Award, 2017 Korea Navigation Institute (KONI) Conference 2017

Graduate fellowship for 4 years from the ICT Consilience Creative Program supported by the Ministry of Science and ICT, Korea 2015 - 2018

Minister's Award, Ministry of Science and ICT, Korea 2014

Academic Excellence Award, Yonsei University, Korea Spring 2014, Spring & Fall 2013

Undergraduate fellowship for 3 years from the ICT Consilience Creative Program supported by the Ministry of Science and ICT, Korea 2012 - 2014