

EDUCATION

M.S./Ph.D	Computer Science, University of Massachusetts Amherst, MA, United States	2021–
B.S.	Robot Engineering, Hanyang University ERICA, Ansan, Republic of Korea	2013–2019

RESEARCH AREAS

Robotics, Human-Robot Interaction, Computer Vision

PUBLICATIONS

Conference

- 2024 [Towards Robotic Companions: Understanding Handler-Guide Dog Interactions for Informed Guide Dog Robot Design](#)
H. Hwang, H.T. Jung, N.A. Giudice, J. Biswas, S.I. Lee*, and D. Kim*
CHI 2024
- 2023 [System Configuration and Navigation of a Guide Dog Robot: Toward Animal Guide Dog-Level Guiding Work](#)
H. Hwang[†], T. Xia[†], I. Keita, K. Suzuki, J. Biswas, S.I. Lee*, and D. Kim*
ICRA 2023
- 2018 [Control Scheme and Uncertainty Considerations for Dynamic Balancing of Passive-Ankled Biped and Full Humanoids](#)
D. Kim, S.J. Jorgensen, H. Hwang, and L. Sentis
Humanoids 2018
- 2018 [Computationally-Robust and Efficient Prioritized Whole-Body Controller with Contact Constraints](#)
D. Kim, J. Lee, O. Campbell, H. Hwang, and L. Sentis
IROS 2018

Journal

- 2021 [ElderSim: A Synthetic Data Generation Platform for Human Action Recognition in Eldercare Applications](#)
H. Hwang, C. Jang, G. Park, J. Cho, and I.J. Kim
IEEE Access 2021.
- 2021 [Highly Sensitive Capacitive Pressure Sensors over a Wide Pressure Range Enabled by the Hybrid Responses of a Highly Porous Nanocomposite](#)
K.H. Ha, W. Zhang, H. Jang, S. Kang, L. Wang, P. Tan, H. Hwang, and N. Lu
Advanced Materials 2021.

Preprint

- 2024 [Is it safe to cross? Interpretable Risk Assessment with GPT-4V for Safety-Aware Street Crossing](#)
H. Hwang, S. Kwon, Y. Kim, and D. Kim
arXiv 2024.

Workshop

- 2023 [Dynamic Object Avoidance using Event-Data for a Quadruped Robot](#)
S. Zhu, N. Perara, S. Yu, H. Hwang, and D. Kim
IROS IPPC workshop 2023.

Patent

- 2022 [Human behavior recognition system and method using hierarchical class learning considering safety](#)
J. Cho, I. J. Kim, and H. Hwang
U.S. Patent Application (17/565,453)

RESEARCH EXPERIENCE

- 2021– **Graduate Research Assistant, DARoS Lab @ UMass Amherst**
User-centered guide dog robot development for blind and low-vision individuals: implementing learning algorithms for perception and planning in legged systems for safe and efficient navigation.
- 2019–2020 **Research Intern, Center for AI @ Korea Institute of Science and Technology**
Evaluation of synthetic data augmentation for human action recognition models.
- 2017–2018 **Undergraduate researcher, Human Centered Robotics Lab @ UT Austin**
Testing and optimizing the 6 DOF passive-ankled biped robot, Mercury.
- 2018 **Undergraduate Researcher, Lu Research Group @ UT Austin**
Manufacturing and testing flexible resistive force sensors for lower-limb prosthetic stress distribution.

AWARDS & SCHOLARSHIP

Awards and Honors

- 2023 CYBATHLON Challenges 2023 - Vision Assistance Race 2nd place
- 2017 STEAM CUP - Creative Technology and Excellence Award

Scholarship & Fellowships

- 2021 University of Massachusetts Amherst CICS Jumpstart Fellowship
- 2016-2017 {Hanyang University, Haksan Foundation} Academic Achievement Scholarship

TEACHING EXPERIENCE

Teaching Assistant @ UMass Amherst

- Spring 2023 Robotics (COMPSCI 603) – [mobile robot platform setup](#)
- Fall 2022 Introduction to Robotics - Mechanics, Dynamics, and Control (COMPSCI 403) – [interactive quiz](#)

Student Mentor @ UMass Amherst

- Honors thesis – [Krisha Adhikari](#) (synthetic data), [Matthew Hersey](#) (deep learning)
- Research & independent study – [Tim Xia](#) (path planning), [Ken Suzuki](#) (CAD), [Millan Taranto](#) (CAD)

ACADEMIC SERVICE

Reviewer – **RA-L'24, CHI'24, IROS'23, ICRA'22**

UMass Korean Graduate Student Association (KGSA) President 2022-2023

TECHNICAL & RESEARCH SKILLS

Programming & software: Python, C++, MATLAB, PyTorch, TensorFlow, ROS, Unreal Engine, Docker, Git
Mechatronics: SOLIDWORKS (Certified SolidWorks Associate), CATIA, Onshape

Updated February 2024