

## 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 [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  
**UR 2024.**
- 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<sup>†</sup>, T. Xia<sup>†</sup>, 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.**

## 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: Visual-Teach & Repeat methods 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**  
Real-time human action recognition system development and synthetic data augmentation evaluation.
- 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 April 2024