

# Daehwa Kim

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## RESEARCH INTERESTS

My research explores the intersection of Human-Computer Interaction, Sensing, and Robotics. I am interested in sensing solutions that enhance the embodiment of our computing devices by understanding user context, environment, and pose. I interned at Apple AIML Robotics (2024, 2025) and Meta Reality Labs (2023). I presented papers at prestigious computer science conferences such as ACM CHI, UIST, and have received two Best Paper Honorable Mention awards at CHI.

## EDUCATION

**Ph.D. student, Carnegie Mellon University**, School of Computer Science, Human-Computer Interaction Institute Sep 2022 – Current  
▪ Advised by Prof. Chris Harrison at Future Interfaces Group

**M.Sc., KAIST**, School of Computing Mar 2019 – Feb 2021  
▪ Advised by Prof. Geehyuk Lee at Human-Computer Interaction Lab  
▪ Graduated with 2020 Best Thesis Award

**B.S., UNIST**, Electrical and Computer Engineering Mar 2015 – Feb 2019  
▪ Computer Science and Engineering (Major) and Electrical Engineering (Minor)  
▪ Entered with top honors.  
▪ Summer session program, University of the Arts London, London, UK Jul 2018

## PROFESSIONAL EXPERIENCE

**Apple**, Santa Clara, CA May 2025 – Aug 2025  
▪ AI for Robotics Research Intern  
▪ Mentor: Ken Goldberg, Chen Chen

**Apple AIML Robotics**, Cupertino, CA May 2024 – Aug 2024  
▪ ML Research Intern  
▪ Manager: Mario Srouji

**Meta Reality Labs**, Redmond, WA May 2023 – Aug 2023  
▪ Research Scientist Intern  
▪ Manager: Eric Whitmire

## ACADEMIC SERVICE

**UIST'26 Registration Co-Chair**, Detroit, Michigan, USA  
**UIST'25 Student Volunteer Co-Chair**, Busan, South Korea  
**Session Chair**  
▪ CHI '26 “Inferring Human State”

**Reviewer**  
▪ IEEE T-RO'26, CHI '26, ISWC '25, UIST '25, CHI '25, UIST '24, DIS '24, SIGGRAPH '24 Poster, CHI '24, IMWUT '23, SIGGRAPH '23 Poster, UIST '23, CHI '23, UIST '22, CHI '22 LBW, IMWUT '21, CHI '21 LBW

## AWARDS & HONORS

**Best Paper Honorable Mention Award (Top 5%)** ACM CHI May 2022  
**Best Paper Honorable Mention Award (Top 5%)**, ACM CHI May 2021  
**Best Master's Thesis Award**, KAIST School of Computing Feb 2021  
**Dean's List** for five semesters, UNIST Mar 2015 – Feb 2019  
**Uni-Star Scholarship** for top ranking in entrance exam, UNIST Mar 2015 – Feb 2019

## PUBLICATIONS

- [1] [Daehwa Kim](#), Chris Harrison, “Acoustic Field Video for Multimodal Scene Understanding” in *arXiv 2026*, Jan 2026.
- [2] [Daehwa Kim](#), Chris Harrison, “SoundBubble: Finger-Bound Virtual Microphone using Headset/Glasses Beamforming” in *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*, Apr 2026.

- [3] [Daehwa Kim](#), Robert Xiao, Chris Harrison, “PatternTrack: Multi-Device Tracking Using Infrared, Structured-Light Projections from Built-in LiDAR” in *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*, Apr 2025.
- [4] [Daehwa Kim](#), Mario Srouji, Chen Chen, Jian Zhang, “ARMOR: Egocentric Perception for Bimanual Robot Collision Avoidance and Motion Planning” in *2025 IEEE 21st International Conference on Automation Science and Engineering*, Aug 2025.
- [5] Peide Huang, Yuhan Hu, Nataliya Nechyporenko, [Daehwa Kim](#), Walter Talbott, Jian Zhang, “EMOTION: Expressive Motion Sequence Generation for Humanoid Robots with In-Context Learning” in *2025 IEEE Robotics and Automation Letters*, May 2025.
- [6] Andy Kong, [Daehwa Kim](#), Chris Harrison, “Power-over-Skin: On-Body Devices Powered Using Intra-Body RF Energy” in *Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology*, Pittsburgh, PA, USA, Oct 2024.
- [7] [Daehwa Kim](#), Eric Whitmire, Roger Boldu, Wolf Kienzle, and Hrvoje Benko, “SoundScroll: Robust Finger Slide Detection Using Friction Sound and Wrist-Worn Microphones” in *Proceedings of the 2024 ACM International Symposium on Wearable Computers*, Melbourne, VIC, Australia, Oct 2024.
- [8] [Daehwa Kim](#), Vimal Mollyn, and Chris Harrison, “WorldPoint: Finger Pointing as a Rapid and Natural Trigger for In-The-Wild Mobile Interactions” in *Proceedings of the 2023 ACM International Conference on Interactive Surfaces and Spaces*, Pittsburgh, USA, Nov 2023.
- [9] [Daehwa Kim](#), and Chris Harrison, “Pantenna: Mouth Pose Estimation for VR/AR Headsets Using Low-Profile Antenna and Impedance Characteristic Sensing” in *Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology*, San Francisco, USA, Oct 2023.
- [10] Hui-Shyong Yeo, Erwin Wu, [Daehwa Kim](#), Juyoung Lee, Hyung-il Kim, Seo Young Oh, Luna Takagi, Woontack Woo, Hideki Koike, and Aaron J Quigley, “OmniSense: Exploring Novel Input Sensing and Interaction Techniques on Mobile Device with Omni-Directional Camera” in *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*, Hamburg, Germany, Apr 2023.
- [11] [Daehwa Kim](#), and Chris Harrison, “EtherPose: Continuous Hand Pose Tracking with Wrist-Worn Antenna Impedance” in *Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology*, Bend, Oregon, USA, Oct 2022.
- 🏆[12] Craig Shultz, [Daehwa Kim](#), Karan Ahuja, and Chris Harrison, “TriboTouch: Micro-Patterned Surfaces for Low Latency Touchscreens” in *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems*, New Orleans, LA, USA, Apr 2022. **Best Paper Honorable Mention Award; Top 5%**
- 🏆[13] [Daehwa Kim](#), Keunwoo Park, and Geehyuk Lee, “AtaTouch: Robust Finger Pinch Detection for a VR Controller Using RF Return Loss” in *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, Yokohama, Japan. **Best Paper Honorable Mention Award; Top 5%**
- [14] [Daehwa Kim](#), Keunwoo Park, and Geehyuk Lee, “OddEyeCam: A Sensing Technique for Body-Centric Peephole Interaction Using WFoV RGB and NFoV Depth Cameras” in *Proceedings of the 33rd Annual ACM Symposium on User Interface Software and Technology*, Virtual Event, USA, Oct 2020.
- [15] Keunwoo Park, [Daehwa Kim](#), Seongkook Heo, and Geehyuk Lee, “MagTouch: Robust Finger Identification for a Smartwatch Using a Magnet Ring and a Built-in Magnetometer” in *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, Honolulu, Hawaii, USA, Apr 2020.

## PATENTS

- [1] [Daehwa Kim](#), Istvan J. Szini, Chris Harrison, Brian H. Tsang, “Expression estimation for headsets using low-profile antenna and impedance characteristic sensing” US20250110548A1, Carnegie Mellon University and Apple Inc, Apr 2025.
- [2] [Daehwa Kim](#), Vimal Mollyn, Chris Harrison, “System and Method for Interacting with a Mobile Device Using Finger Pointing” US20250085785A1, Carnegie Mellon University, Apr 2025.
- [3] Istvan J. Szini, Chris Harrison, [Daehwa Kim](#), “Continuous hand pose tracking with wrist-worn antenna impedance characteristic sensing” US20240103605A1, Carnegie Mellon University and Apple Inc, Mar 2024.

- [4] Geehyuk Lee, Daehwa Kim, Keunwoo Park, “Electronic device for supporting finger pinch interaction using return loss of radio frequency signal and operating method thereof” US20220244787A1, Korea Advanced Institute of Science and Technology, Aug 2022.
- [5] Seungin Park, Hyongeuk Lee, Sunggeun Ahn, Geehyuk Lee, Daehwa Kim, Keunwoo Park, “Method and apparatus for predicting object of interest of user” US11361540B2, Samsung Electronics Co Ltd, KAIST, Sep 2021.