Daehwa Kim

407 South Craig Street, Pittsburgh, PA 15213
daehwak@cs.cmu.edu • +1 415 937 4111 • https://daehwa.github.io

RESEARCH INTERESTS

My recent research explores the intersection of Human-Computer Interaction, Sensing, and Machine Learning, particularly on transforming antenna systems into advanced interface technologies. I enhance wireless sensing capabilities to improve machine perception, focusing on tracking of the human body, hand, and mouth poses as new input paradigms of spatial computing. I interned at Apple ML Research (2024) and Meta Reality Labs (2023). I presented papers at ACM CHI , UIST, and ISS, 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 ML Research, Cupertino, CA   May 2024 – Aug 2024
- Research Intern
- Manager: Mario Srouji and Jian Zhang

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

Future Interfaces Group, Carnegie Mellon University, Pittsburgh, PA   Sep 2021 – Apr 2022
- Research Associate, Human-Computer Interaction Institute
- Advisor: Chris Harrison

KAIST HCI Lab, Daejeon   Mar 2018 – Jun 2018
- Undergraduate Research Student, School of Computing
- Advisor: Geehyuk Lee

Hyper-connected Communication Research Laboratory, ETRI   Jan 2018 – Mar 2018
- Research Intern

AWARDS & HONORS

Best Paper Honorable Mention Award, ACM CHI 2022   May 2022
- 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, ACM CHI 2021   May 2021
- 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 Master's Thesis Award, KAIST School of Computing   Feb 2021
- Thesis: "OddEyeCam: Sensing Technique for Body-Centric Peephole Interaction Using WFoV RGB and NFoV Depth Cameras"

Uni-Star Scholarship, UNIST   Mar 2015 – Feb 2019
- Tuition + academic funding every semester for the top rank in entrance exam

PUBLICATIONS

[1] <u>Daehwa Kim</u>, Vimal Mollyn, 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.

[2] <u>Daehwa Kim</u>, Chris Harrison, "Pantœnna: 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.

[3] Hui-Shyong Yeo, Erwin Wu, <u>Daehwa Kim</u>, 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.

[4] <u>Daehwa Kim</u>, 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.

[5] Craig Shultz, <u>Daehwa Kim</u>, 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%

[6] <u>Daehwa Kim</u>, 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%

[7] <u>Daehwa Kim</u>, 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.

[8] Keunwoo Park, <u>Daehwa Kim</u>, 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.

ACADEMIC SERVICE

Reviewer
- CHI '24, IMWUT '23, SIGGRAPH '23 Poster, UIST '23, CHI '23, UIST '22, CHI '22 LBW, IMWUT '21, CHI '21 LBW