Daehwa Kim

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RESEARCH INTERESTS

My research goal is to invent technologies that could change the interaction paradigm as if the invention of ”mouse” paved the way for the world of GUIs. I believe that preferable devices by users could decide next decades of interaction paradigm. To do so, I care about the tangled relationship between what humans are already familiar with, feel comfortable with, and emotionally attracted to, and what kind of technological / design problems to solve. Some demonstrations of this idea are published - explored novel sensing principles of segmenting effortless finger touch (AtaTouch) and shifting the form factor of the micro-gesture sensing device to a wristband from a ring (EtherPose). I presented papers at ACM CHI and UIST and have received two 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
- Thesis: “OddEyeCam: Sensing Technique for Body-Centric Peephole Interaction Using WFoV RGB and NFoV Depth Cameras” (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

RESEARCH EXPERIENCE

Meta Reality Labs, Redmond, WA — May 2023 – Aug 2023
- Research Intern
- Mentor: Dr. Eric Whitmire

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

KAIST HCI Lab, Daejeon — Mar 2018 – Jun 2018
- Undergraduate Research Student, School of Computing
- Advisor: Prof. 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] 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.

[2] 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.

[3] 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%

[4] 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%

[5] 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.

[6] 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.

ACADEMIC SERVICE

Reviewer

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