# Daehwa Kim

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

**RESEARCH INTERESTS**

My research goal is creating naturalistic and intimate computing experience by exploring high-fidelity interface technologies. This interest can be applied for various domains, particularly wearable computing, mobile computing and extended reality environments. I presented several papers at ACM CHI and UIST and have been recognized with two Best Paper Honorable Mention awards at CHI.

**EDUCATION**

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

**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, UAL (University of the Arts London), London, UK — Jul 2018

**PUBLICATIONS**

[1] 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.

[2] 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%

[3] 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%

[4] 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.

[5] 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.

**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"

**RESEARCH EXPERIENCE**

**Future Interfaces Group**, Carnegie Mellon University
- Full-time Research Associate, Human-Computer Interaction Institute — Sep 2021 – Apr 2022

- Project: Exploring new touch input and human pose tracking technologies.
- Advisor: Prof. Chris Harrison

**HCI Lab**, KAIST

- Undergraduate Research Student, School of Computing — Mar 2018 – Jun 2018
  - Project: PCB design for a hand gesture sensing wristband.
  - Advisor: Prof. Geehyuk Lee
  - Focus: human-computer interaction, PCB design, physical prototyping

## ACADEMIC SERVICE

**Reviewer**

- UIST ’22, CHI ’22 LBW, IMWUT ’21, CHI ’21 LBW

## PROJECTS

**Audio Hero** — Sep 2019 – Dec 2019
- Sound-based danger detection system using VGGish deep learning model
- Skills: Deep learning, Signal processing

**VRone** — Sep 2018 – Dec 2018
- 3-dimensional force feedback in VR using a personal and commercial drone
- Skills: Unity C# programming, Android programming

**System Light 2.0** @ ETRI — Jan 2018 – Mar 2018
- Smart Home project - Building IoT system for lights
- Skills: Computer network, Natural language processing

**VibCat** — Oct 2017 – Dec 2017
- Vibration Categorization for Input & Interaction
- Skills: Machine learning, Android programming

**Finger joystick interaction** — Feb 2017 – Nov 2017
- Interaction technique to support finger’s directional input using capacitive image of a smartwatch’s touchscreen
- Skills: Machine learning, Android programming

**Poem a moment** — Mar 2017 – Jun 2017
- An android software that shows Yoon Dongju’s poems on the wallpaper
- Available on Google Play store (download 1000+)
- Skills: Android programming

**TUIT Android Lecture** — Jun 2016 – Sep 2016
- Android development lecture provided to TUIT university students
- Skills: Android programming, Object-oriented programming

**Mr.Bill** — Jun 2016 – Jul 2016
- Algorithm and system to provide optimal Dutch pay way
- Available on Google Play store (download 500+)
- Skills: Android programming, Graph theory