

# Hyunsung Cho

✉ hyunsung@cs.cmu.edu

🏠 <http://hyunsungcho.com>

---

## RESEARCH INTERESTS

---

Context-aware computing for eXtended Reality (XR), adaptive XR interface, computational interactions

---

## EDUCATION

---

### Carnegie Mellon University

Ph.D. student in Human-Computer Interaction

Aug. 2021 -

Advisor: David Lindlbauer

### Korea Advanced Institute of Science and Technology (KAIST)

Ph.D. student in Computer Science (Transferred to Carnegie Mellon University)

Mar. 2020 - Apr. 2021

Advisor: Sung-Ju Lee

### Korea Advanced Institute of Science and Technology (KAIST)

M.S. in Computer Science

Mar. 2018 - Feb. 2020

Advisor: Sung-Ju Lee

Thesis: Private Status Sharing and Sender-Controlled Notifications in Mobile Instant Messaging

Thesis Committee: Sung-Ju Lee, Juho Kim, Youn-kyung Lim

### Korea Advanced Institute of Science and Technology (KAIST)

B.S. in Computer Science (Software Advanced Major)

Aug. 2013 - Feb. 2018

*Magna Cum Laude*

---

## PUBLICATIONS

---

### Conference & Journal Papers

- [c.11] **BlendMR: A Computational Method To Create Ambient Mixed Reality Interfaces.**

Violet Han, Hyunsung Cho, Kiyosu Maeda, Alexandra Ion, and David Lindlbauer.

*ISS 2023: ACM Interactive Surfaces and Spaces Conference*

🏆 **Best Paper Award**

- [c.10] **FinerMe: Examining App-level and Feature-level Interventions to Regulate Mobile Social Media Use.**

Adiba Orzikulova, Hyunsung Cho, Hye-Young Chung, Hwajung Hong, Uichin Lee, and Sung-Ju Lee.

*CSCW 2023: ACM Conference on Computer Supported Cooperative Work and Social Computing*

- [c.9] **RealityReality: Detecting and Replaying Temporal Changes In Situ using Mixed Reality.**

Hyunsung Cho, Matthew L. Komar, and David Lindlbauer.

*IMWUT (UbiComp) 2023: ACM Annual Conference on Interactive, Mobile, and Ubiquitous Technologies*

- [c.8] **A Survey on Remote Assistance and Training in Mixed Reality Environments.**

Catarina Gonçalves Fidalgo, Yukang Yan, Hyunsung Cho, Mauricio Sousa, David Lindlbauer, and Joaquim Jorge.

*TVCG 2023: IEEE Transactions on Visualization and Computer Graphics*

- [c.7] **FLAME: Federated Learning Across Multi-device Environments.**

Hyunsung Cho, Akhil Mathur, and Fahim Kawsar.

*IMWUT (UbiComp) 2022: ACM Annual Conference on Interactive, Mobile, and Ubiquitous Technologies*

- [c.6] **You Are Not Alone: How Trending Stress Topics Brought #Awareness and #Resonance on Campus**

Ryuhaerang Choi, Chanwoo Yun, Hyunsung Cho, Hwajung Hong, Uichin Lee, and Sung-Ju Lee.

*CSCW 2022: ACM Conference on Computer Supported Cooperative Work and Social Computing*

- [c.5] **Prediction for Retrospection: Integrating Algorithmic Stress Prediction into Personal Informatics Systems for College Students' Mental Health.**

Taewan Kim, Haesoo Kim, Ha Yeon Lee, Hwarang Goh, Shakhboz Abdigapporov, Mignon Jeong, Hyunsung Cho, Kyungsik Han, Youngtae Noh, Sung-Ju Lee, and Hwajung Hong.

*CHI 2022: ACM CHI Conference on Human Factors in Computing Systems*

- [c.4] **Reflect, not Regret: Modeling Behaviors of Regretful Smartphone Use with App Feature-Level Analysis.**  
Hyunsung Cho, DaEun Choi, Donghwi Kim, Wan Ju Kang, Eun Kyoung Choe, and Sung-Ju Lee.  
*CSCW 2021: ACM Conference on Computer Supported Cooperative Work and Social Computing*  
🏆 Best Paper Award & 🏆 Methods Recognition
- [c.3] **I Share, You Care: Private Status Sharing and Sender-Controlled Notifications in Mobile Instant Messaging.**  
Hyunsung Cho, Jinyoung Oh, Juho Kim, and Sung-Ju Lee.  
*CSCW 2020: ACM Conference on Computer Supported Cooperative Work and Social Computing*
- [c.2] **Knocker: Vibroacoustic-based Object Recognition with Smartphones.**  
Taesik Gong, Hyunsung Cho, Bowon Lee, and Sung-Ju Lee.  
*IMWUT (UbiComp) 2019: ACM Annual Conference on Interactive, Mobile, and Ubiquitous Technologies*
- [c.1] **Intelligent Positive Computing with Mobile, Wearable, and IoT Devices: Literature Review and Research Directions.**  
Uichin Lee, Kyungsik Han, Hyunsung Cho, Kyong-Mee Chung, Hwajung Hong, Sung-Ju Lee, Youngtae Noh, Sooyoung Park, and John M. Carroll.  
*Ad Hoc Networks Journal, Volume 83, 2019*

#### Posters, Demos, and Workshop Papers

- [p.6] **Facilitating Instant Interactions for Stressful Experiences Sharing and Peer Support.**  
Ryuhaeraeng Choi, Chanwoo Yun, Hyunsung Cho, Hwajung Hong, Uichin Lee, and Sung-Ju Lee.  
*MobiSys 2022 Demos: ACM International Conference on Mobile Systems, Applications and Services*
- [p.5] **Device or User: Rethinking Federated Learning in Personal-Scale Multi-Device Environments.**  
Hyunsung Cho, Akhil Mathur, and Fahim Kawsar.  
*AIChallengesIoT 2021: ACM SenSys 2021 Workshop on Challenges in Artificial Intelligence and Machine Learning for Internet of Things*
- [p.4] **I Share, You Care: Private Status Sharing and Sender-Controlled Notifications in Mobile Instant Messaging.**  
Hyunsung Cho, Jinyoung Oh, Juho Kim, and Sung-Ju Lee.  
*CSCW 2020 Demos: ACM Conference on Computer Supported Cooperative Work and Social Computing*
- [p.3] **Sender-Controlled Mobile Instant Message Notifications Using Activity Information.**  
Hyunsung Cho, Jinyoung Oh, Juho Kim, and Sung-Ju Lee.  
*MobiSys 2019 Demos: ACM International Conference on Mobile Systems, Applications and Services*
- [p.2] **Real-Time Object Identification with a Smartphone Knock.**  
Taesik Gong, Hyunsung Cho, Bowon Lee, and Sung-Ju Lee.  
*MobiSys 2019 Videos: ACM International Conference on Mobile Systems, Applications and Services*  
🏆 Best Video Award
- [p.1] **Identifying Everyday Objects with a Smartphone Knock.**  
Taesik Gong, Hyunsung Cho, Bowon Lee, and Sung-Ju Lee.  
*CHI 2018 Extended Abstract: ACM Conference on Human Factors in Computing Systems*

---

#### WORK EXPERIENCE

<p><b>Meta Reality Labs</b>, Redmond, WA, USA  <i>Research Intern</i>          Manager: Kashyap Todi. Research on adaptive multimodal feedback for Extended Reality (XR) interfaces.</p> <p><b>Augmented Perception Lab</b>, Pittsburgh, PA, USA  <i>Ph.D. Student</i>          Advisor: David Lindlbauer. Research on a context-aware adaptive interface for Augmented Reality.</p> <p><b>Nokia Bell Labs</b>, Cambridge, UK  <i>Research Intern</i></p>	<p>May 2023 - Sep. 2023</p> <p>Aug. 2021 -</p> <p>May 2021 - Jul. 2021</p>
---	--

Mentor: Akhil Mathur. Worked on federated learning research in multi-device settings at personal scale in Pervasive Systems Team. Selected as representative of Application Platforms & Software Systems Research Lab for global Bell Labs summer intern presentation (~5%).

**KAIST Networking and Mobile Systems Lab (NMSL)**, Daejeon, South Korea Mar. 2017 - Apr. 2021  
Graduate Student

Advisor: Sung-Ju Lee. Research on context-aware computing to reduce digital distractions for digital wellbeing:

**Kiswe Mobile Inc.**, New Providence, NJ, USA Jun. 2017 - Aug. 2017  
Web Frontend Developer

Developed a trivia widget for interactive mobile sports streaming service. The widget was included in the live service for the IAAF Diamond League event in collaboration with VRT Sporza. The service was covered in press. Developed tools to support video streamers such as a multi-view layout editor for multi-cam videos; an easy drag-and-drop thumbnail uploader; and a live streaming control interface.

**KAIST Interaction Lab (KIXLAB)**, Daejeon, South Korea Dec. 2015 - Feb. 2017  
Research Intern

Advisers: Jihee Kim and Juho Kim. Research on analysis of presidential election promises in relation with government budget expenditure data through crowdsourcing.

---

## AWARDS & HONORS

---

<b>Best Paper Award</b> ACM ISS 2023 [c.11]	2023
<b>Sponsored Research by Meta Reality Labs</b>	2023
<b>SAP Travel Grant for 10th Heidelberg Laureate Forum</b>	2023
<b>10th Heidelberg Laureate Forum Young Researcher</b>	2023
<b>Special Recognitions for Outstanding Reviews</b> ACM CHI 2023, ACM CHI 2022, ACM CSCW 2021, ACM CSCW 2020	2020-2023
<b>Best Paper Award</b> ACM CSCW 2021 [c.4]	2021
<b>Methods Recognition</b> ACM CSCW 2021 [c.4]	2021
<b>Bell Labs Summer Intern Award for Outstanding Innovation</b> Nokia Bell Labs Global Intern Program 2021 [c.7]	2021
<b>NAVER Ph.D. Fellowship Award</b> \$5K Academic scholarship, awarded based on research performance	2020
<b>Best TA Award</b> KAIST School of Computing	2019
<b>Google Women Techmakers Scholars</b> \$1K Academic scholarship, awarded based on academic performance, leadership, and impact on the community of women in tech	2019
<b>Best Video Award</b> ACM MobiSys 2019 [p.2]	2019
<b>Best Poster/Demo Award</b> ACM SIGCHI Local Chapter [p.1]	2018
<b>Undergraduate Research Program</b> \$2K Research grant awarded by KAIST	2016
<b>Runner-up in the 3rd Korea SW Hackathon</b> \$3K Award by the Ministry of Science, ICT and Future Planning of Republic of Korea	2016
<b>National Science &amp; Technology Scholarship</b> Merit-based scholarships	2014 - 2017

---

## ACADEMIC SERVICES

---

ACM CHI Subcommittee Chair Assistant	2024
ACM CHI Reviewer	2022, 2023, 2024
ACM IMWUT Reviewer	2022, 2023
ACM UIST Reviewer	2022, 2023
ACM CSCW Reviewer	2020, 2021
ACM MobileHCI Reviewer	2021, 2023
PRESENCE: Virtual and Augmented Reality Reviewer	2022
IJHCI (International Journal of Human-Computer Interaction) Reviewer	2022
ACM Computing Surveys Reviewer	2020
ACM SIGGRAPH Poster Reviewer	2022, 2023
ACM CHI Late Breaking Work Reviewer	2021, 2023
CMU SCS Women/Non-binary Lunch Organizer	2023
ACM UIST Student Volunteer	2021, 2022
ACM MobiSys Student Volunteer	2019

---

## TEACHING EXPERIENCE

---

Teaching Assistant, Carnegie Mellon University 05-430 Programming Usable Interfaces (Prof. Alexandra Ion)	Fall 2022
Teaching Assistant, Carnegie Mellon University 05-391 Designing Human-Centered Software (Prof. Chris Harrison)	Spring 2022
Teaching Assistant, KAIST CS101 Introduction to Programming	Fall 2016 - Fall 2017, Fall 2020
Teaching Assistant, KAIST CS341 Introduction to Computer Networks (Prof. Sung-Ju Lee)	Fall 2018, Spring 2020
Head Teaching Assistant, KAIST CS341 Introduction to Computer Networks (Prof. Sung-Ju Lee)	Spring 2019
Invited Student Panel, KAIST CS492 Introduction to Research (invited by Juho Kim, Sung-Ju Lee, and Shin Yoo)	Spring 2019

---

## INVITED TALKS

---

Vibroacoustic-based Object Recognition with Smartphones 2019 IAT (Information Accessibility Technology) Conference	Nov. 22, 2019
---	---------------

---

## SELECTED PRESS

---

KAIST Breakthroughs, Can AI empower college students to be their own health agent?	Sep. 2022
Tech Xplore, Researcher seeks to understand the regret behind social media use	Nov. 2021
EurekAlert, Carnegie Mellon University researcher seeks to understand the regret behind social media	Nov. 2021
Electronics Weekly, Sensor fusion lets phone identify objects by simply knocking against them	Oct. 2019
Science Daily, Object identification and interaction with a smartphone knock	Oct. 2019
NEW ATLAS, Smartphone tech recognizes objects by being knocked against them	Oct. 2019
Nerdiest, This algorithm makes smartphones recognize objects just by Knocking them	Apr. 2018

<b>ICT NEWS</b> , New application allows you to identify an object by tapping it with a smartphone	<i>Apr. 2018</i>
<b>Sporza</b> , Sporza biedt interactieve primeur met Kiswe Mobile tijdens Diamond League Brussel	<i>Aug. 2017</i>
<b>PRWeb</b> , VRT Sporza and Kiswe Offer End Users a First Ever Fully Interactive Mobile Experience Around Diamond League Brussels	<i>Aug. 2017</i>
<b>VRT Innovatie</b> , Interactieve Primeur Tijdens Diamond League Brussel Met VRT Sandbox, Sporza & Kiswe	<i>Aug. 2017</i>