

# Hyunsung Cho

🏠 <http://hyunsungcho.com>    ✉ [hyunsung@cs.cmu.edu](mailto:hyunsung@cs.cmu.edu)

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## RESEARCH INTERESTS

Context-aware computing, Extended Reality (XR), computational modeling, multimodal interactions

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## 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*

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## PUBLICATIONS

### Conference & Journal Papers

[c.15] **Push2AR: Enhancing Mobile List Interactions Using Augmented Reality.**

Jonathan Wieland, Hyunsung Cho, Sebastian Hubenschmid, Akihiro Kiuchi, Harald Reiterer, David Lindlbauer.

*ISMAR 2024: IEEE International Symposium on Mixed and Augmented Reality*

[c.14] **Auptimize: Optimal Placement of Spatial Audio Cues for Extended Reality.**

Hyunsung Cho, Alexander Wang, Divya Kartik, Emily Liying Xie, Yukang Yan, and David Lindlbauer.

*UIST 2024: ACM Symposium on User Interface Software and Technology*

[c.13] **SonoHaptics: An Audio-Haptic Cursor for Gaze-Based Object Selection in XR.**

Hyunsung Cho, Naveen Sendhilnathan, Michael Nebeling, Tianyi Wang, Purnima Padmanabhan, Jonathan Browder, David Lindlbauer, Tanya R. Jonker, and Kashyap Todt.

*UIST 2024: ACM Symposium on User Interface Software and Technology*

[c.12] **MineXR: Mining Personalized Extended Reality Interfaces.**

Hyunsung Cho, Yukang Yan, Kashyap Todt, Mark Parent, Missie Smith, Tanya Jonker, Hrvoje Benko, and David Lindlbauer.

*CHI 2024: ACM CHI Conference on Human Factors in Computing Systems*

[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.7] **MineXR: Mining Personalized Extended Reality Interfaces**  
Hyunsung Cho, Yukang Yan, Kashyap Todi, Mark Parent, Missie Smith, Tanya Jonker, Hrvoje Benko, and David Lindlbauer.  
*CHI 2024 Workshop: Computational Methodologies for Understanding, Automating, and Evaluating User Interfaces*
- [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.  
*AIChallengerIoT 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*

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## WORK EXPERIENCE

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- Augmented Perception Lab**, Pittsburgh, PA, USA Aug. 2021 -  
*Ph.D. Student*  
 Advisor: David Lindlbauer. Research on a context-aware adaptive interface for Augmented Reality.
- Meta Reality Labs**, Redmond, WA, USA May 2023 - Sep. 2023, May 2024 - Sep. 2024  
*Research Intern*  
 Manager: Kashyap Todi. Research on adaptive multimodal feedback for Extended Reality (XR) interfaces.
- Nokia Bell Labs**, Cambridge, UK May 2021 - Jul. 2021  
*Research Intern*  
 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.

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## AWARDS & HONORS

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- Best Paper Award ACM ISS 2023** 2023  
 BlendMR: A Computational Method to Create Ambient Mixed Reality Interfaces [c.11]
- Best Paper Award ACM CSCW 2021** 2021  
 Reflect, not Regret: Modeling Behaviors of Regretful Smartphone Use with App Feature-Level Analysis [c.4]
- Sponsored Research by Meta Reality Labs** 2023-2024
- Special Recognitions for Outstanding Reviews** 2020-2025  
 2×CHI 2025, 3×UIST 2024, CHI LBW 2024, IMWUT 2023, CHI 2023, CHI 2022, CSCW 2021, CSCW 2020
- SAP Travel Grant for 10th Heidelberg Laureate Forum** 2023

<b>10th Heidelberg Laureate Forum Young Researcher</b>	2023
<b>Methods Recognition ACM CSCW 2021</b>	2021
Reflect, not Regret: Modeling Behaviors of Regretful Smartphone Use with App Feature-Level Analysis [c.4]	
<b>Bell Labs Summer Intern Award for Outstanding Innovation</b>	2021
Nokia Bell Labs Global Intern Program 2021 [c.7]	
<b>NAVER Ph.D. Fellowship Award</b>	2020
\$5K Academic scholarship, awarded based on research performance	
<b>Best TA Award</b>	2019
KAIST School of Computing	
<b>Google Women Techmakers Scholars</b>	2019
\$1K Academic scholarship, awarded based on academic performance, leadership, and impact on the community of women in tech	
<b>Best Video Award</b>	2019
ACM MobiSys 2019 [p.2]	
<b>Best Poster/Demo Award</b>	2018
ACM SIGCHI Local Chapter [p.1]	
<b>Undergraduate Research Program</b>	2016
\$2K Research grant awarded by KAIST	
<b>Runner-up in the 3rd Korea SW Hackathon</b>	2016
\$3K Award by the Ministry of Science, ICT and Future Planning of Republic of Korea	
<b>National Science &amp; Technology Scholarship</b>	2014 - 2017
Merit-based scholarships	

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## ACADEMIC SERVICES

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<b>ACM UIST Registration Co-chair</b>	2025
<b>ACM CHI Late Breaking Work Program Committee</b>	2024
<b>ACM CHI Subcommittee Chair Assistant</b>	2024
<b>CMU SCS Women/Non-binary Lunch Organizer</b>	2023-2024
<b>ACM CHI Student Volunteer</b>	2024
<b>ACM UIST Student Volunteer</b>	2021, 2022
<b>ACM MobiSys Student Volunteer</b>	2019
<b>Reviewer</b>	
2025 CHI, IEEE VR	
2024 CHI, UIST, IMWUT, ISMAR, MobileHCI, SUI, CHI LBW	
2023 CHI, UIST, IMWUT, MobileHCI, CHI LBW, SIGGRAPH Poster	
2022 CHI, UIST, IMWUT, IJHCI, PRESENCE, SIGGRAPH Poster	
2021 CSCW, MobileHCI, CHI LBW, MobileHCI Poster	
2020 CSCW, Computing Surveys	

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## TEACHING EXPERIENCE

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<b>Guest Lecturer</b> , University of Rochester	Nov. 2024
Introduction to Human-Computer Interaction (Prof. Yukang Yan)	
<b>Guest Lecturer</b> , University of Michigan	Nov. 2024
SI 559 Introduction to AR/VR Application Design (Prof. Michael Nebeling)	
<b>Teaching Assistant</b> , Carnegie Mellon University	Fall 2022
05-430 Programming Usable Interfaces (Prof. Alexandra Ion)	

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

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## INVITED TALKS & EXHIBITIONS

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<b>Auptimize: Optimal Placement of Spatial Audio Cues for Extended Reality</b> VASC Seminar, Carnegie Mellon University	<i>Oct. 2024</i>
<b>AI in Weird Wonderland</b> Celine Park Gallery, Seoul, Korea	<i>Mar. 2022</i>
<b>Vibroacoustic-based Object Recognition with Smartphones</b> 2019 IAT (Information Accessibility Technology) Conference	<i>Nov. 2019</i>

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## SELECTED PRESS

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