Hyunsung Cho

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Research Interests: Human-Computer Interaction · Extended Reality (XR) · Computational Interaction · Perceptual & Behavioral Modeling · Multisensory & Adaptive User Interfaces

EDUCATION

Carnegie Mellon University
Ph.D. Student in Human-Computer Interaction, School of Computer Science — 08/2021 -
Advisor: David Lindlbauer

Korea Advanced Institute of Science and Technology (KAIST)
M.S. in Computer Science, School of Computing — 03/2018 - 02/2020
Advisor: Sung-Ju Lee
Thesis: Private Status Sharing and Sender-Controlled Notifications in Mobile Instant Messaging
Committee: Sung-Ju Lee, Juho Kim, Youn-kyung Lim

Korea Advanced Institute of Science and Technology (KAIST)
B.S. in Computer Science (Advanced Major), School of Computing — 08/2013 - 02/2018

RESEARCH POSITIONS

Carnegie Mellon University, Pittsburgh, PA, USA — 08/2021 -
Research Assistant with David Lindlbauer

Aalto University, Espoo, Finland — 06/2025 - 09/2025
Visiting Researcher with Antti Oulasvirta

Meta Reality Labs, Redmond, WA, USA — 05/2024 - 09/2024, 05/2023 - 09/2023
Research Scientist Intern with Kashyap Todi

Nokia Bell Labs, Cambridge, UK — 05/2021 - 07/2021
Research Scientist Intern with Akhil Mathur

KAIST Networking and Mobile Systems Lab (NMSL), Daejeon, South Korea — 03/2017 - 04/2021
Research Assistant with Sung-Ju Lee

KAIST Interaction Lab (KIXLAB), Daejeon, South Korea — 12/2015 - 02/2017
Research Assistant with Juho Kim & Jihee Kim

PUBLICATIONS

Conference & Journal Papers

[c.19] **Augmented Reality Productivity In-the-Wild: A Diary Study of Usage Patterns and Experiences of Working with AR Laptops in Real-World Settings.**
Yi Fei Cheng, Ari Carden, Hyunsung Cho, Catarina G Fidalgo, Jonathan Wieland, and David Lindlbauer.
TVCG 2025: IEEE Transactions on Visualization and Computer Graphics

[c.18] **Persistent Assistant: Seamless Everyday AI Interactions via Intent Grounding and Multimodal Feedback.**
Hyunsung Cho, Jacqui Fashimpaur, Naveen Sendhilnathan, Jonathan Browder, David Lindlbauer, Tanya R. Jonker, and Kashyap Todi.
CHI 2025: ACM CHI Conference on Human Factors in Computing Systems

[c.17] **A Dynamic Bayesian Network-Based Framework for Multimodal Context-Aware Interactions.**
Violet Yinuo Han, Tianyi Wang, Hyunsung Cho, Kashyap Todi, Ajoy Savio Fernandes, Andre Levi, Zheng Zhang, Tovi Grossman, Alexandra Ion, Tanya R. Jonker.
IUI 2025: ACM Conference on Intelligent User Interfaces

[c.16] **Evaluating Dynamic Delivery of Audio+Visual Message Notifications in XR.**
Hyunsung Cho, Drew Edgar, David Lindlbauer, Joseph O'Hagan.
IEEE VR 2025: IEEE Conference on Virtual Reality and 3D User Interfaces

[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 Todi.
UIST 2024: ACM Symposium on User Interface Software and Technology

[c.12] **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: 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] **RealityReplay: 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, Mingon 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. Caroll.
Ad Hoc Neworks Journal, Voulme 83, 2019

Preprints

[a.1] **Social Media Should Feel Like Minecraft, Not Instagram: 3D Gamer Youth Visions for Meaningful Social Connections.**
JaeWon Kim, Hyunsung Cho, Fannie Liu, and Alexis Hiniker.
arXiv:2502.06696

Posters, Demos, and Workshop Papers

[p.9] **Perceptually Intelligent UI for Augmented Everyday Interaction.**
Hyunsung Cho
UIST 2025 Doctoral Symposium

[p.8] **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.7] **Evaluating Adaptive XR Systems.**
Hyunsung Cho, Yi Fei Cheng, Yukang Yan, and David Lindlbauer.
CHI 2023 Workshop: The Future of Computational Approaches for Understanding and Adapting 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.
AIChallengeIoT 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

AWARDS & HONORS

2020 - 2025	**Special Recognitions for Outstanding Reviews** 2×UIST 2025, 3×CHI 2025, IMWUT 2025, 3×UIST 2024, CHI LBW 2024, IMWUT 2023, CHI 2023, CHI 2022, CSCW 2021, CSCW 2020
2023 - 2024	**Sponsored Research by Meta Reality Labs**
2023	**Best Paper Award, ACM ISS 2023**
2023	**SAP Travel Grant for 10th Heidelberg Laureate Forum**
2023	**10th Heidelberg Laureate Forum Young Researcher**
2021	**Best Paper Award, ACM CSCW 2021**
2021	**Methods Recognition, ACM CSCW 2021**
2021	**Bell Labs Summer Intern Award for Outstanding Innovation**
2020	**NAVER Ph.D. Fellowship Award**
2020	**Labmate of the Year, KAIST NMSL**
2019	**Best TA Award, KAIST School of Computing**
2019	**Google Women Techmakers Scholars**
2019	**Best Video Award, ACM MobiSys 2019**
2018	**Best Poster/Demo Award, ACM SIGCHI Local Chapter**
2016	**Undergraduate Research Program (URP) Grant, KAIST**
2016	**Korea SW Hackathon Runner-up, Ministry of Science, ICT and Future Planning**
2014 - 2017	**National Science & Technology Scholarship**

ACADEMIC SERVICES

Program Committee

Program Committee Member:	ACM CHI 2025 Late Breaking Work Committee ACM CHI 2024 Late Breaking Work Committee
Program Committee Chairing Assistant:	ACM CHI 2024 Subcommittee Chair Assistant - “Interacting with Devices”

Conference Organizing

Organizing Committee:	ACM UIST 2025 Registration co-chair
Student Volunteer:	ACM CHI 2024 ACM UIST 2021, 2022 ACM MobiSys 2019

Reviewing

Conferences:	ACM CHI 2022, 2023, 2024 2025 ACM UIST 2022, 2023, 2024, 2025 IEEE ISMAR 2024, 2025 IEEE VR 2025 ACM DIS 2025 EuroXR 2025 ACM MobileHCI 2021, 2024 ACM SUI 2024

Journals:	ACM IMWUT 2022, 2023, 2024 2025 ACM Transactions on Applied Perception 2025 International Journal of Human–Computer Interaction 2022 PRESENCE: Virtual and Augmented Reality 2022 ACM CSCW 2020, 2021 ACM Computing Surveys 2020
Posters:	ACM SIGGRAPH Poster 2022, 2023, 2025 ACM CHI Late breaking Works 2021 ACM MobileHCI Poster 2021

University/Department Service

2023 - 2024	CMU SCS Women/Non-binary Lunch Organizer

TEACHING

Guest Lecturer & Student Panel

Spring 2025	05-499B Computational Methods for Interactive Systems, Carnegie Mellon University Instructor: Alexandra Ion
Fall 2024	CSC 211 Introduction to Human-Computer Interaction, University of Rochester Instructor: Yukang Yan
Fall 2024	SI 559 Introduction to AR/VR Application Design, University of Michigan Instructor: Michael Nebeling
Spring 2019	CS492 Introduction to Research, KAIST Instructors: Juho Kim, Sung-Ju Lee, and Shin Yoo

Teaching Assistant

Fall 2022	05-430 Programming Usable Interfaces, Carnegie Mellon University Instructor: Alexandra Ion
Spring 2022	05-391 Designing Human-Centered Software, Carnegie Mellon University Instructor: Chris Harrison
Spring 2019	Head TA, CS341 Introduction to Computer Networks, KAIST Instructor: Sung-Ju Lee
Spring 2020, Fall 2018	CS341 Introduction to Computer Networks, KAIST Instructor: Sung-Ju Lee
Fall 2020, Fall 2017, Spring 2017, Fall 2016	CS101 Introduction to Programming, KAIST

Mentoring

2024 - 2025	Nancy Ruonan Sun, BS student at CMU
2024 - 2025	Sarah Yewon Yun, BS→MS student at CMU
2024	Flora Xiao, MS student at CMU
2024	Anika Bhagavatula, BS student at CMU
2022 - 2024	Divya Kartik, BS student at CMU; now at Jump Trading
2023	Alexander Wang, MS student at CMU; now a Ph.D. student at CMU
2023	Emily Xie, BS student at CMU; now at Apple
2022	Violet Han, MS student at CMU; now a Ph.D. student at CMU
2022	Kiyosu Maeda, MS student at UTokyo; now a Ph.D. student at Princeton

2021	Matthew Komar, BS student at CMU; now at Applied Intuition
2021	Adiba Orzikulova, MS student at KAIST; now a Ph.D. student at KAIST
2021	Ryuhaerang Choi, MS student at KAIST; now a Ph.D. student at KAIST
2020	Daeun Choi, BS student at KAIST; now a Ph.D. student at KAIST
2019	Jinyoung Oh, BS student at KAIST; now at Toss Bank
2018	Chan Ju (Martin) Chong, BS student at KAIST; now at Amazon Web Services (AWS)

INVITED TALKS

05/2025	Miraikan Accessibility Lab (Host: Xiyue Wang)
02/2025	Computational Behavior Lab, Aalto University (Host: Antti Oulasvirta)
01/2025	Human-centerd Computer Systems Lab, Seoul National University (Host: Youngki Lee)
12/2024	KAIST (Host: Juho Kim)
10/2024	VASC Seminar, Carnegie Mellon University
01/2024	Networking & Mobile Systems Lab, KAIST (Host: Sung-Ju Lee)
11/2019	Information Accessibility Technology (IAT) Conference, Seoul, South Korea

EXHIBITIONS & SELECTED PRESS

Exhibitions

03/2022	AI in Weird Wonderland Celine Park Gallery, Seoul, South Korea
2018 -	Knocker: Vibroacoustic-based Object Recognition with Smartphones KAIST Vision Hall, Daejeon, South Korea

Selected Press

09/2022	KAIST Breakthroughs. *Can AI empower college students to be their own health agent?*
11/2021	Tech Xplore. *Researcher seeks to understand the regret behind social media use*
11/2021	EurekAlert. *Carnegie Mellon University researcher seeks to understand the regret behind social media*
10/2019	Electronics Weekly. *Sensor fusion lets phone identify objects by simply knocking against them*
10/2019	Science Daily. *Object identification and interaction with a smartphone knock*
10/2019	NEW ATLAS. *Smartphone tech recognizes objects by being knocked against them*
04/2018	Nerdiest. *This algorithm makes smartphones recognize objects just by Knocking them*
04/2018	ICT NEWS. *New application allows you to identify an object by tapping it with a smartphone*
08/2017	Sporza. *Sporza biedt interactieve primeur met Kiswe Mobile tijdens Diamond League Brussel*
08/2017	PRWeb. *VRT Sporza and Kiswe Offer End Users a First Ever Fully Interactive Mobile Experience Around Diamond League Brussels*
08/2017	VRT Innovatie. *Interactieve Primeur Tijdens Diamond League Brussel Met VRT Sandbox, Sporza & Kiswe*

PROFESSIONAL EXPERIENCE

Kiswe Mobile Inc., New Providence, NJ, USA 06/2017 - 08/2017
Web Frontend Developer
Developed an interactive trivia widget featured in VRT Sporza's live IAAF Diamond League stream. Also built streamer tools including a multi-cam layout editor, drag-and-drop thumbnail uploader, and live stream control interface.