

Hyunsung Cho

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RESEARCH INTERESTS

Human-computer interaction, context-aware computing, mixed reality, computational interaction

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

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.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. Carroll.

Ad Hoc Networks Journal, Volume 83, 2019

Posters, Demos, and Workshop Papers

- [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

WORK EXPERIENCE

Augmented Perception Lab, Pittsburgh, PA, USA

Aug. 2021 -

Ph.D. Student

Advisor: David Lindlbauer. Research on context-aware interface in mixed reality.

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 interventions for positive behavior change:

- **Modeling Behaviors of Regretful Smartphone Use with App Feature Use Analysis**
 Led the design and implementation of an Android-based technology probe that tracks the usage of social media app features and samples in-situ level of regret after use. Designed and conducted a one-week field study and mixed-methods analysis.
- **Designing Context-Aware Micro-Interventions for Stress Management** [c.1]
 Designed and implemented an intervention mechanism for stress management that suggests micro-tasks for stress relief in micro spare time detected through mobile sensing.
- **Private Status Sharing and Sender-Controlled Notifications in Mobile Instant Messaging** [c.3., p.3, p.4]
 Led the design and implementation of private status sharing and sender-controlled notifications to function on commodity messaging apps. Designed and performed a two-week field study and mixed-methods analysis.
- **Vibroacoustic-based Object Recognition with Commodity Smartphones** [c.2, p.1, p.2]
 Designed and implemented 21 applications of knock-based interaction that leverage surrounding objects as contextual information. Modified the system to enable on-device training and inference of the SVM model. Assisted the design of the object recognition method, evaluation design, and user study operation.

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.

ACADEMIC SERVICES

ACM CHI Reviewer	2022
ACM UIST Student Volunteer	2021
ACM CSCW Reviewer	2020, 2021
ACM MobileHCI Reviewer	2021
ACM CHI Late Breaking Work Reviewer	2021
ACM Computing Surveys Reviewer	2020
ACM MobiSys Student Volunteer	2019

AWARDS & HONORS

Best Paper Award ACM CSCW 2021 [c.4]	2021
Methods Recognition ACM CSCW 2021 [c.4]	2021
Bell Labs Summer Intern Award for Outstanding Innovation Nokia Bell Labs Global Intern Program 2021	2021
NAVER Ph.D. Fellowship Award \$5K Academic scholarship, awarded based on research performance	2020
Best TA Award KAIST School of Computing	2019
Google Women Techmakers Scholars \$1K Academic scholarship, awarded based on academic performance, leadership, and impact on the community of women in tech	2019
Best Video Award ACM MobiSys 2019 [p.2]	2019
Best Poster/Demo Award ACM SIGCHI Local Chapter [p.1]	2018
Undergraduate Research Program \$2K Research grant awarded by KAIST	2016
2nd Place, The 3rd Korea SW Hackathon \$3K Award by the Ministry of Science, ICT and Future Planning of Republic of Korea	2016
National Science & Technology Scholarship Merit-based scholarships	2014 - 2017

TEACHING EXPERIENCE

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

EXTRACURRICULAR EXPERIENCE

MADCAMP (Mobile Application Development Camp)

Dec. 2016 - Feb. 2017

Intensive, focused development camp where I developed five different mobile applications in 4.5 weeks. Example apps are a humming-based multi-play music quiz game and a group alarm clock that ensures every member to wake up.

SPARCS (Developers Club), KAIST

Mar. 2014 - Dec. 2016

Head of Server Management Group & Web Developer

Managed over 10 physical and virtual server machines as the leader of the club's server management group. Developed a server monitoring tool using gRPC. Held seminars on the basics of server management for students. Topics include Linux, LDAP, mail server, file system, and security.

SELECTED PRESS

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

ICT NEWS, New application allows you to identify an object by tapping it with a smartphone

Apr. 2018

Sporza, Sporza biedt interactieve primeur met Kiswe Mobile tijdens Diamond League Brussel

Aug. 2017

PRWeb, VRT Sporza and Kiswe Offer End Users a First Ever Fully Interactive Mobile Experience Around Diamond League Brussels

Aug. 2017

VRT Innovatie, Interactieve Primeur Tijdens Diamond League Brussel Met VRT Sandbox, Sporza & Kiswe

Aug. 2017