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RESEARCH INTERESTS

Cross-device computing

Users today own multiple computing devices, so cross-device computing between personal devices has drawn much attention. In general, techniques for cross-device computing pose a platform dependency problem. I have conducted research that addresses the dependency problem by exploiting the meta-platform characteristics of web applications.

On-device machine learning

With the increasing popularity of mobile applications employing DNN models, the techniques for efficiently and accurately running the models on mobile devices become important. Specifically, I have researched super-resolution for mobile 360-degree video live streaming and runtime gaze tracking on mobile devices.

Energy-aware mobile systems

Reducing energy consumption has long been a critical issue for mobile devices. I have participated in research on energy optimization for native, web, and game applications on mobile devices. I am also interested in energy-aware on-device machine learning and machine learning-based energy optimization.

EDUCATION

Yonsei University, Seoul, Republic of Korea

Mar. 2018 – Present

Ph.D. Candidate in Computer Science

Mobile Embedded Systems Lab., Advised by Prof. Hojung Cha

Yonsei University, Seoul, Republic of Korea

Mar. 2014 – Feb. 2018

B.S in Computer Science

CONFERENCE PAPERS (PEER-REVIEWED)

NRF list denotes the top CS conference list from National Research Foundation of Korea.

* indicates co-primary authors.

[1] **Vulture: Cross-Device Web Experience with Fine-Grained Graphical User Interface Distribution**

Seonghoon Park, Jeho Lee, Yonghun Choi, and Hojung Cha

IEEE INFOCOM 2024 – IEEE Conference on Computer Communications (*INFOCOM '24*)

To Appear (NRF list IF: 4; Acceptance rate: 19.6%)

[2] **OmniLive: Super-Resolution Enhanced 360° Video Live Streaming for Mobile Devices**

Seonghoon Park*, Yeonwoo Cho*, Hyungchol Jun, Jeho Lee, and Hojung Cha

The 21st Annual International Conference on Mobile Systems, Applications and Services (*MobiSys '23*)

June 18–22, 2023, Helsinki, Finland. ACM (NRF list IF: 3; Acceptance rate: 20.7%)

[3] **Crow API: Cross-device I/O Sharing in Web Applications**

Seonghoon Park, Jeho Lee, and Hojung Cha

IEEE INFOCOM 2023 – IEEE Conference on Computer Communications (*INFOCOM '23*)

May 17–20, 2023, New York, NY, USA. IEEE (NRF list IF: 4; Acceptance rate: 19.2%)

- [4] **WebMythBusters: An In-depth Study of Mobile Web Experience**
Seonghoon Park, Yonghun Choi, and Hojung Cha
IEEE INFOCOM 2021 – IEEE Conference on Computer Communications (*INFOCOM '21*)
May 10–13, 2021, Virtual Conference. IEEE (*NRF list IF: 4; Acceptance rate: 19.7%*)
- [5] **GAZEL: Runtime Gaze Tracking for Smartphones**
Joonbeom Park, Seonghoon Park, and Hojung Cha
The 19th International Conference on Pervasive Computing and Communications (*PerCom '21*)
March 22–26, 2021, Virtual Conference, IEEE (*NRF list IF: 3; Acceptance rate: 10.6% for full papers*)
- [6] **Optimizing Energy Efficiency of Browsers in Energy-Aware Scheduling-enabled Mobile Devices**
Yonghun Choi, Seonghoon Park, and Hojung Cha,
The 25th Annual International Conference on Mobile Computing and Networking (*MobiCom '19*)
October 21–25, 2019, Los Cabos, Mexico. ACM (*NRF list IF:4; Acceptance rate: 19.0%*)
- [7] **Graphics-aware Power Governing for Mobile Devices**
Yonghun Choi, Seonghoon Park, and Hojung Cha
The 17th Annual International Conference on Mobile Systems, Applications, and Services (*MobiSys '19*)
June 17–21, 2019, Seoul, South Korea. ACM (*NRF list IF:3; Acceptance rate: 22.7%*)

JOURNAL PAPERS (PEER-REVIEWED)

- [1] **Optimizing Energy Consumption of Mobile Games**
Yonghun Choi, Seonghoon Park, Seunghyeok Jeon, and Hojung Cha
IEEE Transactions on Mobile Computing, Vol. 21, Issue 10, Oct. 2022, pp 3744–3756 (*JCR 2022 IF: 7.9*)

ORAL PRESENTATIONS

- [1] **OmniLive: Super-Resolution Enhanced 360° Video Live Streaming for Mobile Devices**
MobiSys '23, June 21, 2023, Helsinki, Finland
- [2] **Crow API: Cross-device I/O Sharing in Web Applications**
INFOCOM '23, May 19, 2023, New York, NY, USA
- [3] **WebMythBusters: An In-depth Study of Mobile Web Experience** (*Invited*)
Top Conference Session at Korea Software Congress 2021 (*KSC 2021*)
December 21, 2021, Pyeongchang, Republic of Korea
- [4] **WebMythBusters: An In-depth Study of Mobile Web Experience**
INFOCOM '21, May 13, 2023, Virtual Conference

RESEARCH PROJECTS

Task relation graph prediction based on RNN <i>Samsung Electronics</i>	Mar. 2023 – Present
Development of High-Assurance (\geqEAL6) Secure Microkernel <i>Institute for Information & Communications Technology Promotion (IITP), Ministry of Science and ICT, Republic of Korea</i>	Apr. 2018 – Present
Development of Energy Management Techniques for Batteryless IoT System <i>National Research Foundation of Korea (NRF), Ministry of Science and ICT, Republic of Korea</i>	Mar. 2019 – Feb. 2022
Highly Flexible Device Profiling and Analysis System for Web Experiences Measurement <i>National Research Foundation of Korea (NRF), Ministry of Science and ICT, Republic of Korea</i>	Nov. 2017 – Dec. 2020

System Software for Mobile Device Power Management to Improve Available Time by 30%
Samsung Science & Technology Foundation, Samsung Electronics

Jan. 2017 – Aug. 2018

TEACHING EXPERIENCES

Teaching Assistant at Department of Computer Science, Yonsei University <i>System Programming (CSI3107)</i>	Fall semester, 2020
Teaching Assistant at Department of Computer Science, Yonsei University <i>Operating Systems (CSI3101)</i>	Spring semester, 2020
Teaching Assistant at Department of Computer Science, Yonsei University <i>System Programming (CSI3107)</i>	Fall semester, 2019
Teaching Assistant at Department of Computer Science, Yonsei University <i>Operating Systems (CSI3101)</i>	Spring semester, 2019
Teaching Assistant at Department of Computer Science, Yonsei University <i>System Programming (CSI3107)</i>	Fall semester, 2018
Teaching Assistant at Department of Computer Science, Yonsei University <i>Operating Systems (CSI3101)</i>	Spring semester, 2018
After School Teacher & Mentor at Hanyang University High School <i>Android Programming for Hanyang Application Developers (HAD)</i>	Fall semester, 2015
After School Teacher & Mentor at Hanyang University High School <i>Android Programming for Hanyang Application Developers (HAD)</i>	Spring semester, 2015

ACADEMIC SERVICES

Peer Reviewer

- IEEE Transactions on Mobile Computing (TMC)

AWARDS AND HONORS

Honors , Department of Computer Science, Yonsei University	Fall semester, 2017
Honors , Department of Computer Science, Yonsei University	Spring semester, 2017
Honors , Department of Computer Science, Yonsei University	Fall semester, 2014
Honors , Department of Computer Science, Yonsei University	Spring semester, 2014

TECHNICAL SKILLS

Language

- Korean (Native)
- English
 - TOEIC: 960/990

Programming Skills

- Programming languages
 - C, C++, Python, JavaScript, Java, etc.
- Machine learning frameworks
 - PyTorch, TensorFlow, TensorFlow Lite, TensorFlow.js
- Web frameworks and web applications
 - Node.js, Flask, Web extensions
- Android applications
- OS kernels (Android kernel, ChibiOS/RT microkernel)