

# Park, Seonghoon

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## RESEARCH INTERESTS

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### 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

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### 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)

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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)

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- [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

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- [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

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<b>Task relation graph prediction based on RNN</b> Samsung Electronics	Mar. 2023 – Present
<b>Development of High-Assurance (<math>\geq</math>EAL6) Secure Microkernel</b> Institute for Information & communications Technology Promotion (IITP), Ministry of Science and ICT, Republic of Korea	Apr. 2018 – Present
<b>Development of Energy Management Techniques for Batteryless IoT System</b> National Research Foundation of Korea (NRF), Ministry of Science and ICT, Republic of Korea	Mar. 2019 – Feb. 2022
<b>Highly Flexible Device Profiling and Analysis System for Web Experiences Measurement</b> National Research Foundation of Korea (NRF), Ministry of Science and ICT, Republic of Korea	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

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

## ACADEMIC SERVICES

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### Peer Reviewer

- IEEE Transactions on Mobile Computing (TMC)

## AWARDS AND HONORS

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<b>Honors</b> , Department of Computer Science, Yonsei University	Fall semester, 2017
<b>Honors</b> , Department of Computer Science, Yonsei University	Spring semester, 2017
<b>Honors</b> , Department of Computer Science, Yonsei University	Fall semester, 2014
<b>Honors</b> , Department of Computer Science, Yonsei University	Spring semester, 2014

## TECHNICAL SKILLS

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### 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)