

KIM, JIWON

Mobile Embedded Systems Lab., Department of Computer Science, Yonsei University
Room D814, Engineering Hall #4, 50 Yonsei-ro, Seodaemun-gu, Seoul, 03722, Republic of Korea
e-mail: kim.j@yonsei.ac.kr | phone: (+82)-2-2123-7724

RESEARCH INTERESTS

Mobile System Energy Optimization
Battery Management Systems
(Multi-Agent) Reinforcement Learning

TECHNICAL SKILLS

Software Development

- Programming Languages: C, C++, Python, MATLAB

Hardware Development

- Circuit design (PCB schematic design)
- Knowledge of simulation tools: MATLAB Simulink

Languages

- Korean – Native
- English – Advanced

EDUCATION

Yonsei University, Seoul, Republic of Korea

Mar. 2018 – Present

Ph.D. Student in Computer Science

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

(GPA 4.17 / 4.5)

Ewha Womans University, Seoul, Republic of Korea

Mar. 2011 – Feb. 2016

B.S in Electronic Engineering

(GPA 3.51 / 4.5)

PUBLICATIONS (SCIE JOURNALS AND INTERNATIONAL CONFERENCES)

1. S. Jeon, J. Kang, **J. Kim**, H. Cha, “Detecting Structural Anomalies of Quadcopter UAVs based on LSTM Autoencoder,” *Pervasive and Mobile Computing (PMC)*, Vol. 88, Jan. 2023.
2. **J. Kim**, S. Baek, S. Jeon, H. Cha, “DynLiB: Maximizing the Energy Availability of Hybrid Li-ion Battery Systems,” *The ACM SIGBED International Conference on Embedded Software (EMSOFT 2022)*, Hybrid-Shanghai, Oct. 07-14, 2022.
3. **J. Kim**, E. Kim, S. Jeon, J. Ahn, H. Jun, H. Cha, “PVoT: Reconfigurable Photovoltaic Array for Indoor Light Energy-powered Batteryless Devices,” *The International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2022)*, Hybrid-Shanghai, Oct. 07-14, 2022.
4. **J. Kim**, S. Jeon, J. Kim, H. Cha, “Voltage Prediction of Drone Battery Reflecting Internal Temperature,” *The 59th Design Automation Conference (DAC 2022)*, San Francisco, USA, July 10-14, 2022.
5. **J. Kim**, Y. Choi, S. Jeon, J. Kang, H. Cha, “Optrone: Maximizing Performance and Energy Resources of Drone Batteries,” *The ACM SIGBED International Conference on Embedded Software (EMSOFT 2020)*, Virtual Conference, Sep. 20-25, 2020.

6. **J. Kim**, S. Baek, Y. Choi, J. Ahn, H. Cha, “Hydrone: Reconfigurable Energy Storage for UAV Applications,” The International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2020), Virtual Conference, Sep. 20-25, 2020.
7. S. Jeon, **J. Kim**, J. Ahn, H. Cha, “Optimizing Discharging Efficiency of Reconfigurable Battery with Deep Reinforcement Learning,” The ACM SIGBED International Conference on Embedded Software (EMSOFT 2020), Virtual Conference, Sep. 20-25, 2020.

PATENTS

1. H. Cha, S. Jeon and **J. Kim**, “Battery Level Indicator and Method Displaying Battery Level Thereof” KR Patent No. 10-2091340, filed December 11, 2018. and issued March 13, 2020.
2. H. Cha, **J. Kim**, Y. Choi, S. Jeon and J. Kang, “Apparatus and Method for Providing Usable Capacity of a Battery for Drone” KR Patent No. 10-2303478, filed November 21, 2019. and issued September 13, 2021.
3. H. Cha, **J. Kim**, Y. Choi, J. Ahn and S. Jeon, “Hybrid Energy Storage Device and Method for Improving Available Capacity of Drone Battery” KR Patent Application No. 10-2020-0140548, filed October 27, 2020. Patent Pending.
4. H. Cha, **J. Kim**, E. Kim, S. Jeon, J. Ahn and H. Jun, “Reconfigurable Photovoltaic Array Monitoring Apparatus and Method” KR Patent Application No. 10-2021-0172113, filed December 12, 2021. Patent Pending.

ACADEMIC SERVICE

Journal Reviewer

- IEEE Transactions on Energy Conversion (TEC)

RESEARCH PROJECT EXPERIENCES

Task Relation Graph Prediction Based on RNN <i>AP S/W Development Team, Samsung Electronics, Republic of Korea</i>	Mar. 2023 – Feb. 2024
Development of Energy Management Techniques for Batteryless IoT System <i>National Research Foundation of Korea, NRF, Republic of Korea</i>	Mar. 2019 – Feb. 2022
Development of Energy Optimization Techniques for Multi-cell Battery System <i>Intelligent Machine Center, Samsung Research, Republic of Korea</i>	Apr. 2019 – Dec. 2019
Development of High-Assurance (\geq EAL6) Secure Microkernel <i>Institute for Information & communications Technology Promotion (IITP), Ministry of Science and ICT, Republic of Korea</i>	Apr. 2018 – Present

AWARDS AND HONORS

Academic Research Fellowship , <i>BK21 PLUS Yonsei Scholarship</i>	Fall semester, 2022
Ph.D. Fellowship , <i>National Research Foundation (NRF) of Korea</i>	June 2020 – May 2022
Excellence Prize in Capstone Design, <i>Dept. of Electronic Engineering, Ewha Womans University</i>	Fall semester, 2015
Academic Excellence Scholarship , <i>Dept of Electronic Engineering, Ewha Womans University</i>	Fall semester, 2014
2nd Place in 2014 LES Asia-Pacific Business Plan Competition Award, Licensing Executive Society	Nov. 24, 2014
Gold Medal in 4th International Festival of Innovations, Int. Federation of Inventors' Associations (IFIA)	Apr. 24, 2014

Grand Prize (Prime Minister's Award, 1st place among 3,441 teams),
in National University Invention Competition, Korean Intellectual Property Office

May 5, 2013