Geonhee Lee

Profile

- Ph.D. Student
- Network Laboratory (NETLAB)
- Department of Electrical and Computer Engineering (ECE)
- Seoul National University
- Address: 304, BLDG 132, Seoul National University, Gwanak-ro 1, Gwanak-gu, Seoul, South Korea (08826)
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Education

- Ph.D. Student in Department of Electrical and Computer Engineering at Seoul National University (Mar. 2021 - Present)
    - Advisor: Professor Saewoong Bahk
- B.S from Department of Electrical and Electronic Engineering at Yonsei University (Mar. 2017 - Feb. 2021)

Experiences

- **Teaching Assistant**
    - 400.018, Creative Engineering Design, Seoul National University, Fall 2023/2024.
    - 400.018, Creative Engineering Design, Seoul National University, Fall 2023/2024.
    - 033.014, Engineering Mathematics, Seoul National University, Fall 2022.

Research Interests

- **Internet of Things (IoT), Low-power and Lossy Network (LLN)**
    - Zigbee, Time-slotted channel hopping (TSCH)
    - Autonomous scheduling
- **Low-power Wide-area networks (LPWAN)**
    - LoRa, LR-FHSS
    - Throughput enhancement, Interference coordination
    - Node-to-node multi-hop network
- **Sensing-oriented applications in low-power networks**

Research Projects

- MSIT(Ministry of Science and ICT), Korea, under the ITRC(Information Technology Research Center) support program, Mar. 2023 - Present
    - ***"Design and Fundamental Technology Development for URAN (Ultra Reliable Aerial Network) for High-Density Operations in UAM (Urban Air Mobility)"***

Publications

- **International Journals**
    1. Hongchan Kim, **Geonhee Lee**, Juhun Shin, Jeongyeup Paek, and Saewoong Bahk, "Slot-size Adaptation and Utility-based Packet Aggregation for IEEE 802.15.4e Time-Slotted Communication Networks" IEEE Internet of Things Journal, vol.11, Issue.9 , pp16382-16397 , May. 2024.

- **International Conferences**
    1. **Geonhee Lee**, Eunjeong Park, Mingyu Park, Jeongyeup Paek, and Saewoong Bahk, "BIC-LoRa: Bits in Chirp Shapes to Boost Throughput in LoRa," to appear in ACM IPSN 2024, Hong Kong, China, May. 13-16, 2024. (Acceptance Ratio: 20/93 = 21.5%)
    2. Jimin Park, **Geonhee Lee**, Jeongyeup Paek, and Saewoong Bahk, "Cupid: Fast and Reliable Convergecast-over-UWB Protocol for Dense Internet of Things", DCOSS-IoT 2025, Tuscany (Lucca), Italy, June 9-11, 2025.
    3. Hongchan Kim, **Geonhee Lee**, Juhun Shin, Jeongyeup Paek, and Saewoong Bahk, "Quick6TiSCH: Accelerating Formation of 6TiSCH Networks with TSCH and RPL," IEEE MASS 2024, Seoul, South Korea , Sep 23 - 25, 2024 .
    4. **Geonhee Lee,** Hongchan Kim, and Saewoong Bahk, "Performance Evaluation of TSCH scheduler under Network Size Variations," ICTC 2022, Jeju Island, Korea, Oct. 19-21, 2022.

Honors & Awards

- Travel grant, IPSN 2024.
- Chair's Recommended Paper, KICS 2022 winter, Feb. 2022 .
- Academic scholarship from the Department of Electrical and Electronic Engineering, Yonsei University, Mar. 2018.
- Excellence Award from the Department of Electrical and Electronic Engineering, Yonsei University, August. 2020.

Skills & Expertise

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

Languages

- Korean: Native
- English: Fluent