Selected Publications

- [IPSN] PointSplit: Towards On-device 3D Object Detection with Heterogeneous Low-power Accelerators
- [IPSN] ScriptPainter: Vision-based, On-device Test Script Generation for Mobile Systems (Video)
- [ECCV] Bitwidth-Adaptive Quantization-Aware Neural Network Training: A Meta-Learning Approach (Video)
- [SenSys] MARVEL: Enabling Mobile Augmented Reality with Low Energy and Low Latency (Video)
- [UbiComp] SnapLink: Fast and Accurate Vision-based Appliance Control in Large Commercial Buildings
- [Security] WAVE: A Decentralized Authorization Framework with Transitive Delegation (Video)
- [SenSys, Best Paper Runner-up] System Architecture Directions for Post-SoC/32-bit Networked Sensors
- [NSDI, Applied Networking Research Prize] Performant TCP for Low-Power Wireless Networks
- [INFOCOM] Harmony: Saving Concurrent Transmissions from Harsh RF Interference
- [INFOCOM] OST: On-Demand TSCH Scheduling with Traffic-awareness
- [IPSN] BLEX: Flexible Multi-connection Scheduling for Bluetooth Low Energy (Video)
- [IPSN] A3: Adaptive Autonomous Allocation of TSCH Slots
- [CommMag] Thread/OpenThread: A Comproise in Low-Power Wireless Multihop Network Architecture for the Internet of Things
- [TOSN] PC-RPL: Joint Control of Routing Topology and Transmission Power in Real Low-Power Lossy Network

Journals & Conferences (* corresponding author)

1. Keondo Park, You Rim Choi, Inhoe Lee, and Hyung-Sin Kim*, "PointSplit: Towards On-device 3D Object Detection with Heterogeneous Low-power Accelerators", **ACM/IEEE IPSN**, May 2023 **(Acceptance ratio: 26.5%)**.
2. Sungwook Son, Ahreum Seo, Gyeongseon Eo, Kwangyeon Gill, Taesik Gong, and Hyung-Sin Kim*, "MiCrowd: Vision-based Deep Crowd Counting on MCU," Sensors, vol. 23, no. 7, Mar. 2023 **(Invited paper)**.
3. Jaehun Song, Minhwan Oh, and Hyung-Sin Kim*, "Personalized Federated Learning with Server-Side Information," IEEE Access, Nov. 2022.
4. Jiseok Yoon, Jaehun Song, Hyung-Sin Kim*, and Saewoong Bahk*, "Bitwidth-Adaptive Quantization-Aware Neural Network Training: A Meta-Learning Approach," ECCV, Oct. 2022 [video] **(Acceptance ratio: 28%)**.
5. Myungsup Lee, Taeseop Lee, Hyung-Sin Kim*, and Saewoong Bahk*, "Wi-BLE: On Cooperative Operation of Wi-Fi and Bluetooth Low Energy under IPv6," Journal of Communications and Networks, Aug. 2022.
6. Jeongjun Park, Hongchan Kim, Hyung-Sin Kim*, and Saewoong Bahk*, "DualBlock: Adaptive Intra-Slot CSMA/CA for TSCH," IEEE Access, June 2022.
7. Hongchan Kim, Hyung-Sin Kim*, and Saewoong Bahk*, "MobiRPL: Adaptive, Robust, and RSSI-based Mobile Routing in Low Power and Lossy Networks," Journal of Communications and Networks, June 2022.
8. Yousung Choi, Ahreum Seo, and Hyung-Sin Kim*, "ScriptPainter: Vision-based, On-device Test Script Generation for Mobile Systems," ACM/IEEE IPSN, May 2022 [video] **(Acceptance ratio: 30.1%)**.
9. Hyung-Sin Kim, Jeongyeup Paek, and Saewoong Bahk*, "RPLIE: RPL for Indoor Environments under Midterm Link Fluctuations," Journal of Communications and Networks, vol. 23, no. 3, pp. 201-211, June 2021.
10. Eunjeong Park, Hyung-Sin Kim*, and Saewoong Bahk*, "BLEX: Flexible Multi-connection Scheduling for Bluetooth Low Energy," ACM/IEEE IPSN, Apr. 2021 [video] **(Acceptance ratio: 24.8%)**.
11. Seohyang Kim, Hyung-Sin Kim, and Chongkwon Kim*, "A3: Adaptive Autonomous Allocation of TSCH Slots," ACM/IEEE IPSN, Apr. 2021 [video] **(Acceptance ratio: 24.8%)**.
12. Hyunjoong Lee, Hyung-Sin Kim, and Saewoong Bahk*, "LSR: Link-aware Spatial Reuse in IEEE 802.11ax WLANs," IEEE WCNC, Mar. 2021.
13. Eunjeong Park, Hyung-sup Lee, Hyung-Sin Kim*, and Saewoong Bahk*, "AdaptaBLE: Adaptive Control of Data Rate, Transmission Power, and Connection Interval in Bluetooth Low Energy," Computer Networks, Aug. 2020 **(JCR IF Top 20%)**.
14. Xiaoyuan Ma, Pelin Zhang, Carlo Alberto Boano, Ye Liu, Hyung-Sin Kim, Jun Huang, and Jianming Wei, "Harmony: Saving Concurrent Transmissions from Harsh RF Interference," IEEE INFOCOM, July 2020 **(Acceptance ratio: 19.8%)**.
15. Seongbeom Jeong, Hyung-Sin Kim*, Jeongyeup Paek, and Saewoong Bahk*, "OST: On-Demand TSCH Scheduling with Traffic Awareness," IEEE INFOCOM, July 2020 **(Acceptance ratio: 19.8%)**.
16. Hanul Sung, Jiwoo Bang, Chunyong Kim, Hyung-Sin Kim, Alexander Sim, Glenn K. Locckwood, and Hyeonsang Eom, "BBOS: Efficient HPC Storage Management via Burst Buffer Over-Subscription," IEEE/ACM CCGrid, Nov. 2020.
17. Hyung-Sin Kim, Jeongyeup Paek, David E. Culler, and Saewoong Bahk*, "PC-RPL: Joint Control of Routing Topology and Transmission Power in Real Low-Power Lossy Network," ACM Transactions on Sensor Networks, vol. 16, no. 2, pp. 14:1-14:32, Mar. 2020.
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19. Sam Kumar, Michael P Andersen, Hyung-Sin Kim, and David E. Culler, "Performant TCP for Low-Power Wireless Networks," USENIX NSDI, Feb. 2020 **(Acceptance ratio: 17%) (Applied Networking Research Prize)**.
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21. Seongbeom Jeong, Jeongyeup Paek, Hyung-Sin Kim, and Saewoong Bahk, "TESLA: Traffic-aware Elastic Slotframe Adjustment in TSCH Networks," IEEE Access, vol. 7, Sep. 2019.
22. Michael P Andersen, Sam Kumar, Moustafa AbdelBaky, Gabe Fierro, John Kolb, Hyung-Sin Kim, David E. Culler, and Raluca Ada Popa, "WAVE: A Decentralized Authorization Framework with Transitive Delegation," USENIX Security, Aug. 2019 **(Acceptance ratio: 19%)**.
23. Hyung-Sin Kim, Sam Kumar, and David E. Culler, "Thread/OpenThread: A Comproise in Low-Power Wireless Multihop Network Architecture for the Internet of Things," Research Communications Magazine (the Future Internet: Architectures and Protocols), July 2019 **(JCR IF Top 5%)**.
24. Seohyang Kim, Hyung-Sin Kim, and Chong-Kwon Kim,* "ALICE: Autonomous Link-based Cell Scheduling for TSCH," ACM/IEEE IPSN, Apr. 2019 **(Acceptance ratio: 27%)**. [slide]
25. Taewon Suh, Hyung-Sin Kim, Jeonggil Ko, Vishaj Badrinarayanan, and Saewoong Bahk, "Electronic Shelf Labels: Prototype Development and Validation Using a Design Science Approach," Journal of Information Technology Management, vol. XXIX, no. 4, pp. 23-38, Dec. 2018.
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27. Kaifei Chen, Tong Li, Hyung-Sin Kim, David E. Culler, and Randy Katz, "MARVEL: Enabling Mobile Augmented Reality with Low Energy and Low Latency," ACM SenSys, Nov. 2018 **(Acceptance ratio: 15%)**. [slide]
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31. Dong-Kyu Kang, Hyung-Sin Kim, and Saewoong Bahk, "ORPL-DT: Opportunistic Routing for Diverse Traffic in Multihop IoT Networks," IEEE GLOBECOM, Dec. 2017.
32. Hyung-Sin Kim, Jeonggil Ko, David E. Culler, and Jeongyeup Paek, "Challenging the IPv6 Routing Protocol for Low Power and Lossy Networks (RPL): A Survey," IEEE Communications Surveys & Tutorials, vol. 19, no. 4, pp. 2502-2525, Nov. 2017 **(JCR IF Top 1%)**.
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Workshops/Posters/Demos

1. Hongchan Kim, Jiseok Youn, Hyung-Sin Kim, Sung-Guk Yoon, and Saewoong Bahk, "Mobility Enhanced RPL for General Mobility Scenarios," IEEE Wireless Communications and Networking conference (IEEE WCNC'20), May 2020.
2. Sam Kumar, Michael P Andersen, Hyung-Sin Kim, and David E. Culler, "Bringing Full-Scale TCP to Low-Power Networks," ACM Conference on Embedded Networked Sensor Systems (ACM SenSys'18), Nov. 2018.
3. Carlo Alberto Boano, Simon Duquennoy, Anna Förster, Omprakash Gnawali, Romain Jacob, Hyung-Sin Kim, Olaf Landsiedel, Ramona Marfievici, Luca Mottola, Gian Pietro Picco, Xavier Vilajosana, Thomas Watteyne, and Marco Zimmerling, "IoTBench: Towards a Benchmark for Low-power Wireless Networking," Workshop on Benchmarking Cyber-Physical Networks and Systems (CPSBench 2018), Apr. 2018.
4. Jonathan Fürst, Kaifei Chen, Hyung-Sin Kim, and Philippe Bonnet, "Evaluating Bluetooth Low Energy for IoT," Workshop on Benchmarking Cyber-Physical Networks and Systems (CPSBench 2018), Apr. 2018.
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6. Hyung-Sin Kim, Jeongyeup Paek, and David E. Culler, "Transmission Power Control in IPv6 Routing Protocol for Low-Power Wireless Networks," ACM Conference on Embedded Networked Sensor Systems (ACM SenSys'16), Nov. 2016.
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8. Hyung-Sin Kim, Jae-Seok Bang, and Yong-Hwan Lee, "Distributed Multi-Hop Network Association in Large-Scale Wireless Sensor Networks," IEEE International Conference on Distributed Computing Systems Workshop (IEEE ICDCSW'13), July 2013. (acceptance ratio: 26%)

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