

Jaeyoung Song

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Research Interests

- ☐ On-device Artificial Intelligence
- ☐ Effective and Efficient Federated Learning in Heterogeneous Environment
- ☐ Domain Adaptation
- ☐ Distributed Optimization
- ☐ Convergence of AI and Communication System

Education

Ph.D. in Electrical and Electronics Engineering

Korea Advanced Institute of Science and Technology (KAIST), 2019

Thesis: A study on Optimization of Content Placement for Wireless Content Caching Network

B.S. in Physics

Korea Advanced Institute of Science and Technology (KAIST), 2012

Summa Cum Laude

Experiences

Assistant Professor Pusan National University, Korea	Mar. 2022 -- Present
Senior researcher Agency for Defense Development, Korea	Feb. 2021 -- Feb. 2022
Postdoctoral researcher Hanyang University, Korea	Sep. 2020 -- Feb. 2021
Postdoctoral researcher EURECOM, France	Oct. 2019 -- Sep. 2020
Postdoctoral researcher KAIST, Korea	Sep. 2019 -- Oct. 2019
Visiting scholar Imperial College London, United Kingdom	Oct. 2018 -- Jan. 2019
Voluntary worker Good Neighbors Rwanda, Rwanda	Aug. 2010 -- Aug. 2011

Publications

Book chapter

- [B1] Jaeyoung Song, and Wan Choi, “Wireless content caching networks,” invited chapter in *Wiley 5G Ref.*, Dec. 2019.

Journals

- [J11] Yunseok Kang and Jaeyoung Song, “Low-Similarity Client Sampling for Decentralized Federated Learning,” in *IEEE Access*, to appear
- [J10] Juhyeong Yoon, Jun-Pyo Hong, and Jaeyoung Song, “Communication-Balancing Threshold for Event-Triggered Federated Learning,” in *IEEE Access*, vol. 13, 2025
- [J9] Kangyu Gao, Jaeyoung Song, Changjun Zhou, Zhonglong Zheng and Sang-Woon Jeon, “Task Offloading and Scheduling Under Hard Deadlines in Vehicular Edge Computing Systems,” in *IEEE Transactions on Vehicular Technology*, vol. 74, no. 6, Jun. 2025
- [J8] Jaeyoung Song and Sang-Woon Jeon, “Optimal Batch Allocation for Wireless Federated Learning,” in *IEEE Internet of Things Journal*, vol. 12, no. 8, Apr. 2025.
- [J7] Yunseok Kang and Jaeyoung Song, “Decentralized Federated Learning over Random Access Channel,” in *IEEE Wireless Communications Letters*, vol. 13, no. 11, Nov. 2024
- [J6] Jaeyoung Song, Deniz Gunduz, and Wan Choi, “Optimal scheduling policy for minimizing age of information with a relay,” in *IEEE Internet of Things Journal*, vol. 11, no. 4, Feb. 2024
- [J5] Jaeyoung Song and Marios Kountouris, “Wireless distributed edge learning: How many edge devices do we need?,” in *IEEE Journal of Selected Areas in Communications*, vol. 39, no.7, Jul. 2021
- [J4] Jaeyoung Song and Wan Choi, “Mobility-aware content placement for device-to-device caching system,” in *IEEE Transactions on Wireless Communication*, vol. 18, no. 7, Jul. 2019
- [J3] Jaeyoung Song, Hojin Song, and Wan Choi, “Which one is better to cache: requested contents or interfering contents?,” in *IEEE Wireless Communications Letters*, vol. 8, no. 3, Jun. 2019
- [J2] Jaeyoung Song and Wan Choi, “Minimum cache size and backhaul capacity for cache-enabled small cell networks,” in *IEEE Wireless Communications Letters*, vol. 7, no. 4, Aug. 2018
- [J1] Jaeyoung Song, Hojin Song, and Wan Choi, “Optimal content placement for wireless femto-caching network,” in *IEEE Transactions on Wireless Communication*, vol. 16, no. 7, July, 2017

Conference Proceedings

- [C3] Jaeyoung Song and Marios Kountouris, “Optimal number of edge devices in distributed learning over wireless channels,” in *Proceedings of IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Atlanta, GA, 2020.
- [C2] Jaeyoung Song and Wan Choi, “Exploiting mobility to content placement in D2D caching systems,” in *Proceedings of IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Cannes, 2019.
- [C1] Jaeyoung Song, Hojin Song, and Wan Choi, “Optimal caching placement of caching system with helpers,” in *Proceedings of IEEE International Conference on Communications (ICC)*, London, 2015.

Standard Documents

- [D2] Jaeyoung Song, Young-bin Kim, and Wan Choi, “Considerations on 11ax Auto-detection Methods,” IEEE 802.11 Interim session, IEEE 802.11- 14/0081r1, Atlanta, Jan. 2015.
- [D1] Young-bin Kim, Jaeyoung Song, and Wan Choi, “Considerations on 11ax OFDMA Frequency Granularity,” IEEE 802.11 Interim session, IEEE 802.11-14/0082r1, Atlanta, Jan. 2015.

Awards & Honors

- SaTRec Research Fellowship, SaTRec, 2018
- Dean’s list, KAIST, 2008

Professional Service

- Technical Program Committee, ICOIN 2026
- Technical Program Committee, ICUFN, 2025
- Technical Program Committee, ICOIN 2025
- Reviewer for
 - IEEE Journal on Selected Areas in Communications
 - IEEE Transactions on Wireless Communications
 - IEEE Transactions on Vehicular Technology
 - IEEE Transactions on Communications
 - IEEE Transactions on Mobile Computing
 - IEEE Transactions on Computing
 - IEEE Wireless Communications Letters
 - IEEE Communications Letters