

Jaeyoung Song

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Research Interests

Machine learning, Distributed optimization, Federated learning

Education

Ph.D. in Electrical and Electronics Engineering

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

- *Summa Cum Laude*

Experiences

Assistant Professor, Pusan National University, Korea

- 2022.03 – Present

Senior researcher, Agency for defence development, Korea

- 2021.02 - 2022.02

Postdoctoral researcher, Hanyang University, Korea

- 2020.09-2021.02

Postdoctoral researcher, EURECOM, France

- 2019.10-2020.09

Postdoctoral researcher, KAIST, Korea

- 2019.09-2019.10

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- ,” in *IEEE Access*, 2025

- [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