

Seung-seob Lee

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I am passionate about forging a future where digital content seamlessly integrates with the physical world, enriched by the advancements of AI. Committed to this vision, my focus lies in developing performant and energy-efficient systems and networks that will power future applications. My areas of expertise include system design for disaggregated data centers, machine learning-based resource optimizations for heterogeneous networks and systems, and system security for edge/embedded devices.

Work Experience

- 2022 Feb – Associate Research Scientist, Yale University, New Haven, Connecticut, U.S.
present
- 2020 Feb – Postdoctoral Associate, Yale University, New Haven, Connecticut, U.S.
2022 Jan
- 2015 Sept – Research Intern, Microsoft Research Asia, Beijing, China (9 months)
2016 May

Education

- 2011–2019 M.S./Ph.D., Computer Science, Yonsei University, Korea.
- 2007–2010 B.S., Computer Science, Yonsei University, Korea.

Publications

o Conference

Seung-seob Lee, Y. Yu, Y. Tang, A. Khandelwal, L. Zhong, and A. Bhattacharjee, “MIND: In-Network Memory Management for Disaggregated Data Centers,” in *Proceedings of the ACM SIGOPS 28th Symposium on Operating Systems Principles (SOSP)*, 2021.

T. Kim, **Seung-seob Lee**, C. K. Kim, and S. Lee, “Poster Abstract: Caching Scheme for Internet of Vehicles Using Parked Vehicles,” in *Proceedings of the 17th ACM Conference on Embedded Networked Sensor Systems (SenSys)*, 2019.

Seung-seob Lee and S. Lee, “Poster Abstract: Deep Reinforcement Learning-based Resource Allocation in Vehicular Fog Computing,” in *IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPs)*, 2019.

H. Kim, **Seung-seob Lee**, and S. Lee, “Dynamic Extended Access Barring for Improved M2M Communication in LTE-A Networks,” in *IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, 2017.

S. Lee, K. Kim, Y. H. Kim, and **Seung-seob Lee**, “Motion Analysis in Lower Extremity Joints during Ski Carving Turns using Wearable Inertial Sensors and Plantar Pressure Sensors,” in *IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, 2017.

Seung-seob Lee, H. Shi, K. Tan, Y. Liu, S. Lee, and Y. Cui, “Smart and Secure: Preserving Privacy in Untrusted Home Routers,” in *Proc. of the 7th ACM SIGOPS Asia-Pacific Workshop on Systems (APSys)*, 2016.

Seung-seob Lee, H. Kim, and S. Lee, "K-Tier Relay Node Placement in Heterogeneous LTE Networks," *IEEE Mobile Services (MS)*, 2015.

M. Kim, Y. Kim, **Seung-seob Lee**, and S. Lee, "Poster: Multi-path Transport Protocol for Vehicle-to-Grid Communications," *IEEE Vehicular Networking Conference (VNC)*, 2014.

o Journal

T. Kim, H. Park, Y. Jin, **Seung-seob Lee**, and S. Lee, "Partition Placement and Resource Allocation for Multiple DNN-based Applications in Heterogeneous IoT Environments," *IEEE Internet of Things Journal*, 2023.

S. Lee, S. Lee, and **Seung-seob Lee**, "Deadline-Aware Task Scheduling for IoT Applications in Collaborative Edge Computing," *IEEE Wireless Communications Letters*, vol. 10, no. 10, pp. 2175–2179, 2021.

Seung-Seob Lee, H. Shi, K. Tan, Y. Liu, S. Lee, and Y. Cui, "S2Net: Preserving Privacy in Smart Home Routers," *IEEE Transactions on Dependable and Secure Computing*, vol. 18, no. 3, pp. 1409–1424, 2021.

Seung-Seob Lee and S. Lee, "Resource Allocation for Vehicular Fog Computing Using Reinforcement Learning Combined With Heuristic Information," *IEEE Internet of Things Journal*, vol. 7, no. 10, pp. 10450–10464, 2020.

Seung-seob Lee, T. Kim, S. Lee, K. Kim, Y. Kim, and N. Golmie, "Dynamic Channel Bonding Algorithm for Densely Deployed 802.11ac Networks," *IEEE Transactions on Communications*, vol. 67, pp. 8517–8531, Dec. 2019.

M.-S. Kim, Y. Kim, **Seung-seob Lee**, S. Lee, and N. Golmie, "A User Application-based Access Point Selection Algorithm for Dense WLANs," *PLOS ONE*, vol. 14, pp. 1–23, Jan. 2019.

Y. Kim, **Seung-seob Lee**, and S. Lee, "Coexistence of ZigBee-based WBAN and WiFi for Health Telemonitoring Systems," *IEEE Journal of Biomedical and Health Informatics*, vol. 20, pp. 222–230, Jan. 2016.

Seung-seob Lee, S. Lee, K. Kim, and Y. Kim, "Base Station Placement Algorithm for Large-Scale LTE Heterogeneous Networks," *PLOS ONE*, vol. 10, pp. 1–19, Oct. 2015.

Seung-seob Lee, S. Lee, K. Kim, D. Griffith, and N. Golmie, "Optimal Deployment of Pico Base Stations in LTE-Advanced Heterogeneous Networks," *Computer Networks*, vol. 72, pp. 127 – 139, Oct. 2014.

Seung-seob Lee and S. Lee, "User-Centric Offloading to WLAN in WLAN/3G Vehicular Networks," *Wireless Personal Communications*, vol. 70, pp. 1925–1940, June 2013.

Patents

- 2016 "Method for Optimizing Cell Scanning Interval for Cell Reselection in Wireless Communication System and Apparatus Therefor," Korea, Registration No. 10-1667587-0000
- 2015 "Method and Apparatus for Base Station Location and Cell Type Determination in LTE-Advanced Heterogeneous Network," Korea, Registration No. 10-1482909-0000

Teaching

- 2023 Guest-lecturer, *Big Data Systems:Trends & Challenges*, Yale University
- 2022 Co-instructor, *Computer Networks*, Yale University
- 2014 Teaching Assistant, *Understanding on State of the Art Technologies and Thesis in Computer Science*, Yonsei University
- 2013, 2014 Teaching Assistant, *Discrete Mathematics*, Yonsei University
- 2013 Teaching Assistant, *Data Structures*, Yonsei University

Fellowships and Awards

- 2022 Athena Post-doctoral Fellowship (NSF National AI Institute)
- 2014–2016 Brain Korea (BK) 21 Research Scholarship
- 2007–2010 National Science & Technology Scholarship, funded by Korea Student Aid Foundation

Professional Activities/Services

- IEEE Transactions on Mobile Computing, Reviewer
- IEEE Internet of Things Journal, Reviewer
- IEEE Journal of Biomedical and Health Informatics, Reviewer
- IEEE Wireless Communications Magazine, Reviewer
- ACM SOSP '21, Artifact evaluation committee
- ACM CoNEXT '17, Student Workshop, Student-staff