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Seung-seob Lee

Research Interests

My research interests lie in the fields of edge computing system, especially for system design in disaggregated data centers, machine learning-based resource optimization, and system-level network security for heterogeneous fog/edge devices.

Education

2011–2019 M.S./Ph.D., Computer Science, Yonsei University, Korea. GPA: 4.28/4.3

2007–2010 B.S., Computer Science, Yonsei University, Korea. GPA: 3.87/4.3

Work Experience

2020– Postdoctoral associate, Yale University, New Haven, Connecticut, U.S.

2019–2019 Researcher, Yonsei University, Seoul, Korea

2015–2016 Research Intern, Microsoft Research Asia, Beijing, China (9 months)

Publications

○ Journal

Seung-seob Lee and S. Lee, "Resource Allocation for Vehicular Fog Computing using Reinforcement Learning Combined with Heuristic Information," *IEEE Internet of Things Journal*, 2020 (Early access).

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.

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*, June 2019 (Early access).

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.

○ Conference

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)*, 2019.

Seung-seob Lee and S. Lee, "Poster Abstract: Deep Reinforcement Learning-based Resource Allocation in Vehicular Fog Computing," in *IEEE INFOCOM 2019 - 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 *2017 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, pp. 2742–2747, IEEE, 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 *2017 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, pp. 695–698, IEEE, 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)*, ACM, 2016.

Seung-seob Lee, H. Kim, and S. Lee, "K-Tier Relay Node Placement in Heterogeneous LTE Networks," *2015 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," *2014 IEEE Vehicular Networking Conference (VNC)*, 2014.

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

Fellowships and Awards

2014 Brain Korea (BK) 21 Research Excellence Scholarship

2011–2012 Excellent Student Scholarship, Yonsei University

2007–2010 Honor Student Award (2007-1st, 2nd, 2008-1st, 2010-1st, and 2nd semesters)

2007–2010 National Science & Technology Scholarship, funded by Korea Student Aid Foundation

Professional Activities/Services

Reviewer IEEE Transactions on Mobile Computing

IEEE Internet of Things Journal

IEEE Journal of Biomedical and Health Informatics

IEEE Wireless Communications

IEEE Consumer Communications & Networking Conference

Student-staff — The 13th ACM International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT 2017), Student Workshop

Research Project Experience

2019 "Reinforcement Learning-based Resource Optimization for Internet of Things in Multi-tier Heterogeneous Edge," funded by Ministry of Science and ICT

2017–2019 "Fog-overlay based Vehicular Networking Technology for Efficient Cooperative-ITS Services," funded by Ministry of Science and ICT

2014–2019 "SSE-ITRC: Smart Spectrum Engineering IT Research Center," funded by Ministry of Science, ICT and Future Planning

2014–2015 "An Automatic Network Selection Algorithm for HetNets based on User Behavior," funded by Ministry of Science, ICT and Future Planning, and Microsoft Research

2013–2015 "A Data Distribution Mechanism in LTE-A HetNet/Multi-WLAN," funded by National Research Foundation of Korea

2013–2014 "Optimal AP Selection Algorithm for Improving UX in LTE/WiFi Networks," funded by LG Electronics

2011–2013 "A Cross-layer Transmission Control Scheme Considering Vehicular Environment in Networks," funded by National Research Foundation

2012 "User Behavior-based Technology for Improving UX and Power Consumption on the LTE/CDMA-WiFi Smartphone," funded by LG Electronics

2011 "User Behavior-based Technology for Optimizing User Experience on the LTE/CDMA-WiFi Capable Smartphone," funded by LG Electronics

Teaching Assistant

2014 *Understanding on State of the Art Technologies and Thesis in Computer Science*

2013, 2014 *Discrete Mathematics*

2013 *Data Structures*