IEEE Systems Council Chapter presents IEEE Distinguished Lecture Series on

Federated Learning for Medial and Mobile Platforms: Motivation, Challenges, and Potential Solutions

Professor Joongheon Kim

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Abstract:
In modern deep learning research, federated learning is one of the major techniques for distributed deep learning computation. With federated learning, training data is distributed over local computing machines, and then deep learning computation will be conducted in each local computing machines. After the local computation, the training parameters will be gathered at the centralized cloud. In this case, the raw data in each local machine will not be exposed from the storage, thus, it is one of the promising methods for privacy-preserving machine learning. According to this nature, this technique is widely considered and used for medical platforms in order to guarantee patients' privacy. In addition, this is also useful for distributed mobile networks because sharing raw data will introduce large delays in communication networks. In this talk, the motivation, challenges, and potential solutions will be discussed.

About Speaker: Dr. Joongheon Kim is currently a faculty member at the School of Electrical Engineering, Korea University, Seoul, Korea. He received his B.S. (2004) and M.S. (2006) in computer science and engineering from Korea University, Seoul, Korea; and then received his Ph.D. (2014) in computer science from the University of Southern California (USC), Los Angeles, CA, USA. In industry, he was with LG Electronics CTO Office Multimedia Research Laboratory, Seoul, Korea, from 2006 to 2009; InterDigital Communications, San Diego, CA, USA, in 2012; Intel Corporation, Santa Clara, CA, USA, from 2013 to 2016. He published more than 60 journals and 80 conference proceeding papers. He holds more than 40 granted patents. He received Annenberg Graduate Fellowship from USC with his Ph.D. admission (2009), Haedong Young Scholar Award from Korea Institute of Information and Communication Sciences (KICS) (2018), Gold Paper Award from IEEE Seoul Section Student Paper Contents with his students (2019), and IEEE Vehicular Technology Society (VTS) Seoul Chapter Award (2019).

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