

Call for Papers of The 2022 Workshop on Robust, Low-Latency and Efficient Federated Learning for the Internet of Things

Organized in conjunction with IEEE IPCCC 2022, November 11th – 13th, 2022, Austin, Texas, USA

Internet of Things (IoT) applications, such as holographic communications and smart city, will revolutionize our modern life. IHS Markit has predicted that the number of IoT devices will be about 125 billion by 2030. The large amount of data produced by massive devices has significantly promoted the deployment of machine learning algorithms, which will bring various innovative services to our future life. Traditional machine learning algorithms centralize the training data from all devices into a center. However, such a data-sharing strategy will lead to data misuse and leakage.

As a distributed machine learning approach with data privacy, Federated Learning (FL) has attracted great attention in IoT application fields in recent years. Specifically, in FL, the following two procedures are performed alternatively:

1) based on the global model, devices train their local data individually and upload their local models to a center (e.g. a base station (BS) in the cellular network) without data sharing to preserve the privacy of devices; 2) the center aggregates these local models to obtain a global model and broadcasts it to all device.

The evolution of FL technologies has experienced a number of challenges including convergence rate analysis, devices selection, resource allocation and etc. Various theories, optimization algorithms, and sophisticated schemes have been proposed to tackle these challenges. Once the FL technology becomes more robust, more low-latency and more efficient in the future, more applications in IoT can be benefited from FL to make the future systems provide strong security. However, towards more robust, more low-latency and more efficient FL for IoT, there remains much to be done.

Thereby, this workshop will bring leading researchers and developers from both industry and academia together to present their research on FL for IoT, to promote the development of IoT.

Topics of interest include but are not limited to:

- FL framework for IoT
- Convergence rate analysis for FL
- Adaptive resource allocation and devices selection for FL
- Advanced machine learning technologies for robust, low-latency and efficient FL
- Security-and-privacy enhanced FL
- Advanced federated optimization algorithms for enabling FL in IoT
- Personalized FL for IoT

Paper requirements: The workshop accepts only novel, previously unpublished papers. All submissions should be written in English with a maximum paper length of six (6) printed pages (double-column, 12-point font) including figures. The EDAS link for submission is <https://edas.info/N29290>.

Important Dates:

- Paper Submissions: July 15th, 2022
- Paper Acceptance Notifications: August 1st, 2022
- Camera-ready Deadline: August 15th, 2022
- Workshop Date: November 13th, 2022

Workshop Chairs:

Jun ZHAO, School of Computer Science and Engineering, Nanyang Technological University, Singapore (junzhao@ntu.edu.sg)

Huimei HAN, College of Information Engineering, Zhejiang University of Technology, China