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Intelligent Connectivity for Smart World

Workshop on Edge Learning for 5G Mobile Networks and Beyond

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Important Dates

- ❖ Paper submission deadline: **January 20, 2022**
- ❖ Notification of acceptance: March 06, 2022
- ❖ Camera-ready papers: March 15, 2022

Submission link

https://edas.info/N28800

Webpage link

https://sites.google.com/view/icccovicom2021/home

Scope

Nowadays, standard machine learning approaches require centralizing the training data on a single data center or cloud. Since massive data samples need to be uploaded to the data center, transmission delay can be very high and user privacy is not guaranteed in standard centralized machine learning approaches. However, low-latency and privacy requirements are important in the emerging application scenarios, such as unmanned aerial vehicles, extended reality services, autonomous driving, which makes centralized machine learning approaches inapplicable.

Moreover, due to limited communication resources, it is impractical for all the wireless devices that are engaged in learning to transmit all of their collected data to a data center that uses a centralized learning algorithm for data analytic or network self-organization. Therefore, it becomes increasingly attractive to deploy learning algorithms at edge devices, called edge learning. A typical edge learning framework (e.g., federated learning) features distributed learning over many wireless end-user devices cooperating with edge devices, such as access points or base stations, to train a common AI model using distributed local data. This scenario typically involves an iterative learning process, repeatedly downloading and uploading possibly high-dimensional (millions to billions) model parameters or their updates by tens to hundreds of edge devices. This may generate substantial data traffic, placing a heavy burden on already congested radio access networks. The training problem cannot be efficiently solved usingtraditional wireless techniques targeting at rate maximization while decoupled from learning.

Topics

We seek original completed and unpublished work not currently under review by anyother journal/magazine/conference. Topics of interest include, but are not limited to:

- Fundamental limits of edge learning systems
- Wireless network optimization for improving the performance of edge learning
- Data compression for edge learning
- Adaptive transmission for edge learning
- Techniques for wireless crowd labelling
- Modeling and performance analysis of edge learning networks
- Energy efficiency of implementing machine learning over wireless edge networks
- Ultra-low latency edge learning and inference
- Experiments and testbeds on edge learning
- Privacy and security issues in edge learning
- Edge learning for intelligent signal processing
- Edge learning for user behavior analysis and inference
- Distributed reinforcement learning for network decision making, network control, and management

Paper Submission

The workshop accepts only novel, previously unpublished papers. The page length limit for all initial submissions for review is SIX (6) printed pages (10-point font) and must be written in English. All final submissions of accepted papers must be written in English with a maximum paper length of six (6) printed pages (10-point font) including figures. No more than one (1) additional printed page (10-point font) may be included in final submissions and the extra page (the 7th page) will incur an over length page charge of USD100. For more information, please see IEEE ICC 2022 official website: https://icc2022.ieee-icc.org/authors