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Important Dates

- Paper submission deadline: **January 20, 2021**
- Notification of acceptance: February 20, 2021
- Camera-ready papers: March 1, 2021

Submission Guidelines

The workshop accepts only novel, previously unpublished papers.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. 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 2021 official website: https://icc2021.ieee-icc.org/authors

Submission link

https://edas.info/N27513

Webpage link

DAWNZ Website

Scope

Artificial intelligence (AI) and big data are both viewed as the corner stone to build beyond-5G (B5G) zero-touch automated wireless networks. To harness the full potential of automation, AI algorithms should interact with distributed data across the network. This distribution is sometimes due to the network topology per se, where performance data collection is performed per domain or node (e.g., radio access, edge cloud) but also produced by the applications running on scattered user devices. In such a case, opting for a centralized data collection system would result in a high network bandwidth and energy consumption as well as a significant delay to transfer the data to the classical operational subsystem (OSS). The centralization would also breach the privacy and security of end user applications. In this context, standardization efforts have been made to decentralize AI algorithms. In ETSI's zero-touch architecture, for instance, each network domain is endowed with a data collection element that feeds a local AI analytics and decision entity. The central analytics entity---that has its own cross-domain data collection---might serve as coordinator/model aggregator without necessarily having access to the distributed raw datasets.

A successful AI deployment should therefore be distributed in space--ranging from user devices to core network--and evolving in time--from collaborative AI to advanced federated learning and multi-agent reinforcement learning. In this intent, active research works have been carried out to come up with efficient distributed AI architectures while minimizing the communication burden between the cooperating distributed engines.

Decentralized AI has multi-fold use cases. User devices with dedicated AI chips might benefit from a higher degree of security and privacy since they would prevent the exchange of any raw data with centralized cloud servers. They might also present a quick reaction time with locally taken decisions, which is adequate for low-latency applications as well as for mitigating security risks. On the other hand, the density of network nodes or the exponential increase in user devices would induce no significant complexity since network intelligence is scattered among a massive number of nodes and user equipments offering thereby a high degree of scalability.

Topics

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

- Distributed Big Data and knowledge distillation for B5G.
- Federated learning for B5G networks.
- Decentralized reinforcement learning for B5G networks.
- Zero-touch network architectures and protocol design for decentralized AI.
- Decentralized AI schemes with low energy consumption.
- Decentralized AI for V2X applications.
- Decentralized resource management and network slicing.
- Decentralized AI for low latency applications.
- Decentralized AI for zero-touch PHY and MAC operation.
- Production platforms for decentralized and federated learning.
- Decentralized AI for smart cities applications.
- New business models for decentralized AI.
- Decentralized AI and Blockchain for B5G.