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SS 01 - Distributed and Intelligent Edge Computing (IEC) for Industrial IoT

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Future Industrial IoT networks and the forthcoming 6G networks envision ubiquitous computing and connectivity which will lead to massive growth in data traffic and billions of edge nodes connected with each other. To avoid delays and single point of failure in huge networks, edge devices are now widely employed for various applications, such as industrial automation, intelligent transportation systems, surveillance, and home automation. However, in many scenarios, sophisticated artificial intelligence (AI) algorithms are required consuming significant amount of processing power and occupying large storage size which may exceed the available resources of typical edge devices. To overcome this challenge, recent delay sensitive, distributed, and intelligent trends in computing paradigms, such as TinyML, Federated Learning, Mobile edge Computing, Multiaccess Edge Computing, Edge Computing, Fog Computing and Computational Offloading are under research, aiming to optimize latency, computing complexity, and resourceful utilization of bandwidth, thus giving rise to a potential research direction of distributed and Intelligent Edge Computing (IEC). Due to significant tasks expected to be handled in future IIoT and 6G networks, IEC is deemed to play an important role.

The SS focuses on (but is not limited to):

- IEC solutions for Industrial IoT and Beyond 5G (B5G) communication networks
- Distributed or collaborative intelligence for IIoT and B5G communication networks, such as federated learning and TinyML.
- Explainable AI and Trustworthy AI in edge computing
- Digital twins for Industrial IoT and IEC
- AI based edge computing resource allocation and management.
- Communication protocols designed for IEC.
- Solutions towards zero-touch service orchestration across IIoT and B5G with IEC
- Intelligent computation offloading
- Energy efficiency in IEC
- Joint optimization of computing, network, and storage resources of edge devices in IIoT
- Latency and bandwidth management in intelligent edge computing
- Security and trust in intelligent edge computing
- On-demand resource allocation and task scheduling for IEC

IMPORTANT DATES

Deadline: **January 12, 2024**

Notifications: **February 21, 2024**

Final versions: **March 1, 2024**

