

Call for Papers

Edge Perception in Future Networks (EPFN) Workshop (**Hybrid**)

The 22nd International Conference on Wireless Communications and Mobile Computing

Website: <http://iwcmc.net/2026/>

Submission Link: <https://edas.info/N34281>

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Scope

Future networks are expected to deliver transformative advancements, enabling intelligent applications such as autonomous vehicles, digital twins, and immersive metaverse experiences, all of which require unprecedented network performance in terms of throughput, latency, and reliability. To support the above use cases, network devices must be equipped with high-precision sensing, ubiquitous connectivity, and low-latency computing. In other words, the seamless integration of communication, computation, and sensing is poised to become a fundamental pillar of next-generation wireless networks. However, achieving these capabilities presents several key challenges. First, the isolated-point sensing by single node/base station (BS) without network connectivity lacks data awareness, reducing overall sensing effectiveness. Second, cloud-centric processing requires cross-domain data exchange, exposing privacy risks and incurring significant response delays. Given the importance of both data processing and sensing in intelligent applications, designing a joint system is crucial to maximize overall performance with limited network and hardware resources.

Motivated by recent advancements, the concept of edge perception has emerged as the integration of edge artificial intelligence (AI) and wireless sensing at the network edge. This fusion aims to achieve fast data processing and decision-making, offering advantages of reduced data transmission latency, enhanced data privacy and security, as well as lower computing costs. Typically, BSs and terminal devices utilize the current communication signal format to explore uplink and downlink sensing in a task-oriented manner aligned with their specific objectives. Such an approach facilitates subsequent data processing and decision-making operations, enabling the edge network to directly access massive real-time and diverse data. This access contributes to real-time responsiveness, optimization of resource allocation, and implementation of privacy/security measures, while also catalyzing new applications. As the intersection of edge AI and wireless sensing, edge perception represents a groundbreaking paradigm where data is not only collected directly at the edge network but also wirelessly transmitted and processed intelligently. This interplay holds substantial promise and merits deeper exploration.

This workshop is envisioned to delve into the underexplored territories of edge perception, acknowledging that such discourse is conspicuously absent from the main conference symposia. Our goal is to spotlight the critical technical challenges that surface when optimizing the blend of wireless sensing and edge AI. For instance, the limitation of wireless resources remains a significant hurdle for edge AI, as it strains to support the rapid influx

of intelligence requirement from edge devices. By inaugurating this workshop, we aim to forge a vanguard that will address these emerging challenges head-on. We will convene thought leaders, industry experts, and academic researchers to foster discussions that will propel the development of edge perception strategies. This congregation will serve as a crucible for innovative ideas, pushing the boundaries of current research to unlock the full potential of future networks. The workshop's emphasis on the timeliness and relevance of edge perception will not only complement the main conference but also catalyze new pathways for research and collaboration in this nascent yet vital domain.

Topics

Accepted papers will be published in the IEEE IWCMC 2026 proceedings and will be submitted to the IEEE digital library (IEEE Xplore). Authors are welcome to submit original papers (not published before and/or simultaneously to another venue) with topics that include but are not limited to:

- Fundamental information theoretical limits for edge perception networks
- Network architectures/transmission protocols/frame designs for edge perception network
- Spectrum analysis and management of edge perception network
- Full duplex/interference management techniques of edge perception network
- Precoding/waveform/modulation/receiver design for edge perception network
- Security and privacy issues for edge perception network
- Machine learning/Network intelligence for edge perception network
- MIMO/Massive MIMO/intelligent reflecting surface (IRS)/Holographic MIMO surface for edge perception network
- Millimeter wave/THz technologies for edge perception network
- Edge perception network for low-altitude economy
- Edge perception network for 6G vehicular-to-everything (V2X) networks
- Standardization progress of edge perception network
- Indoor sensing/positioning/detection in edge perception network
- Experimental demonstrations and prototypes

Important Dates

Same deadlines as the main conference dates.

Note: Within this workshop, there will be one Best Paper Award.