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Track Name: Circuits and Systems (CAS) Designs for Artificial Intelligence and Internet of Things

Call for Papers

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https://coinsconf.com

The Internet of Thing (IoT) and Big Data applications drive the machine learning technology development. The devices for the IoT applications provide sensing, actuation, processing, and communication at low-power levels and at low cost. Thereby, they must be resilient in the face of harsh environments, challenging communication requirements, and long lifetimes that may reach beyond the useful lives of the individual nodes. This track explores the design of circuits and systems for the future IoT era.

Emerging IoT devices and applications produce increasingly high volumes of data. At the same time, they require significant computational requirements that often do not fit in the stringent power envelopes of the existing IoT devices. Through the hierarchical IoT structure, the datacenters and cloud servers are usually used to empower the IoT systems by performing massive data processing on behalf of the IoT users. In this track, the emerging hierarchical IoT structure and its cross-layer collaboration schemes to process the massive data will be investigated.

Artificial Neural Networks (ANN) and Spiking Neural Networks (SNN) have shown significant advantages in many domains. Current large-scale ANNs, however, involve complex communication, extensive computations, and large storage requirements, which are beyond the capability of current resource-constrained IoT devices. SNNs, on the other hand, process data asynchronously and can lead to efficient signal processing systems. However, learning in these systems has not shown the same level of success as ANNs and need further investigations. We invite original research ideas and efforts toward efficient design of ANN and SNN circuits and systems for low-power and high-performance IoT devices.

The track topics of interest include, but are not limited to:

- Sensory Circuits & Systems for IoT

- Communications Circuits & Systems for IoT

- Energy-aware Circuits and Systems for IoT Applications

- Circuits & Systems for Big Data Processing

- Artificial Intelligence Circuits and Systems

- Neural Networks & Neuromorphic Engineering

- Emerging Technologies in CAS (e.g., Beyond CMOS)

- Application and Architecture of Artificial Neural Networks

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