

International Workshop on Cloud/Edge Computing in Robotic Systems

<http://www.cloudrobots.org>

The 6th International Workshop on Cloud/Edge Computing in Robotic Systems (CCR2019) provides a forum for scientific advances in the theory and practice of cloud/edge-supported robotic systems. It is a subsequent event of ICCR2018 (www.cloudrobotics.info) and will be held collocated with IEEE SOSE in San Francisco on April 4-9, 2019.

Overview

Autonomous systems, such as robots and unmanned vehicles, need heavy computation and plenty of knowledge to address various challenges in the real world. They can easily exceed the capability of their onboard computers. Cloud computing, as well as the newly emerged edge computing paradigm, provides an effective solution to this problem. By computation offloading and data support from the cloud, the “autonomy” can be significantly augmented. Furthermore, the cloud/edge servers can act as a base to support collective cooperation, such as sharing the environment information and coordinating individual actions. However, utilizing remote resources with strict QoS constraints being inherent to an autonomous system is challenging. The situation becomes more severe while the cloud/edge servers have to orchestrate a large number of robots. It needs the joint effort of multiple disciplines, such as distributed computing, cloud robotics, robotic software, networked control, cyber-physical systems, Internet of Things, big data analytics, artificial intelligence, etc.

Topics of interest include, but are not necessarily limited to:

- Architecture and middleware for distributed robotic systems
- QoS-friendly service delivery for robots and cyber-physical systems
- Static/dynamic computation offloading in autonomous systems
- Parallelization and optimization of robotic tasks on cloud computing platform
- Mining the potentials of big data in autonomous systems
- Cloud/Edge-supported deep learning for autonomous systems
- Multi-robot coordination, behavior emergence, and orchestration
- Knowledge management and transfer across multiple robots
- Cloud/Edge-enabled collective intelligence in robotic systems
- Interoperability and scalability in cloud-orchestrated robotic systems
- Blockchain in swarm robots and other distributed autonomous systems
- Use cases in real-life applications such as precision agriculture, intelligent manufacturing, healthcare, security, and surveillance.

Submission

Submitted papers should be written in the English language. Each paper is suggested to have not more than 6 pages including figures and references using IEEE Computer Society Proceedings Manuscripts style (two columns, single-spaced, 10 fonts).

The accepted paper will be included in the IEEE SOSE conference proceedings and will be submitted for inclusion to IEEE Xplore as well as other Abstracting and Indexing databases. All papers should be submitted through the EasyChair link on the website.

Submission deadline Dec 28th, 2018

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