

Call for Papers

IEEE Wireless Communications Magazine

Special Issue on:

Wireless Communications in Networked Robotics

Background:

Wireless communication has been a key driving force in recent years both in academia and in industry. It has currently expanded to wireless multihop networks, which include ad hoc radio networks, sensor networks, wireless mesh networks and mobile multihop relay systems. With multihop capability, wireless communication can be combined with cooperative communications and network coding, which has attracted even more researchers to this field. In many wireless multihop networks, the merits of capacity enhancement as well as coverage exceed the delay caused by multihop relay. Still, however, there are unresolved issues that may not be necessarily technical; one question regards the real motivation of a relay node that allows packet relay for the other transmitting nodes by consuming its own energy. There is also a security issue in multihop communications, in the sense that one's own data transmission is received by someone else in close proximity. On the other hand, in the networked robotics area, researchers try to realize group behaviors found in small insects or animals, in order to control and coordinate a team of robots. Especially, real-time wireless communication can help dynamic resource management and self-organization for a team of cooperative robots. The multiple robots communicate with each other, sharing the same mission, naturally through wireless communications. In this respect, wireless communication is an excellent candidate for inter-robot information exchange.

This special issue is an attempt to bridge these two dynamic areas. We welcome submissions on all aspects of these themes, which include (but are not limited to) the following topics:

- Communication architecture for collaborative robot systems
- Biologically inspired swarm robotics with networking functionality
- Multiple robot networking with multihop- and cooperative communications
- Network coding and wireless relay technologies for cooperative robotics
- Applications of multi-robot network systems
- Ad hoc robot networks
- Cognitive communication technologies for inter-robot team work
- Exploiting robot mobility in wireless relay networks
- QoS support and resource management in networked robotics
- Wireless networks under node mobility

With regard to both the content and formatting style of the submissions, prospective contributors must follow the IEEE Wireless Communications guidelines at http://www.comsoc.org/pubs/pcm/sub_guidelines.html. Submitted papers must be original and must not be under current consideration for publication in other venues.

Authors should submit a PDF format of their complete papers via email to slkim@yonsei.ac.kr.

Important Dates:

- Paper submission deadline: July 31, 2008
- Notification of acceptance: October 15, 2008
- Final manuscript Due: November 15, 2008
- Publication date: February, 2009

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