

Title:

Decentralized connectivity maintenance for multi-robot systems

Speaker:

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Abstract:

To accomplish cooperative tasks, robotic systems are often required to communicate with each other. It is then necessary to ensure that communication exchange can occur among the robots, as the multi-robot system evolves. This is particularly critical when dealing with mobile robots: in fact, as is well known, when exploiting commonly adopted communication devices, communication is possible within a limited range.

On these lines, it is of interest to develop strategies for guaranteeing connectivity maintenance. In particular, this talk will focus on decentralized strategies for ensuring preservation of connectivity from a global point of view: namely, single links among the robots are allowed to be removed (or created) as long as the overall communication graph remains connected.

The proposed control strategy relies on decentralized estimation of the algebraic connectivity of the communication graph, that is exploited for implementing a gradient based control strategy.