Resource Allocation in Cooperative Systems

by
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The field of cooperative control involves the study of scenarios in which a group of autonomous agents collaborate with each other in order to accomplish a common objective. At the higher level, many of these scenarios involve some sort of resource allocation problem, which is to say that the agents would like to achieve the optimal assignment of the individual agents to the various sub-tasks that define the overall objective. In this talk we will explore three different scenarios: 1) achieving a uniform distribution of agents over a sparse network of interconnected areas under severe communication delays via a distributed algorithm, 2) dynamically determining task assignments for a group of heterogeneous agents in order to maximize the overall performance of the group, and 3) cooperative information gathering in support of group decision making under time constraints.

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