



Special Issue on Collective decision in biological swarms of

Swarm Intelligence

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Scope:

The large body of recent literature on swarm intelligence was largely inspired by biological problems of "spatial" nature: from path selection in ant colonies, to clustering and nest building behavior in social insects, to the coordination of flocking and schooling in large animal groups. Another important issue in swarm intelligence in natural systems received less attention from the community working on artificial systems. This is the problem of decision: how do animal groups pull together the information available to single individuals to deal collectively with complex cognitive problems? How do they reach consensus decisions?

Social animals often make coordinated decisions as a group about which activity to perform and where to go. Some animal groups are extremely good at reaching consensus decisions. Swarms of bees and colonies of ants can choose a good nest site between different alternatives; large flocks of birds and schools of fish can move in perfect synchrony and when the group is attacked by a predator the school contract, expand or splits, but the individuals seldom collide and soon the group reforms as a whole. These abilities are astonishing if we consider that in general only a small fraction of individuals owns information about the "good" solution, and it is difficult for individuals to discern from the behavior of others which of their neighbors 'know' what to do and which are just following the herd. In addition, the information owned by different individuals may be conflicting, and still the group should come out with a consensus solution in reasonable time.

This special issue calls for papers focusing on different aspects and issues of collective decision in animal groups, exploring the problem in different animal models and focusing on different aspects of decision: what is the pooling function? by what mechanisms can informed individuals lead the group? what compromise is found in the trade-off for speed and accuracy? In summary, how do individuals within a group integrate information in order to reach consensus? and when does the group better split than reach a consensus?

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Submission:

Authors are invited to submit original work on topics relevant for this special issue. The submission deadline is **October 15, 2010**. The publication of the special issue is tentatively scheduled for early Fall 2011.

Authors should submit their manuscripts to the Swarm Intelligence Editorial Manager at <http://www.editorialmanager.com/swrm>. Please, select "Special Issue on Collective decision in biological swarms" as the article type.