

Designing Self-Organizing Cooperative Robotic Systems with Decentralized Decision Making

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Abstract:

The challenges of modern age require equally sophisticated solutions. Many complex tasks are solvable by using cooperative robotic systems. However, as the number of simultaneously employed robotic units increases, new challenges emerge. The effective control of large robotic group requires innovative approaches. Such effective rules for large group self-organization have been observed in nature and inspired the research field of Swarm intelligence. Using similar principles, it is possible to design highly efficient self-organizing robotic systems with decentralized decision-making. The goal of the work is to use the principles of decentralized decision making to design highly efficient self-organizing robotic systems with large number of robotic units.

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