ICIRA 2024 Special Session Proposal

Title of the Proposal: Multi-robot Game Coordination and Learning in the Open Environment

Technical Outline of the Session and Topics:

Outline of the Session: As an important part of robotics research, multi-robot systems (MRSs) have significant advantages over a single-robot system in the better system reliability, flexibility, scalability, and versatility, and have been playing increasingly important roles in the military and civil areas. Due to a fact that MRSs usually execute tasks in the open environment, MRSs must have online learning and self evolution capabilities to improve their environmental adaptability and task execution effectiveness. Thanks to AI, multi-robot learning systems have been developed to create intelligent robots that learn from experience how to best interact with other robots. Recently, concepts of RL and differential games are brought together to learn an optimal solution to multi-robot coordination.

Topics of the Session include but not limited to:

- *Multi-robot learning system*
- *Coordination theory*
- *Differential game*
- *Reinforcement learning*
- *Hybrid-augmented intelligence*
- *Human-robot cooperative system*
- *Fuzzy and neural systems*
- *Spatiotemporally dynamic environment*

Contact details of the Session Organizers

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