

Performance Study of Experienced Agent Joining Ad-Hoc UAV Teams

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ABSTRACT

In an autonomous robotic team, agents cooperate with each other to maximize the utility. The decision making and the manner of their operation and cooperation is a complex process due to dynamic environment, continues parameters, uncertain environment and unknown teammates. In this article, the persistent surveillance mission of unmanned aerial vehicles (UAVs) as a multi-agent system in the real world and the online decision making issue of agents are considered when the teammates and the environment are completely unknown. In this work, we propose a greedy algorithm to select an adaptive strategy based on the experiences it has before. Our experiments in a UAV persistent surveillance mission, show that this method improves the team performance in ad hoc teams.

Keywords: Cooperation, Ad Hoc Team, Markov Decision Process, Unmanned Aerial Vehicles.