

博士论坛

基于场景任务划分的多智能体Q-学习研究

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摘要 从研究分层强化学习入手, 提出由MAS中任务结构分析产生的分层合作研究方法, 通过区分子任务并以此建立更大粒度层面上的基于任务场景的状态空间, 并结合以联合动作为基础的任务动作与势能场模型, 从而解决强化学习中的状态空间的维数灾难。文中给出了基于机器人足球的子任务的算法应用, 其效能得到实验的验证。

关键词 [多Agent系统](#) [强化学习](#) [Q-学习](#) [任务场景](#)

分类号

Multi-agent Q-learning based on mission scenarios division

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Abstract

From the study of layered reinforcement learning approach, this paper proposes layered collaboration research methods through the mission structure analysis in MAS. By distinguishing the sub-mission, the state space is built, which is in greater level of granularity and based on the mission effect, combining with the mission action based on joint action and potential field model so as to solve the dimensional disaster in state space of reinforcement learning. This paper provides application of the algorithm based on a subset of mission in robot soccer and its effectiveness is validated by experiments.

Key words [Multi-Agent System \(MAS\)](#) [reinforcement learning](#) [Q-learning](#) [mission scenarios](#)

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