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论文与报告

连续时间MCP在紧致行动集上的最优策略

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摘要
文中研究了一类连续时间Markov控制过程(CTMCP)无穷水平平均代价性能的最优控制决策问题.文章采用无穷小生成元和性能势的基本性质,直接导出了平均代价模型在紧致行动集上的最优性方程及其解的存在性定理,提出了求解ε-最优平稳控制策略的数值迭代算法,并给出了这种算法的收敛性证明.最后通过分析一个数值例子来说明这种方法的应用.

关键词 性能势 平均代价准则 紧致行动集 数值迭代

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Optimal Policies for a Continuous Time MCP with Compact Action Set

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Abstract
In this paper, we study optimal policies for a class of continuous-time Markov control processes (CTMCPs) with infinite horizon average-cost criteria. Using the basic properties of infinitesimal generators and performance potentials, we give directly the optimality equation and establish the existence of solutions to this equation for the average-cost model on a compact action set. A fast value iteration algorithm, which leads to an ε-optimal stationary policy, is proposed and the convergence of this algorithm is studied. Finally, we provide one numerical example to show applications of the proposed method.

Key words Performance potentials average-cost criteria compact action set value iteration

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