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软件、算法与仿真

# 面向并行Agent仿真的合成基准测试模型

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摘要：

为了评估并行仿真算法的性能，需要建立一个基准测试模型。针对并行Agent仿真研究领域中缺乏一种与应用无关的基准测试模型这一问题，在借鉴并行离散事件仿真中经典的合成测试模型PHOLD设计思想的基础上，根据基于Agent仿真的特点，提出面向并行Agent仿真的合成基准测试模型，利用该模型可以方便地合成符合不同应用特点的计算负载，去除与应用相关的因素对性能分析的影响，能够为不同的并行Agent仿真研究者提供一个公共的测试基准。最后，采用该模型从实验层次上分析了Agent计算粒度、所采用的处理器数目等因素对并行Agent仿真加速比的影响。

关键词： 并行Agent仿真 PHOLD模型 基准测试模型 性能分析

# Synthetic benchmark model for parallel agent based simulation

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Abstract:

In order to evaluate the performance of parallel simulation algorithms, there is a need for a benchmark model. To solve the problem that there is currently lack of such a common benchmark model that is independent of applications in the parallel agent based simulation (PABS) research community, based on the design principles of parallel HOLD which is a classic synthetic benchmark model for parallel discrete event simulations (PDES), a common benchmark model for PABS is proposed according to the characteristics of agent based simulations (ABS). This model can easily synthesize various required workloads based on application characteristics and exclude the impact of elements related to specific applications on the performance analysis so as to provide a common benchmark for different PABS researchers. Finally, with this model, the impact of the computation granularity of agents and the number of processors on the speedup is analyzed experimentally.

Keywords: parallel agent based simulation (PABS) parallel HOLD (PHOLD) model benchmark model performance analysis

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