

工程与应用

基于MAS的CWE计算框架关键技术研究

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摘要 CWE (Cutter/Workpiece Engagement) 计算是加工过程仿真与优化研究中的一个重要问题。在CWE计算过程中, 工件模型不断被更新, 其几何越来越复杂, 计算开销越来越大。为了提高CWE计算的效率, 提出了一个基于MAS (Multi-Agent System) 的CWE计算方法。该方法将CWE计算的任务加以分解, 利用Internet/Intranet中的各个Agent进行分布式计算, 对计算的结果进行组装得到最终结果。最后给出了原型系统的实现和一个实际计算的例子。

关键词 [CWE](#) [虚拟加工](#) [MAS](#)

分类号

Research on MAS based CWE extraction framework

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Abstract

Cutter/Workpiece Engagement (CWE) extraction is an important problem in process modeling. One approach is to use a B-rep solid modeler to perform the calculations. However, this can have a high computational overhead especially for complicated workpieces. This paper presents a Multi-Agent System (MAS) for B-rep based CWE extraction that allows distributed processing of the modeling steps over the Internet. A task scheduling strategy is presented for decomposing and distributing the task over the framework according to the idleness of the agents. Finally a prototype implementation and an example are given to show the effectiveness and efficiency of the system.

Key words [Cutter/Workpiece Engagement \(CWE\)](#) [virtual machining](#) [Multi-Agent System \(MAS\)](#)

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