

基于MATLAB的车辆组件模型库的设计与实现

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摘要

结合研究车辆动力学控制参数模型的需要,提出了开发车辆组件模型库系统的设想。并设计了车辆组件模型库的功能结构和面向对象的系统层次结构体系。采用MATLAB仿真平台,运用软件可重用技术,构造了车辆动力学仿真领域模型库。使用C语言编写了车辆所有总成的S函数块,利用MATLAB提供的虚拟现实VRML工具箱,实现了车辆仿真视景。应用实例表明,所提出的车辆组件模型库系统具有较好的实用价值。

关键词 [车辆工程](#) [车辆组件模型库](#) [可重用技术](#) [S函数](#) [车辆动力学](#)

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Development and implementation of MATLAB based simulation model library for vehicle components

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Abstract The framework of simulation models library was developed to satisfy the requirements of analyzing the model of vehicle dynamic control. The function partition and the object oriented hierarchy structure of framework were introduced in detail. Based on MATLAB simulation platform, the reusable technology was applied to construct the model library of vehicle components. The S function blocks of all subsystems of vehicle were programmed with language C/C++. The 3D virtual reality of vehicle simulation supported by VRML tool box of MATLAB was realized. The application examples demonstrated that the proposed simulation model library for vehicle components could be referenced by other applications.

Key words [vehicle engineering](#) [vehicle component model library](#) [reusable technology](#) [S function](#) [vehicle dynamics](#)

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