具有力觉临场感的主-从机器手双向控制策略

张祝新 赵丁选 陈铁华

长春工程学院

关键词： 机器人 力反馈机器手 电液伺服控制系统 力觉临场感 双向控制策略

摘 要： 设计了液压伺服主、从机器手（简称主、从手），并对力觉双向伺服控制进行研究。零开口对称伺服阀的结构决定了需要主手的控制力信息通过控制器间接驱动从手，这一过程影响了系统的响应速度。本文采用主、从手的力偏差信号控制从手，用从、主手的位置偏差信号控制主手获得力觉反馈，这种新控制策略改变了从手跟随主手，主手感受从手力的常规控制模式，提高了主-从控制系统的响应速度，并可根据主手对从手的跟随来判断从手是否出现干涉等。 A hydraulic servo master slave robot was designed and force bilateral servo control algorithm was studied. Because of the features of the common symmetry servo valve, the master manipulator can not drive the actors directly and pressure information of the master manipulator is needed to drive the actors through the controller. This process greatly affects the response speed of the control system. The force differential signal of the master and slave was used to control the slave manipulator and the position differential signal of the slave and the master was used to drive the master manipulator. This new control strategy improved the response speed of the master-slave control system. The slave’s interference situation could be decided based on how the master followed the slave. Additionally, the new control strategy changed the common control mode that the slave followed the master, and the master felt the slave’s force.

查看全文（请使用Adobe Acrobat 6.0版本浏览） 返回首页 引用本文