

工程与应用

五指形仿人机械手的设计与实现及示教

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摘要 设计和实现了一个具有五个手指和手掌的仿人机械手(以下简称仿人机械手), 并利用数据手套对其进行示教, 使其能有效地完成复杂的作业。首先, 以现有的仿人机械手研究成果为基础, 对仿人机械手进行了优化设计和实现; 然后, 以数据手套为示教源, 对仿人机械手示教模型进行了研究, 采用D-H变换矩阵建立了仿人机械手的逆向运动学, 解决了示教运动映射问题。最后, 利用仿人机械手进行了若干作业实验, 实验结果证明了仿人机械手及其示教模型的正确性。

关键词 [仿人机械手](#) [D-H矩阵](#) [数据手套](#) [机器人示教](#)

分类号

Implementation and teaching of humanoid hand with five fingers and palm

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Abstract

In this paper, a humanoid robot hand with five fingers and a palm (robot hand is called below for short) is designed. Based on the robot hand, the mathematical teaching model is studied, which takes the data glove as the input resource for the robot hand. First of all, the robot hand is designed and optimized by the existing study of the industrial robot. Then, for the data gloved-based teaching model, the inverse kinematics equations for the teaching mapping are constructed by adopting the D-H matrix. Finally, experiments are carried out using the robot hand to complete some complex operations, the experimental results denotes that the robot hand is effective.

Key words [humanoid hand](#) [D-H matrix](#) [data glove](#) [teaching robot](#)

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