

工程与应用

基于知识库的输电线路巡检机器人的越障控制

任志斌, 阮毅

1.江西理工大学 机电工程学院, 江西 赣州 341000

2.上海大学 机电工程与自动化学院, 上海 200072

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摘要 介绍了一种高压输电线路巡检机器人越障控制方法。高压输电线路巡检机器人在翻越同一障碍物时重复同一套操作动作, 可通过在实验室进行越障过程示教, 离线学习形成操作知识库, 实际越障时自动调用操作知识库并与在线信号相结合完成自主越障动作。讨论了知识库的一般组成和功能, 并分析了激光传感器定位的方法以实现巡检机器人滚动轮与导线“对中”。经过实验验证, 该控制方法具有稳定可靠, 硬件结构简便, 能可靠地完成控制任务, 实现自主越障。

关键词 [高压输电线路](#) [巡检机器人](#) [自主越障](#) [知识库](#)

分类号

Obstacle-navigation control of inspection robot for power transmission lines based on knowledge base

REN Zhi-bin, RUAN Yi

1.School of Mechanical and Electrical Engineering, Jiangxi University of Science and Technology, Ganzhou, Jiangxi 341000, China

2.School of Mechatronics Engineering and Automation, Shanghai University, Shanghai 200072, China

Abstract

This paper introduces a method of robot control system to cross obstacles for power transmission line inspection. Inspection robot for power line is in same operation when across same obstacles, control system learns in laboratory and format knowledge base. The knowledge and sensor information get on-line is used to produce the behavior sequence which execute the automatic control for the robot to cross obstacles. This paper introduces general constitution and function of knowledge base, and discusses a method of laser sensor navigation of inspection robot for high-voltage transmission line to achieve the driving-wheel-line alignment operation. The method is validated by the experimental results, the method of navigation is feasible and hardware is simple, and also the way is used for the control system successfully.

Key words [power line](#) [inspection robot](#) [across obstacles automatically](#) [knowledge base](#)

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通讯作者 任志斌 renzhibin824@yahoo.com.cn

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