

装载机线控转向路感控制策略

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关键词: 装载机 线控转向系统 路感 控制策略

摘要: 设计了铰接式装载机线控转向系统, 在分析装载机路感特性的基础上, 提出系统控制策略, 并设计了一种基于BP神经网络整定的自适应PID控制器, 实现了PID参数的在线调整。仿真和实验结果表明, 该控制器可使线控转向系统实现理想的路感特性。By designing a SBW (steering-by-wire) system structure of articulated wheel loader and analyzing its steering feel, this paper presented a control strategy on the system, and designed an improved PID (proportional integral derivative) control system based on back propagation neural network. The on-line adjustment of the coefficients of proportion, integral and differential of the classical PID controller was realized by means of the self-study of the neural network, allowing the adaptive control for the steering feel. The simulation and experimental results showed that the back propagation neural network PID could satisfy the requirement of the steering feel.

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