

Experimental Study on Intelligent Gear-Shifting Control System of Construction Vehicle Based on Chaotic Neural Network

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Abstract :

In this paper, taking power-shifting transmission of ZL50 wheel loader as control object, an autocontrol system based on Intel-51 single-chip microcomputer has been developed. Chaotic neural networks (CNN) control technology in which chaotic optimizing algorithms is applied to improve neural networks' learning efficiency makes gear-shifting control system possess intelligent characteristics. The results of experiment show that the intelligent control system could reliably and exactly realize an automatic transmission according to changed working conditions after gear-shifting strategy has been successfully regulated. The intelligent electronic control unit (ECU) works steadily and can accurately and duly complete gear-shifting. Finally, the study is helpful for designing intelligentized construction machinery. [Nature and Science 2003;1(1):86-90].

Key Word :

construction vehicle; chaotic neural network; intelligent gear-shifting control; micro-controller

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