Online Wavelet Denoising for a Quarter Car Model

Abstract

Noise impact cannot be ignored in control system. In online systems when the received data by sensor contains noise, may cause to a problem. Linear position sensor can be widely used to control of body motion in different types of suspension system. Sensor’s resolution, accuracy and stability depend on its electronics design. For this purpose, in this paper an online wavelet denoising has been studied for a quarter car model. Vibrations due to the unit step input are controlled with PID controller. If the sensor contains noise, controller performance will be poor. Online wavelet denoising is used to eliminate the noise. Simulation results show that when the system has online wavelet denoising, controller gives better results and system is not affected by the noise. As a result, this type of control strategy can be applied to the semi-active suspension systems to improve driver comfort.

References

1. Lin C.M., Chen C.H., Car-Following Control Using Recurrent Cerebellar Model Articulation


**Index Terms**

Computer Science

Information Sciences

**Keywords**

Wavelet denoising, PID control, vehicle safety.