

Review of: "Simulation of Control System for a Half-Car Suspension System for Passenger Vehicle Application by Designing an LQR Controller"

Hequan Miao¹

¹ Shandong University of Technology

Potential competing interests: No potential competing interests to declare.

The thesis has designed an active suspension system for a vehicle using the LQR control strategy, which is generally acceptable but needs further depth. Some personal recommendations are as follows:

1. This paper establishes a linear four-degree-of-freedom suspension model for the study of active suspension system, and considers the input interference by the bumpy road, and finally verifies the control effect of LQR through simulation.
2. LQR is globally optimal, and it is difficult to ensure the exact amount of control under the effect of external random interference.
3. For the vehicle suspension system, the air spring and damping rod in the active suspension determine that the system is a nonlinear system, and further research on the nonlinear characteristics partly through local linearisation may be needed to achieve accurate control.
4. It is suggested to compare LQR with other control strategies such as PID.
5. There exists a writing spelling error, $x^T Q x$ (Eq. 10)
6. some pictures are not clear, such as Figure 5.