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NEW DESIGN METHOD OF DRIVING ASSIST SYSTEM VIA STANDARD OPERATOR MODEL

Authors

Hiroshi TOKUTAKE[1], Yumiko MIURA[1],
[1]Osaka Prefecture University, Japan

Abstract

A new driving assist system design method is developed. Using typical driver model, the controller is designed such that high performance of the closed-loop system is attained. The proposed method uses formulated driver model and driving strategies. It results in low workload and high driving performances. First, we carried out simple manual tracking experiments. The vehicle responses and operation inputs were recorded, and driver model was identified. And the relations between driver model and workload were investigated. The driver's strategies, that is, good tracking performance and robust stability are formulated in an optimal control problem. And design method of driving assist system was constructed using standard operator model. The proposed method was validated with manual tracking experiments.

Keywords

Driving assist control, Handling qualities, workload, driver model, robust stability