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عنوان مقاله:

Estimating the Tire-Road Friction Force Using a Nonlinear Observer

محل انتشار:

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خلاصه مقاله:

Locked brakes and hydroplaning are the reasons which sometimes cause vehicle accidents in wet or icy road surface condition. Anti-lock Braking system (ABS) helps the driver to control decelerating vehicle and improves the control performance of a vehicle in critical conditions. Determining friction of the road surface is essential for developing vehicle control system such as ABS.Hence , a proper model for modeling road – tire contacts is needed. In order to lessen costs, a minimum number of sensors have been used for determining road friction. In this paper, considering a dynamical model of road-tire contacts, a nonlinear observer has been designed for estimating the road-tire friction force in a vehicle , which only uses the measurement of wheel angular velocity .Finally , the proposed observer is evaluated by comparing its performance with that of the observer designed in a recent work.

کلمات کلیدی:

Tire- road friction estimation , Nonlinear observer , Antilock braking system

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