عنوان مقاله:

Fuzzy Model Reference Learning Control for Antilock Breaking Systems

محل انتشار:

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خلاصه مقاله:

Although antiskid braking systems (ABS) are designed to optimize braking effectiveness while maintaining steer ability, their performance often degrades for harsh road conditions, e-g, and icy/snowy roads. This paper introduces the idea of using the fuzzy model reference learning control (FMRLC) technique for maintaining adequate performance even under such adverse road conditions. This controller utilizes a learning mechanism which observes the plant outputs and adjusts the rules in a direct fuzzy controller so that the overall system behaves like a "reference model" which characterizes the desired behavior. The performance of the FMRLC – based ABS is demonstrated by simulation for various road conditions (wet asphalt, icy) and transitions between such conditions (e.g., when emergency braking occurs and the road switches from wet to icy or vice versa).

کلمات کلیدی:

ABS-Reference model-Fuzzy controller-Fuzzy inverse model-Learning mechanism

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