

Comparison of Two Fuzzy Skyhook Control Strategies Applied to an Active Suspension

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Abstract : This work focuses on simulation and comparison of two control skyhook techniques applied to a quarter-car of the active suspension. The objective is to provide comfort to the driver. The main idea of skyhook control is to imagine a damper connected to an imaginary sky; thus, the feedback is performed with the resultant force between the imaginary and the suspension damper. The first control technique is the Mandani fuzzy skyhook and the second control technique is a Takagi-Sugeno fuzzy skyhook controller, in the both controllers the inputs are the relative velocity between the two masses and the vehicle body velocity, the output of the Mandani fuzzy skyhook is the coefficient of imaginary damper viscous-friction and the Takagi-Sugeno fuzzy skyhook is the force. Finally, we compared the techniques. The Mandani fuzzy skyhook showed a more comfortable response to the driver, followed closely by the Takagi- Sugeno fuzzy skyhook.

Keywords : active suspension, Mandani, quarter-car, skyhook, Sugeno

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