

Effect of Driver's Head Tilt Strategy on Motion Sickness Incidence

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Abstract: Car drivers receive the acceleration stimulation and the rotational stimulation when negotiating with a curve. In such a situation, the driver controls his/her posture such as the head and the body appropriately. It is known that the driver tilts his/her head toward the curve direction while the passengers' head movement is likely to occur in the opposite direction. There are some interpretations of the role of the driver's active head movement such as increasing visibility and decreasing of effect of the inertial force to the body including the trunk and the neck. The goals of this research are to understand relationship between head tilt strategy and motion sickness incidence and apply its result to the design of comfortable vehicle motion. First, we derive a mathematical model of the motion sickness incidence caused by the head movement in 3D space based on subjective vertical conflict. Then, we analyze effect of the head movement on decrease of motion sickness incidence using the mathematical model.

Keywords: Motion sickness, Car sickness, Human factors, Ride comfort, Vehicle motion.
