

Autonomous Prediction of Performance-based Standards for Heavy Vehicles

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Abstract

In most countries throughout the world, heavy vehicle use on public roads are governed by prescriptive rules, typically by imposing stringent mass and dimension limits in an attempt to control vehicle safety. A recent alternative framework is a performance-based standards approach which specifies on-road vehicle performance measures. One such standard is the low-speed swept path, which is a measure of road width required by a vehicle to complete a prescribed turning manoeuvre. This is typically determined by physical testing or detailed vehicle simulations, both of which are costly and time consuming processes. This paper presents a data driven, detailed model to predict the low-speed performance of an articulated vehicle, given only the vehicle geometry. The development of a lightweight tool to predict the swept path of an articulated heavy vehicle, without the need for detailed simulation or testing, is discussed.