

Software for verification of collision avoidance algorithms via Optimal Control Techniques.

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joint work with *R. Baier*, and *M. Gerdt*s

Abstract

The goal of the talk is to present a verification procedure for car collision avoidance algorithms using reachable set information and optimal control techniques. After defining the car models and the scenarios with avoidable objects, consistent with the measured data provided by Volkswagen, we create an algorithm which is able to give an output data comparable with the ones of the Volkswagen algorithms. To do this it is needed to define mathematically when a collision will occur or not. This definition is based on reachable set information and optimal control problem solutions. Moreover we take into account sensor perturbations in relation to their mathematical model. The task is to find sensor tolerance ranges guaranteeing that a certain failure rate probability is not exceeded.

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