

Safety Approach Highway Alignment Optimization

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Abstract : An efficient optimization approach, called feasible gate (FG), is developed to enhance the computation efficiency and solution quality of the previously developed highway alignment optimization (HAO) model. This approach seeks to realistically represent various user preferences and environmentally sensitive areas and consider them along with geometric design constraints in the optimization process. This is done by avoiding the generation of infeasible solutions that violate various constraints and thus focusing the search on the feasible solutions. The proposed method is simple, but improves significantly the model's computation time and solution quality. On the other, highway alignment optimization through Feasible Gates, eventuates only economic model by considering minimum design constrains includes minimum reduce of circular curves, minimum length of vertical curves and road maximum gradient. This modelling can reduce passenger comfort and road safety. In most of highway optimization models, by adding penalty function for each constraint, final result handles to satisfy minimum constraint. In this paper, we want to propose a safety-function solution by introducing gift function.

Keywords : safety, highway geometry, optimization, alignment

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