عنوان مقاله:

Applying Adaptive Neuro Fuzzy Inference system and Regression Tree for Prediction Car Following Behavior Based on Instantaneous Reaction Time

محل انتشار:

پانزدهمین کنفرانس بین المللی مهندسی حمل و نقل و ترافیک (سال: 1394)

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خلاصه مقاله:

Car-following models are among the most important components of micro traffic flow simulation which is studied by transportation experts to evaluate new applications of intelligent transportation systems. Until now, several car-following models have been proposed. An obvious disadvantage of the former models is the great number ofparameters which are difficult to calibrate. In this paper, a car-following model was modeled and developed by combining an Adaptive Neuro-Fuzzy Inference System (ANFIS) and a Classification And Regression Tree (CART) to simulate and predictfuture behavior of each driver-vehicle-unit (DVU). In this model, the reaction time was instantaneously calculated based on the time interval between acceleration and relativevelocity by proposed model and was regarded as a new input. The results were compared with the fixed reaction time and the reaction time proposed by Ozaki. To evaluate the performance of the model, we compared the proposed model's output data with realconditions and it was found that the precision of the proposed model was significantly high with regard to the instantaneous reaction time. According the implemented simulation, the proposed model reached a good validity on .the basis of proximity to a real situation of car-following

کلمات کلیدی:

Traffic engineering, Car following modeling, Reaction Time, Microscopic Simulation, Intelligent Transportation System ((ITS