

Innovative neuro-fuzzy system of smart transport infrastructure for road traffic safety

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Abstract. The proposed study describes applying of neural network and fuzzy logic in transport control for safety improvement by evaluation of accidents' risk by intelligent infrastructure devices. Risk evaluation is made by following multiple-criteria: danger, changeability and influence of changes for risk increasing. Neuro-fuzzy algorithms are described and proposed for task solution. The novelty of the proposed system is proved by deep analysis of known studies in the field. The structure of neuro-fuzzy system for risk evaluation and mathematical model is described in the paper. The simulation model of the intelligent devices for transport infrastructure is proposed to simulate different situations, assess the risks and propose the possible actions for infrastructure or vehicles to minimize the risk of possible accidents.