

## Abstract

We propose a system which can analysis the motion behaviors of the nearby vehicles on the expressway. The system consists of two components: attention map segmentation and classification of focus of attention. The attention map segmentation consists of three steps: First, some sample points are sampled from the attention maps. Second, a mean shift algorithm is applied to group the sample points of the same attention patterns shown in the attention maps. Third, the attention maps can be dynamically segmented into principal attention patterns based on the grouping results. In the classification of focus of attention, these principal patterns are then input into an ART2 neural network to recognize their corresponding motion behaviors respectively. Using the fuzzy integral, individual decisions made by separate ART2 neural networks are combined and the final decision is attained. A number of experimental results are presented, which revealed the feasibility of the proposed approach.

*Index Terms* – Attention map segmentation, Pattern, Classification of focus of attention