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A Video Surveillance System Using an Ensemble of Simple Neural Network Classifiers

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Abstract : This paper proposes a maritime vessel tracker composed of an ensemble of WiSARD weightless neural network classifiers. A failure detector analyzes vessel movement with a Kalman filter and corrects the tracking, if necessary, using FFT matching. The use of the WiSARD neural network to track objects is uncommon. The additional contributions of the present study include a performance comparison with four state-of-art trackers, an experimental study of the features that improve maritime vessel tracking, the first use of an ensemble of classifiers to track maritime vessels and a new quantization algorithm that compares the values of pixel pairs.

Keywords : ram memory, WiSARD weightless neural network, object tracking, quantization
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