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(57) Abstract :

The present invention discloses a system (101A) and method for detecting objects in real-time adverse weather-degraded scenes. A single-stage CNN architecture is adopted, namely, AWDRDNet (100) for detecting objects more accurately in adverse weather-degraded realistic scenes. The present invention relates to a feed-forward deeper convolutional layer comprising a plurality of convolution blocks (B1,...,BK,...,BN) producing better quality of restoration images (RI1,...,RIK,...,RIN); wherein receptive field plays an important role in analyzing local features over degraded scenes. Another key feature of the proposed invention is the clipping of pre-defined multi-scale anchor boxes per cell to a restored de-convolutional feature map (DC) only at the top of the network, which allows to efficiently reduce time-consumption. In terms of detection accuracy (recall-precision graph and mAP), the results of the reference dataset demonstrates the optimal performance of the proposed model and reveals the performance accuracy in low-light or rainy conditions to be higher than that in dusty or foggy conditions.

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