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(71)**Name of Applicant :**
1)TRIPURA UNIVERSITY
Address of Applicant :Department of Computer Science and Engineering, Suryamaninagar, PIN-799022, Agartala, Tripura, India Tripura India
(72)**Name of Inventor :**
1)ANU SINGHA
2)SOURAV DEY ROY
3)MRINAL KANTI BHOWMIK

(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 restorated 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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Patent Office
Intellectual Property Office Building,
CP-2, Sector V, Salt Lake City,
Kolkata- 700091
Phone- 033-2367145-46,87
Fax: 033-2367198
e-mail: kolkata-patent@nic.in

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L.S DAVAR & COMPANY Globsyn Crystals, Tower 1, 2nd Floor, Block EP, Plot No. 11 & 12, Salt Lake, Sector V, Kolkata- 700091, West Bengal.

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