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(54) Title of the invention : ACDN- OBJECT DETECTION SYSTEM: AUTOMATIC OBJECT DETECTION SYSTEM WITH IMAGE CLASSIFICATION AND DEEP NEURAL NETWORKS.

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(57) Abstract :

ABSTRACT Our Invention ACDN- Object Detection System is a method, systems, and apparatus, including computer programs encoded on computer storage media, for detecting objects in images and the methods includes receiving an input image. The invented technology also a full object mask is generated by providing the input image to a first deep neural network object detector that produces a full object mask for an object of a particular object type depicted in the input image and a partial object mask is generated by providing the input image to a second-deep neural network object detector that produces a partial object mask for a portion of the object of the particular object type depicted in the input image. The invented technology also provides methods and systems for object detection by a neural network comprising a convolution-nonlinearity step and a recurrent step and a training mode, a dataset is passed into the neural network, and the neural network is trained to accurately output a box size and a center location of an object of interest. The invented technology also includes the box size corresponds to the smallest possible bounding box around the object of interest and the center location corresponds to the location of the center of the bounding box. In an inference mode, an image that is not part of the dataset is passed into the neural network. The invented technology automatically identifies an object of interest and draws a box around the identified object of interest and the box drawn around the identified object of interest corresponds to the smallest possible bounding box around the object of interest.

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