Patent Search

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Abstract:

Object detection is a method of identifying essential objects in digital images and videos. Both conservation and the fishing industry rely on accurate counts and surv fish populations. Many non-invasive automatic fish counters use resistivity, laser beams, sonar, and other principles. The problem is that these systems often fail to d between fish and other objects and between various species. For fish counting systems that are more robust and diversified, computer vision techniques are an attra This invention presents a fish recognition framework for noisy films shot in low-visibility water. The fish, which comes from a collection of twelve different varieties of most often recognized object in this application. To locate the things in the image, we use Object Localization, which must be repeated for many objects in real-time s Classification-based algorithms and non-classification-based algorithms are the two types of object detection methods. This category includes CNNs and RNNs. First, the relevant areas of the image and use a Convolutional Neural Network to classify them. Because we must run a forecast for each provided location, this method is r slow. The second group includes regression-based algorithms. The YOLO attitude comes into play in this situation. We shall not select the portions of the image of int case. Instead, we anticipate the full image's classes and bounding boxes in a single algorithm run and recognize multiple objects using a single neural network. When to other categorization methods, the YOLO method is the quickest. In real-time, the model learns 45 frames per second. The YOLO algorithm generates more backgrc localization mistakes, but it also predicts fewer false positives than other algorithms.

Complete Specification

Description:Low-visibility underwater photos and videos are the targets of the new system. The first step is to collect footage while submerged in water. Two image restoration approaches are used to increase the quality of the underwater image collection because of the poor quality of the images collected. After the image has restored, two spatial domain image-enhancing algorithms are applied to the rebuilt image to produce two high-quality images from the original raw image. The tecl uses multi-scale fusion to create the fused image, subsequently shown on a computer screen.
Furthermore, obtaining additional images of fish from the same group to utilize in the training process is challenging. As a result, procedures such as data augment boost the dataset's size. After training it with the YOLO object detection framework, the system can recognize fish in real-time videos. In our scenario, the image is d into 3x3 matrices. To simplify pictures, we can divide them into any number of grids. After segmentation, the object is categorized and placed in each grid. The obje each grid is determined. Assuming no correct item is found in the grid's bounding box, the grid's objectness will be one, and the bounding box value will be that det object's bounding values. This section explains the bounding box prediction. Anchor boxes are also used to increase object detection accuracy
, C , C , Claims:1. Refined transmission maps can be generated using a multi-layer perceptron to estimate the shortest channel needed to recover an image, with th layer perceptron serving as a foundation. We've constructed two different versions of the recovered image, each with better quality over time, by combining the cor stretching and gamma correction approaches.

2. We perform multi-scale image fusion on these two photos and their weight maps to improve the transfer of edges and color contrast between the input and outp images. The merged image is subjected to a color-correcting procedure to achieve a more balanced color palette

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