

A Study on Identifying Underwater Species - Challenges and its Limitations

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Abstract: Recently, human being's curiosity has been expanded from the land to sea to visualize the important aspect of image processing in which different anatomical structure are of underwater images. Besides sending people to explore the ocean and outer space, robots are designed for some tasks dangerous for living creatures. Fish species identification is traditionally based on external morphological features, including body shape, pattern of colors, scale size and count, number and relative position of fins, number and type of fin rays, or various relative measurements of body parts. An advanced system with more computing power can facilitate deep learning feature, which exploit many neural network algorithms to simulate human brains. A Convolutional Neural Network (CNN) with three optimization approaches were applied to the CNN: data augmentation, network simplification, and training process speed up. This survey reviewed various methods and techniques from recent works to enhance the preprocessing methods, features extraction techniques, and classifiers to conduct future research directions and compensate for current research gaps.

Keywords: Convolutional Neural Network(CNN), Deep learning, Image processing

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