Zooplankton detection using Convolutional Neural Network

Zooplankton are a key ecological component of aquatic ecosystems. Studying and monitoring zooplankton community composition and studying how it relates to climate change …(more marine biology related information to be added)

Real-time fast and accurate zooplankton detection and classification remains an open problem. It is a simple alternative to the existing lab-based manual methods of analysis. Currently, a lot of research is focused on automating this process using handcrafted computer vision techniques and several neural network based approaches have been developed. The most recent trend is based on deep learning. In this paper, we propose the use of You Only Look Once (YOLO) algorithm based convolutional neural network techniques for fast and accurate real-time detection of zooplankton groups. The main purpose of this work is to improve accuracy and processing speed. YOLO is a family of Convolutional Neural Networks that achieve near state-of-the-art results with a single end-to-end model that can perform object detection in real-time.