Identification of mussel reef.

Introduction:

This project aims at detecting mussel reef in the videos from ROV(Remote operate vehicle) based on YOLO algorithm. To finish this object, around 10000 frames are extracted from all the videos including mussel reef with seabed background, with seaweed background and frames without mussel reef to build one dataset. 10% is used as test data, 70% is used as training data and 20% is used as validation data. Then LabelImg is used to label mussel reef, seabed and seaweed in images. After that, I train the neural network in DTU HPC based on YOLO v5s network and add one interface about area calculation in YOLO v5 algorithm to calculate the coverage of mussel reef which is the important standard for identifying mussel reef instead of mussels. The best performance in test data is .

To do this project, the knowledge about mussel reef, Computer Vision(mainly) and Machine Learning(especially deep learning) is required. And programming skill,