

Abstract

Betta fish are ornamental fish that are commonly found in Indonesia. Compared to fish in general, betta fish have a much more attractive shape, size, and color. The lack of research related to marine fish and ornamental fish and the difficulty of distinguishing the unique types of betta fish. By applying the science of image processing, computer vision, and machine learning, a model can be made that can identify the type of betta fish based on the characteristics of the betta fish. Some research related to fish is still researching based on only a few parts of the fish such as the head, skin or scales, tail or fins only. In this Final Project betta fish were studied based on the shape of the fins, tail, body shape, and color of the scales which are diverse and more complex than fish in general. The dataset used is 3,082 betta fish images that have been augmented to 12,328 which applied several image processing techniques, then the PHOG and Color Moments feature extraction methods, and classified using SVM with several types of kernels. From several models that have been made, the highest accuracy is 87% while the smallest accuracy is 73%. With the successful model, it is hoped that research related to ornamental betta fish that have complex shapes and colors can inspire other researchers to research ornamental fish and marine fish that have more complex information.

Keywords: betta fish, color moments, PHOG, SVM Classification, image processing