

ABSTRACT

Fish are vertebrates that live in water, utilizing gills as a respiratory tool to extract oxygen from the water and using fins for swimming. The variation in shape, color, and texture among fish is diverse. Typically, the identification of fish species is still mostly conducted manually with the naked eye, necessitating an automated system for fish recognition. In this research, image data of marine fish were used, comprising a dataset of 9 marine fish species with a total of 9000 images to be identified using the Support Vector Machine (SVM) method with the Radial Basis Function (RBF) kernel. Testing and data splitting were performed using the feature extraction methods, Histogram of Oriented Gradients (HOG) and Hue, Saturation, and Value (HSV). The obtained test results include accuracy, precision, and recall values. Based on the testing results of the SVM identification, highest accuracy values were achieved for each fish species. Black Sea Sprat species achieved highest accuracy with a value of 95%. Gilt-Head Bream species achieved highest accuracy with a value of 98%. Hourse Mackerel species achieved highest accuracy with a value of 96%. Red Mullet species achieved highest accuracy with a value of 98%. Red Sea Bream species achieved highest accuracy with a value of 99%. Sea Bass species achieved highest accuracy with a value of 97%. Shrimp species achieved highest accuracy with a value of 98%. Striped Red Mullet species achieved highest accuracy with a value of 95%. Trout species achieved highest accuracy with a value of 100%.

Keywords: *Support Vector Machine, Marine Fish Species, Histogram of Oriented Gradients, Hue, Saturation, and Value, Radial Basis Function*