

# **IMPLEMENTASI *DEEP LEARNING* UNTUK IDENTIFIKASI JENIS IKAN LAUT MENGUNAKAN ALGORITMA YOLOv3 (*YOU ONLY LOOK ONCE*)**

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## **ABSTRAK**

Penelitian ini mengembangkan dan mengimplementasikan sistem pendeteksian jenis ikan laut menggunakan algoritma YOLOv3. Tujuan utama dari penelitian ini adalah untuk menciptakan model yang mampu mendeteksi dan mengklasifikasikan tiga jenis ikan laut, yaitu Ikan Lemuru, Ikan Tongkol, dan Ikan Banyar, dengan akurasi tinggi dan waktu pemrosesan yang cepat. Dataset yang digunakan terdiri dari 200 gambar, dengan 150 gambar digunakan untuk pelatihan dan 50 gambar untuk pengujian. Implementasi sistem dilakukan menggunakan pemrograman Python dengan library OpenCV 4.0.0. Hasil pengujian menunjukkan bahwa model YOLOv3 yang telah dilatih (*YOLOv3Custom\_object\_Training*) mampu mendeteksi Ikan Lemuru dengan akurasi 97% dan waktu pemrosesan 0,113 detik, Ikan Tongkol dengan akurasi 100% dan waktu pemrosesan 0,100 detik, serta Ikan Banyar dengan akurasi 95% dan waktu pemrosesan 0,100 detik. Tingginya tingkat akurasi dan kecepatan pemrosesan ini membuktikan bahwa algoritma YOLOv3 sangat efektif dalam aplikasi deteksi dan klasif

Kata Kunci : YOLOv3, Deteksi Objek, Klasifikasi Ikan Laut, OpenCV, *Deep Learning*.

**IMPLEMENTATION OF DEEP LEARNING  
TO IDENTIFY MARINE FISH TYPES  
USING THE YOLOv3 (YOU ONLY LOOK ONCE)  
ALGORITHM**

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**ABSTRACT**

*This research develops and implements a marine fish species detection system using the YOLOv3 algorithm. The main objective of this study is to create a model capable of detecting and classifying three types of marine fish, namely Lemuru, Tuna, and Mackerel, with high accuracy and fast processing time. The dataset consists of 200 images, with 150 images used for training and 50 for testing. The system is implemented using Python programming with the OpenCV 4.0.0 library. The test results show that the trained YOLOv3 model (YOLOv3Custom\_object\_Training) can detect Lemuru fish with 97% accuracy and 0.113 seconds processing time, Tuna fish with 100% accuracy and 0.100 seconds processing time, and Mackerel fish with 95% accuracy and 0.100 seconds processing time. This high accuracy and processing speed prove that the YOLOv3 algorithm is highly effective in applying marine fish species detection and classification. The conclusion of this study indicates that the developed system is reliable for use in various applications such as marine biology research, fisheries monitoring, and the fishing industry. Several suggestions for further development include increasing the number and variety of datasets, using more powerful hardware, and validating in real-world environments. Thus, this system is expected to significantly contribute to the field of digital image-based object detection and classification, particularly in identifying marine fish species.*

*Keywords: Yolov3, Object Detection, Marine Fish Classification, Opencv, Deep Learning*