ABSTRACT

The development of an object detection system based on YOLOv8 is one of the innovations in the field of image processing technology. The dataset used includes 3122 mushroom images divided into three classes, namely edible, inedible, and poisonous. This research aims to develop a YOLOv8-based toxic mushroom detection system through fine-tuning the model using the One Factor At a Time (OFAT) method. The system will be optimized through a fine-tuning approach using the OFAT method to determine the hyperparameter configuration with the most suitable values. The fine-tuned YOLOv8 model is tested using evaluation metrics such as accuracy, precision, recall, F1-score, and mAP (Mean Average Precision). The results showed that the fine-tuning approach was able to significantly improve the performance of the model compared to the pre-trained model with an average increase in each metric of 4% compared to the pre-trained model, with the largest increase in mAP at threshold 0.50 of 4.6%.

Keywords: *mushroom, object detection, YOLOv8, OFAT, fine-tuning.*