

ABSTRACT

Character recognition on vehicle license plates (OCR) is a crucial component in Automatic License Plate Recognition (ALPR) systems, especially in supporting the implementation of e-ticketing systems in Indonesia. This study aims to develop a robust OCR model for Indonesian license plates by leveraging the latest object detection model, YOLOv8. The model is trained using license plate images captured from toll road cameras, which include variations in lighting conditions, angles, image quality, and cover commonly used plate formats in Indonesia. This research employs a baseline approach and two hyperparameter tuning methods for data augmentation optimization: Random Search and Optuna, to determine the best-performing model configuration. The evaluation is based on the Character Error Rate (CER) metric during the testing phase. The results indicate that the model optimized using Optuna yields the most optimal performance (0.0344), with a lower CER compared to the baseline (0.0408) and Random Search models (0.0371). This study concludes that YOLOv8, when optimized with hyperparameter tuning techniques, is effective in improving OCR accuracy for license plates and holds potential for application in e-ticketing or automated traffic surveillance systems.

Keywords : OCR, YOLOv8, license plate, ALPR, e-ticketing, hyperparameter tuning