

ABSTRACT

FOREST FIRE IMAGE DETECTION USING OBJECT DETECTION METHOD *DETR*

By

Hulwanul Azka Putra Pratama

21110009

This research develop a forest fire detection model using the DETR object detection method. Forest fires that are increasingly rampant due to global warming require a detection system that is able to provide fast and accurate detection. In this research, digital images taken from surveillance cameras are used to detect forest fires. CNN is used for feature extraction, and DETR is used for object detection. The method approach used combines data augmentation and adaptive feature fusion to improve the performance of the model in detecting small objects. The detection results show that DETR is able to detect fire and other forest fire objects with high accuracy even under complex conditions. Therefore, this partner proves that DETR is able to detect objects with good accuracy. DETR is very potential in its application as a forest fire object recognizer that can accelerate detection even though the source is complex. Experimental results show that DETR is able to detect fire objects with high accuracy and good efficiency. The model achieved a mAP (mean Average Precision) value of 0.586, with AP@50 of 0.677 and AP@75 of 0.597, outperforming other object detection methods in terms of accuracy and inference time.

Keywords: object detection, forest fire, DETR, CNN, data augmentation.