

Détection des feux de forêts en utilisant les images aériennes acquises par drone et le modèle YOLOv3

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Abstract: Forest fires in recent years have destroyed hundreds of thousands of hectares and caused the death of several people, these fires also have a significant economic cost. In this work, we propose an approach for an early wildfire detection, before their development into fires, because it is difficult to control them afterwards. The approach is based on the processing of aerial data acquired by unmanned aerial vehicles (UAV), and the automatic early wildfire detection, which allows to send an emergency alert directly to the relevant services and a to have a fast response. The technique used is based on transfer learning applied on a model of object detection which is YOLOv3, then validate the effectiveness of the model using the datasets of Flame, FiSmo and other images. The performances obtained in terms of Recall, F1-Score, Accuracy and Precision are respectively: 95.535%, 95.085%, 92.559%, and 96.428%.

Keywords : Drone, Wildfire, Forests, YOLOv3, Detection.