

## LITERATURE SURVEY

Forest fires are one of the main reasons for environmental degradation. In their early stages, the fires are hard to discover, so a faster and more accurate detection method can help minimize the amount of damage they can inflict.

S.No.	Title & Author(s)	Year	Techniques(s)	Findings/Pros/Cons
1.	Research on Forest Fire Detection Technology Based on Deep Learning. - Xiaojun Bai & Zongxin Wang	2021	VGG network YOLO network	VGG network, and introduced transfer learning method to train smoke recognition model and flame recognition model. YOLO network for fire detection. Decision tree method for joint decision of fire warning by results of classification and detection. Optimized network enhances the ability to identify areas of smoke and small flames.
2.	Forest Monitoring System for Early Fire Detection Based on CNN & UAV imagery. - Georgi Dimitrov Georgiev, Georgi Heristov And Diyana	2020	With UAV & CNN	UAV(unmanned aerial vehicle) to observe large areas . UAV flight time up to 30 minutes only. So this method is expensive. Use Tensorflow to train a neural network to detect fire in the video feed. Opencv used to detect the red shades on image frames(thermal camera)to detect the fire.
3.	Using Popular Object Detection Methods for Real Time Forest Fire Detection. - Shixiao Wu & Libing Zhang	2018	Faster R-CNN, YOLO & SSD	It can monitor forest 24-hours and detect fire as early as possible. Visual/image based techniques always detect three aspects of the forest fire, color, texture, motion. SSD is a single-shot detector that achieve the high performance. Faster R-CNN, we give a result based on 120000 iteration time. Use SSD 300*300 model to train our fire datasets.
4.	Forest- Fire Response System Using Deep-Learning -Based Approaches With CCTV Images and Weather Data. - Dai Quoc Tran, Minsoo Park , Yuntae Jeon ,Jinyeong Bak, And Seunghee Park	2022	DetNAS, BNN model, Faster R-CNN & weather API	A large-scale fire dataset with approximately 400,000 images is used to train and test object-detection models. The original Faster R-CNN models based on various backbones, such as ResNet and VoVNet , have a problem with training hyperparameters set based on the experiences and intuitions of the researchers. Two-stage detection models have an essential problem with slowness. The damaged area can be assessed in real time using a BNN model and weather data.

5.	Early Detection of Forest Fire using Deep Learning. - Medi Rahul, Karnekanti Shiva Saketh, Attili Sanjeet and Nenavath Srinivas Naik	2020	CNN	<p>Added a few convolutional layers with ReLu as the activation function.</p> <p>A binary classification output layer which showed a huge impact on the training and test results when compared to the other SOTA methods likeVGG16 AND DenseNet121.</p> <p>Accuracy is low compare with first tabled method.</p>
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