
WE DIDN'T START THE FIRE

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ABSTRACT

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1 Introduction: Problem Statement

This project aims to develop a fire detection system using a designated dataset. The dataset consists of three subsets: a training set, a validation set, and a test set. Specific constraints and guidelines must be strictly followed to ensure compliance with the project requirements.

1.1 Dataset Access and Constraints

The dataset is available for download at <https://www.kaggle.com/datasets/abdelghaniaaba/wildfire-prediction-dataset/code>. It comprises a training set, a validation set, and a test set. A critical restriction is imposed on the training set: its labels are inaccessible. Any direct utilization of annotations from the training set will lead to disqualification.

1.2 Dataset Partitioning

To facilitate model training, the original validation set must be partitioned into a newly defined validation set and a new training set. The original training set may be leveraged in a creative manner; however, its labels must not be employed under any circumstances.

1.3 Model Development

A deep neural network (DNN) will be trained utilizing the newly defined training and validation sets. Various methodologies and supplementary resources may be incorporated to enhance model performance, provided that all constraints related to annotation usage are rigorously upheld.

2 Method

2.1 Dataset Analysis

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2.2 Proposition 1: Using Available Labeled Data

2.2.1 Naive Coordinates Classifier

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2.2.2 ResNet Classifier

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2.3 Self-Supervision (Learning from Unlabeled Data)

2.4 SimCLR

Just wanted to cite this paper [1].

Table 1: Comparisons

	Model	Accuracy	F1 Score
No pre-training	Coords Only	0.855	0.873
	ResNet50	0.985	0.986
Self-Supervision	SimCLR+ResNet50	—	—
	VAE	—	—
	Something Else	—	—

3 Conclusion

Your conclusion here

References

- [1] Ting Chen, Simon Kornblith, Mohammad Norouzi, and Geoffrey E. Hinton. A simple framework for contrastive learning of visual representations. *CoRR*, abs/2002.05709, 2020.