

CS 225 - Spatial Computing

Predicting Forest Fires

Our Team(Group-5)

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List Of Academic Related Work:

Academic Work		
1.	http://www3.dsi.uminho.pt/pcortez/fires.pdf	A Data Mining Approach to Predict Forest Fires using Meteorological Data
2.	https://www.researchgate.net/publication/228527438_Learning_to_predict_forest_fires_with_different_data_mining_techniques	Learning to predict forest fires with different data mining techniques
3.	https://www.researchgate.net/publication/347395483_Predicting_Forest_Fire_Using_Remote_Sensing_Data_And_Machine_Learning	Predicting Forest Fire Using Remote Sensing Data And Machine Learning
4.	https://www.researchgate.net/publication/1834541_Are_Forest_Fires_Predictable	Are forest fires predictable?

5.	https://ieeexplore.ieee.org/document/9719887	Prediction of Forest Fire Using Machine Learning Algorithms: The Search for the Better Algorithm
6.	https://cdnsiencepub.com/doi/pdf/10.1139/er-2020-0019	A review of machine learning applications in wildfire science and management
7.	https://fireecology.springeropen.com/articles/10.4996/fireecology.1101106	Predicting Burned Areas of Forest Fires: an Artificial Intelligence Approach

Non-Academic Related Work:

Non-Academic Work		
1.	https://blog.breezometer.com/how-do-wildfires-start-can-we-predict-them/	How do wildfire starts and can we predict them?
2.	https://www.allerin.com/blog/2-ways-in-which-machine-learning-combats-forest-fires	2 Ways In Which Machine Learning Combats Forest Fires
3.	https://www.obviously.ai/post/predicting-brazils-wildfire-patterns-in-2020	Predicting Brazil's Wildfire Patterns in 2020
4.	https://blogs.sas.com/content/sustainable/2021/12/02/fighting-the-amazon-forest-fires-with-advanced-analytics/	Fighting the Amazon forest fires with advanced analytics
5.	https://blog.google/technology/ai/fighting-fire-machine-learning-t	Fighting fire with machine learning: two students use TensorFlow to

	wo-students-use-tensorflow-predict-wildfires/	predict wildfires
6.	https://towardsdatascience.com/leveraging-machine-learning-to-predict-wildfires-contributing-to-the-united-nations-sustainable-a10c5044dcae	Leveraging Machine Learning to predict wildfires using PyTorch Lightning

Taxonomy :

Model	Spatial Component Used	Dataset
Logistic Regression, Boosting Model, Random Forest	Geographical Information System	Aladin and MODIS satellite data(2a)
Neural Network For Supervised Learning	Remote Sensing, Hotspot Prediction Model	Landsat 7 satellite data from google earth engine (3a).
Decision Tree, KNN, Naive bayes	Geo-AI, Satellite based, Infrared/ Smoke scanner	meteorological(5a)
SVM, KNN, K-SVM	Spatial data on GPU, Spatial Clustering	spatiotemporal datasets, geospatial datasets(6a)
Hoshen--Kopelman algorithm	-	Canada forest fire data(4a)
GP-GS method, SVM Model, Neural Network(Poor performance)	geospatial probabilistic model	historic climatological data, meteorological data(8a)

Tensorflow	smart wildlife sensor	aerial drones images(5b)
Image based approach, Sensor based approach	GeoAi	carbon monoxide data(2b),
-	GeoAi, Geo Visualization	Brazil wildfire dataset(3b)
AI Models	Geospatial clustering,Hot spot analysis	Gridded or pixelated data, Amazon forest fires dataset (4b)
Pytorch Neural Network	Geo Visualization	