NATURAL DISASTERS INTENSITY ANALYSIS AND CLASSIFICATION USING ARTIFICIAL INTELLIGENCE

ABSTRACT:

Natural disasters not only disturb the human ecological system but also destroy the properties and critical infrastructures of human societies and even lead to permanent change in the ecosystem. Disaster can be caused by naturally occurring events such as earthquakes, cyclones, floods, and wildfires. Many deep learning techniques have been applied by various researchers to detect and classify natural disasters to overcome losses in ecosystems, but detection of natural disasters still faces issues due to the complex and imbalanced structures of images. To tackle this problem, we developed a multilayered deep convolutional neural network model that classifies the natural disaster and tells the intensity of disaster of natural The model uses an integrated webcam to capture the video frame and the video frame is compared with the Pre-trained model and the type of disaster is identified and showcased on the OpenCV window.

LITERATURE SURVEY

AUTHOR	TECHNOLOGY	DESCRIPTION	ADVANTAGES	DISADVANTAGES
Muhammad Aamir, Tariq Ali, Muhammad Irfan, Ahmad Shaf	Natural Disaster Intensity analysis and classification based on multispectral images using multilayered deep CNN	It works in two blocks .Block-I CNN for detection and occurance of the disaster and Block-II for classification of disaster intensity types with different filters and parameters	Not face various issues due noise and serious class imbalance problem	Complexity due to multilayer
Seth Guikema	Artificial Intelligence for Natural Hazards Risk Analysis	Focused on two methods like the physical loading due to the hazard given occurrence of the hazard or physical damage or loss of system functionality given hazard loading	Existing of large training set, the model are representative of the future situations andit is highly flexible	The issue of validation, Difficult to convey model accuracy and the uncertainty that is inherent in any AI model output to decision makers
Mummaneni Sobhana	A disaster classification application using convolutional neural network by performing data augmentation	Based on the development in the domains of computer vision and image processing,machine learning and deep learning models can integrate images	Complexity is low, highly efficient and identify features from noisy data	The loss is continuously increasing over each epoch
Vasileios Linardos, Maria Drakaki, Panagiotis T zionas, Yannis L. Karnavas	Machine Learning in disaster management	For the recognition and detection of natural disaster through the framework,a satellite images data set of the disasters are used	This framework has less cost in terms of computational power and had better accuracy	Unstructured data tend to be hard to analyse , low quality datasets could potentially causes confusion.
Sreenivasulu Madichetty	Detecting informative tweets during disaster using deep neural networks	This method is for classifying the informative and non-informative tweets during a disaster. The proposed approach is based on the Convolutional Neural Network (CNN) and Artificial Neural Network (ANN). CNN is used for feature extraction and ANN used as a classifier for classifying the tweets	It gives better performance than the use of CNN and ANN alone	It doesnot extended to other dataset and contains few layers

REFERENCES:

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8069408/
- https://deepblue.lib.umich.edu/bitstream/handle/2027.42/155885/risa13476.pdf?sequence=2
- https://ijeecs.iaescore.com/index.php/IJEECS/article/view/29267#:~:text=The%20detection%20of%20natural%20disasters,floods%2C%20cyclones%2C%20and%20wildfires
- https://www.mdpi.com/25044990/4/2/20/pdf?version=1651916564
- https://www.researchgate.net/publication/333072370_Detecting_Informative_Tweets_during_Disaster_using_Deep_Neural_Networks