LITERATURE SURVEY

Team ID: PNT2022TMID20222

Team Title: Natural Disasters Intensity Analysis and Classification Based on Artificial Intelligence

College Name: Sri Krishna College of Technology

S.No	ID NUMBER	POSITION	NAME
1.	727819TUEC214	Team Leader	Saranya M
2.	727819TUEC215	Team Member	Saranya P
3.	727819TUEC225	Team Member	Shubha K
4.	727819TUEC249	Team Member	Vijayabharathi S

PAPER TITLE:

Natural Disasters Intensity Analysis and Classification Based on Multi Spectral Images Using Multilayer Deep Convolutional Neural Network

AUTHORS:

Muhammad Aamir, Tariq Ali, Muhammad Irfan, Ahmad Shaf, Muhammad Zee Shan Azam, Adam Glowacz, Frantisek Brumercik, Witold Glowacz, Samar Alqhtani and Saifur Rahman

ABSTRACT:

A natural disaster is "the negative impact following an actual occurrence of natural hazard in the event that it significantly harms a community".We proposed a multi-layered deep convolutional neural network. The proposed model works in two blocks: Block-I convolutional neural network (B-I CNN), for detection and occurrence of disasters, and (Block-II) convolutional neural network (B-II CNN), for classification of natural disaster intensity types with different filters and parameters. It is used to find the overall accuracy for the whole model.

ADVANTAGES:

● Animals Are Also Sometimes Attracted to The New Growth in Fresh Burn Areas.

● Hey Can eliminate Unwanted Invasive Plants from Certain Ecosystems.

● Enrich Soils with Fresh Nutrients and Encourage Greater Plant Diversity.

DISADVATAGES:

. ● You May Also Lose Your Home, Possessions, And Community.

● In A Disaster, you Face the Danger Of Death Or Physical Injury.

PAPER TITLE:

Disaster Management Project Using Wireless Sensor Networks and artificial intelligence

AUTHORS:

Imane Benkheli CERIST Research Center, Algiers, Algeria Nadia Nouali-Taboudjemat CERIST Research Center, Algiers, Algeria, MoussaouI CResearch Center, Algiers, AlgeriaNouali-Taboudjemat CERIST Research Center, Algiers, Algeria, Samira MoussaouI CERIST Research Center, Algiers, Algeria

ABSTRACT:

There are numerous projects dealing with disaster management and emergency response that use wireless sensor networks technologies. Indeed, WSNs offer a good alternative compared to traditional ad hoc networks. Air pollution monitoring, forest fire detection, landslide detection, natural disaster prevention, industrial sense and control applications, dangerous gas leakage, water level monitoring, vibration detection to prevent an earthquake, radiation monitoring are examples of the WSN applications related to disaster management. This paper presents an overview of the recent projects using WSN to collect data in disaster areas.

DISADVATAGES:

- A big disadvantage of AI is that it cannot learn to think outside the box.
- AI is capable of learning over time with pre-fed data and past experiences but cannot be creative in its approach.

PAPER TITLE:

A Deep Learning Approach of Recognizing Natural Disasters on Images using Convolutional Neural Network and Transfer Learning

AUTHORS:

Daryl B. ValdezRey Anthony G. Godmalin

ABSTRACT:

Natural disasters are uncontrollable phenomena occurring yearly which cause extensive damage to lives, property and cause permanent damage to the environment. However, by using Deep Learning, real-time recognition of these disasters can help the victims and emergency response agencies during the onset of these destructive events. The methodology used is Deep learning (DL), Convolutional Neural Network (CNN).

ADVANTAGES:

- Anns Have the Ability to Learn and Model Non-Linear and Complex Relationships.
- Which Is Really Important Because in Real-Life, Many of The Relationships Between Inputs and Outputs Are Non-Linear as Well as Complex.
- Its Ability to Execute Feature Engineering by Itself.

DISADVATAGES:

- To Address These Problems, We Proposed a Multi-layered Deep Convolutional Neural Network for Detection and Intensity Classification of Natural Disasters.
- The Detection of Natural Disasters by Using Deep Learning Techniques Still Faces Various Issues Due To Noise And Serious Class Imbalance Problems.

PAPER TITLE:

Distributed Event Detection in Wireless Sensor Networks for Disaster Management.

AUTHORS:

Bahrepour, M., Meratnia, N., Poel, M., Taghikhaki, Z., & Havinga, P. J. M

ABSTRACT:

Wireless sensor networks (WSNs) have become mature enough to go beyond being simple fine-grained continuous monitoring platforms and become one of the enabling technologies for disaster early-warning systems. Event detection functionality of WSNs can be of great help and importance for (near) real-time detection of, for example, meteorological natural hazards and wild and residential fires. From the data-mining perspective, many real-world events exhibit specific patterns, which can be detected by applying machine learning (ML) techniques. In this paper, we introduce ML techniques for distributed event detection in WSNs and evaluate their performance and applicability for early detection of disasters, specifically residential fires. To this end, we present a distributed event detection approach incorporating a novel reputation-based voting and the decision tree and evaluate its performance in terms of detection accuracy and time complexity.

DISADVATAGES:

- For fast and accurate detection of disastrous events using WSNs, in this paper we propose a distributed event detection technique. Our proposed approach is based on detecting events using decision tree classifiers running on individual sensor nodes and applying a voting to reach a consensus among detections made by various sensor nodes. The motivation behind choosing decision trees is their simplicity and explicit form of expression as if-then-else rules that full fill the requirements posed by resource limitations of WSNs.
- The experimental results on residential fire datasets show that this approach not only achieves a high detection rate but also has a low computational overhead and time complexity.

PAPER TITLE:

Automated Disaster Monitoring from Social Media Posts Using AI-Based Location Intelligence and Sentiment Analysis.

AUTHORS:

1) Ibrahim Khalil, School of CS & IT, RMIT University, Melbourne, VIC 3000, Australia.
2) Fahim K. Sufi, Federal Government, Melbourne, VIC 3000, Australia.

ABSTRACT:

Worldwide disasters like bushfires, earthquakes, floods, cyclones, and heatwaves have affected the lives of social media users in an unprecedented manner. They are constantly posting their level of negativity over the disaster situations at their location of interest. Understanding location-oriented sentiments about disaster situation is of prime importance for political leaders, and strategic decision-makers. To this end, we present a new fully automated algorithm based on artificial intelligence (AI) and natural language processing (NLP), for extraction of location-oriented public sentiments on global disaster situation. We deployed and tested this algorithm on live Twitter feeds from 28 September to 6 October 2021. Tweets with 67 515 entities in 39 different languages were processed during this period. Our novel algorithm extracted 9727 location entities with greater than 70% confidence from live Twitter feed and displayed the locations of possible disasters with disaster intelligence. The rates of average precision, recall, and F_1-Score were measured to be 0.93, 0.88, and 0.90, respectively. Overall, the fully automated disaster monitoring solution demonstrated 97% accuracy. To the best of our knowledge, this study is the first to report location intelligence with NER, sentiment analysis, regression and anomaly detection on social media messages related to disasters and has covered the largest set of languages.

DISADVATAGES:

- Inaccuracy in classifying a disaster related tweet.
- Limited support of language.
- Limited support of disaster types.
- Inaccuracy in identifying disaster location.

PAPER TITLE:

Simultaneous Earthquake Detection on Multiple Stations via a Convolutional Neural Network.

AUTHORS:

Shaobo Yang;Hu;Haijiang Zhang;Guiquan Liu

ABSTRACT:

It is very important to develop a fast and reliable event detection and association algorithm. Generally, event detection is first performed on individual stations followed by event association through linking phase arrivals to a common event generating them using a Convolutional Neural Networks (CNN) algorithm.

ADVANTAGES:

- Volume Monitoring.
- Better Access.
- Cave Evolution Monitoring.

DISADVANTAGES:

- Not A Direct Displacement.
- Still An Evolving Technology.
- Uncertainty In Interpretation.