

LITERATURE SURVEY

Date	10 October 2022
Team ID	PNT2022TMID17906
Project Name	Project – Natural Disaster Intensity analysis and Classification using Artificial Intelligence.
Maximum Marks	4 Marks

1. **Natural Disasters Intensity Analysis and Classification Based on Multispectral Images Using Multi-Layered Deep-Convolutional Neural Network.,, Muhammad Aamir, Tariq Ali, Muhammad Irfan, Ahmad Shaf, Muhammad Zeeshan Azam, Adam Glowacz, Frantisek Brumercik, Witold Glowacz, Samar Alqhtani and Saifur Rahman., Sensors 2021, 21, 2648. <https://doi.org/10.3390/>**

- With the recognition of the necessity for effectively and successfully managing natural disaster projects for saving human lives and preventing and minimizing the impacts of disasters on socio-economic developmental progress.
- This paper seeks to propose a balanced scorecard (BSC) approach to maximize the possibilities of desired outcomes from projects.

Merits:

- Multi – layer deep convolutional Neural network is used for the image classification to overcome the issue of noise in the image.
- The CNN works in two blocks – one for natural disaster occurrence and the second block is to remove imbalanced class issues.

2. **“Multi-level Deep Convolutional Neural Network for Facial Expression Recognition and Intensity Estimation”. Aamir, M.; Ali, T.; Shaf, A.; Irfan, M.; Saleem, M.Q. ML-DCNNet: Arab. J. Sci. Eng. 2020, 45, 10605–10620.**

- Multi-level deep convolutional neural network is used to recognize facial expression and their intensity level.
- Expression – Net classifies the face expression and Intensity – Net estimates the intensity of facial expression.

Merits:

The method shows a outstanding performance in terms of accuracy when compared to the state-of-art techniques.

3. **“Identification of Potential Landslide Disaster in East Java Using Neural Network Model” ., Nisa, A.K.; Irawan, M.I.; Pratomo, D.G.,Phys. Conf. Ser. 2019, 1366, 012095.**

- East Java Province is one of the areas that has the potential for landslides.
- This is due to the topography of the most mountainous and rugged territory.
- Besides that, it also caused high levels of population density in the region of hills so that raises pressure on ecosystems.
- To reduce the risk of disaster will be designed the software-based neural network for identification of potential avalanche areas.

4. “Planet: Improved Convolutional Neural Networks with Image Enhancement for Image Classification”, Chaohui Tang, Qingxin Zhu, Wenjun Wu, Wenlin Huang, Chaoqun Hong and Xinzheng Niu., *Math. Probl. Eng.* 2020.

- Improved Convolutional Neural Networks with Image Enhancement for Image Classification” and PLANET in abbreviation, which uses a new image data enhancement method called Inner Move to enhance images and augment the number of training samples.
- Inner Move is inspired by the “object movement” scene in computer vision and can improve the generalization ability of deep CNN models for image classification tasks .

5. “Abnormal Crowd Behavior Detection Using Motion Information Images and Convolutional Neural Networks”, CEM DIREKOGU., *IEEE Access* 2020, 8, 80408–80416

- Introduced a novel method for abnormal crowd event detection in surveillance videos.
- Particularly, the work focuses on panic and escape behavior detection that may appear because of violent events and natural disasters.
- Optical flow vectors are computed to generate a motion information image (MII) for each frame, and then MIIs are used to train a convolutional neural network (CNN) for abnormal crowd event detection

Merits:

- The MII is a new formulation that provides a visual appearance of crowd motion.
- The MIIs make the discrimination between normal and abnormal behaviors easier