International Journal of Research and Applications

ISSN (online): 2349-0020 ISSN (print): 2394-4544 http://www.ijraonline.com/

Review Report

AI-Based Intensity Analysis and Categorization of Natural Disasters

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DOI:
https://zenodo.org/records/16352594

Manuscript:
Received: 24th Apr, 2025
Accepted: 19th Jun, 2025
Published: 16th Jul, 2025

Publisher:
Adviata Innovative research Association
https://airaacademy.com/

ABSTRACT

Analyzing and classifying the intensity of natural disasters is a critical task for effective disaster management and response. Traditional methods rely on rule-based systems and early machine learning models, which often struggle to cope with the complexity, variability, and uncertainty of real-world disaster data. These techniques may perform well on structured datasets but tend to show poor generalization in dynamic environments. This paper presents an advanced AI-based system that utilizes machine learning algorithms—such as Decision Trees, Random Forest, and Convolutional Neural Networks (CNNs)—to automatically learn patterns from multi-source disaster datasets, including meteorological, seismic, and satellite data. The system achieves high accuracy in classifying disaster intensity levels such as low, moderate, and severe. By leveraging deep learning and data-driven analysis, the proposed model significantly outperforms conventional approaches in both speed and accuracy. It holds strong practical relevance in early warning systems, emergency planning, and resource allocation for disaster-prone regions.

Keywords: Natural Disasters, Deep Learning, Disaster Classification, Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), Real-Time Analysis, Accuracy, Adaptability.

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IJRA - Year of 2025 Transactions:
Month: July - September
Volume – 12, Issue – 47, Page No's: 3726-3730
Subject Stream: Computers
Paper Communication: Author Direct
Paper Reference Id: IJRA-2025: 12(47)3726-3730