## Patent Search

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**Abstract:**

The invention presents a transformative approach to predicting the performance of reinforced concrete structures during seismic events, leveraging advanced deep learni techniques. The methodology integrates Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs) to analyze seismic data, historical performance re and structural design parameters. By incorporating diverse datasets and employing a rigorous training process, the resulting predictive model demonstrates a heightened accuracy in forecasting structural responses to varying earthquake conditions. Two embodiments further enhance the invention: real-time sensor integration for continuo monitoring and adaptive learning for structural design optimization. This innovation not only signifies a paradigm shift in seismic analysis but also contributes to the ongo evolution of resilient structural design practices, promising improved safety and sustainability in earthquake-prone regions.

Complete Specification

Description:The present invention relates to the field of structural engineering and seismic analysis. More specifically, it pertains to the use of deep learning techniques f predicting the performance of reinforced concrete structures during seismic events. The invention employs advanced computational methods to enhance the accuracy a efficiency of predicting the structural behavior and integrity of reinforced concrete elements subjected to earthquake forces. The application of deep learning in this cont aims to provide a reliable and timely assessment of the seismic performance of structures, contributing to improved safety and resilience in earthquake-prone regions.

BACKGROUND OF THE INVENTION

The following description of related art is intended to provide background information pertaining to the field of the disclosure. This section may include certain aspects c the art that may be related to various features of the present disclosure. However, it should be appreciated that this section be used only to enhance the understanding the reader with respect to the present disclosure, and not as admissions of prior art.

In regions susceptible to seismic activity, the structural integrity of buildings and infrastructure, particularly reinforced concrete structures, is of paramount importance. Earthquakes pose a significant threat to public safety and property, necessitating the development of advanced methodologies for predicting and assessing structural performance during seismic events.

Traditional seismic analysis methods often rely on simplified models and assumptions that may not fully capture the complex interactions between seismic forces and

View Application Status