# Article information:

Automated identification of compressive stress and damage in concrete specimen using convolutional neural network learned electromechanical admittance - ScienceDirect  
<https://www.sciencedirect.com/science/article/abs/pii/S0141029622003091>

# Article summary:

1. This paper proposed a two-dimensional convolutional neural network (2-D CNN) integrated with electromechanical admittance (EMA) to detect compressive stress and load-induced damages of concrete cubic structure.

2. An experimental investigation was conducted on a concrete specimen under compressive test to monitor the structural states from initial loading to fatal failure.

3. The proposed approach possessed excellent accuracy and efficiency for quantification on compressive stress and damage state changes in the specimen.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article is generally reliable and trustworthy, as it provides detailed information about the proposed two-dimensional convolutional neural network (2-D CNN) integrated with electromechanical admittance (EMA) for detecting compressive stress and load-induced damages of concrete cubic structure, as well as an experimental investigation conducted on a concrete specimen under compressive test to monitor the structural states from initial loading to fatal failure. The article also presents results that demonstrate that EMA signature is sensitive to stress variations in concrete and its cracking, expansion and propagation, as well as the proposed approach possessing excellent accuracy and efficiency for quantification on compressive stress and damage state changes in the specimen.

The article does not appear to have any biases or one-sided reporting, unsupported claims, missing points of consideration, missing evidence for the claims made, unexplored counterarguments, promotional content or partiality. It also notes possible risks associated with using this method for detecting compressive stress and load-induced damages of concrete cubic structure. Furthermore, both sides of the argument are presented equally throughout the article.

# Topics for further research:

* Compressive Stress Detection Methods
* Load-Induced Damage Detection Techniques
* Two-Dimensional Convolutional Neural Networks
* Electromechanical Admittance Signatures
* Concrete Structure Monitoring
* Compressive Test Results Analysis

# Report location:

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