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Title :

Algorithm Modelling of Crack Damage and Severity Detection using Deep Learning Technique
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EXECUTIVE SUMMARY

The modernization of a country is often referred to through the rapid development of a city and its sustainable economy. This can be seen through the construction of skyscraper structures, complex shapes, and modern features. Featured structures as mentioned in Malaysia with the construction of Penang KOMTAR, Petronas Tower, KLCC, PWTC, Merdeka PNB118, The Exchange 106, and many more. Such structures require good monitoring so that any damage or deterioration can be restored early to ensure the safety of their use. Current structural health monitoring methods have been shown to be excessively broad, as they do not account for why structures develop faults and damage. This is a high-risk approach because the structure's true condition has been underestimated. This is due to recurring damage, deteriorating damage, and subsequent structural failure, which will result in a disaster and fatality. This string of deep learning techniques is the best technique for mapping cracks that occur in a structure or building. Deep learning techniques have the vast potential to detect damage in structural elements without huge resources and with the ability to allow us to solve problems backwards with the knowledge gained from the algorithm. This enables more effective responses to crack damage issues. This current research will propose a novel approach to modelling a crack damage image pattern to illustrate the most common types of structural and non-structural cracks that may develop in a concrete structure. The algorithm for crack damage image pattern will be modelled using a code editor to depict the severity of the crack damage in order to interpret the failure prediction. Then, the data will be visualized using a standard dashboard such as Orange 3 for the quantification. The approaches will greatly enhance the process of damage classification and quantification that will benefited the concrete structure.