

Image-Based Road Crack Detection using Convolutional Neural Network and Computer Vision

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Abstract: Concrete is extensively employed in the fields of construction, transportation, and infrastructure. Nevertheless, over time, cracks may develop in concrete due to diverse elements like fluctuations in temperature, moisture content, and mechanical strain. The early detection of cracks is crucial to prevent further damage and ensure the safety and durability of the structure. In this research paper, we propose an image-based crack detection system using computer vision and convolutional neural networks (CNNs). We trained our CNN model on a dataset of concrete images with labeled cracks and non-crack regions. Our model was able to accurately detect and localize cracks in new concrete images with a high level of accuracy. We compared the performance of our model to other state-of-the-art methods and found that our approach outperformed them in terms of accuracy and speed. Our results demonstrate the potential of image-based crack detection using CNNs and computer vision for improving the safety and reliability of concrete structures.

Keywords: Crack detection

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