

A Review On Deep Learning-Based Crack Segmentation

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In recent years, with rapid advancements in high-performance computing devices and computer vision algorithms, deep learning-based methodologies such as deep convolutional neural networks (DCNNs) have been extensively explored and developed for pavement crack detection. Compared to traditional handcrafted feature extraction methods for crack detection, the deep learning-based methodologies have shown superior performance under real-world complexities, due to their ability to directly learn from data and make self-adaptations. In this paper, the most recent developments and technological advancements in deep learning-based crack detection are reviewed and categorized. Furthermore, an experimental study was performed to evaluate the crack segmentation performance of a series of established DCNNs regarding multiple evaluation metrics and efficiency. This study also demonstrates the challenges and issues in the existing methodologies. Besides, investigations on the optimal choice of image data for network training and testing provide are performed to provide insights for future applications.