**Synergizing Low Rank Representation and Deep Learning for Automatic Pavement Crack Detection**

Pavement crack detection is crucial for road maintenance and safety, particularly with the advent of unmanned vehicles. However, it remains challenging due to the varied appearance of cracks and backgrounds. This work proposes an automatic detection method combining low rank representation (LRR) and deep learning. LRR aids in anomaly detection by identifying frames with cracks, followed by localization. To handle different pavement conditions and imaging scenarios, a deep convolutional neural network with multi-level features and atrous spatial pyramid pooling (ASPP) is employed. The network is trained end-to-end, achieving high accuracy and automaticity, with extensive and challenging datasets.