

## Quantitative Assessment of Road Infrastructure Health Using High-Resolution Remote Sensing Data

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**Abstract :** This study conducts a comparative analysis of the spectral curves of asphalt pavements at various aging stages to improve road information extraction from high-resolution remote sensing imagery. By examining the distinguishing capabilities and spectral characteristics, the research aims to establish a pavement information extraction methodology based on China's high-resolution satellite images. The process begins by analyzing the spectral features of asphalt pavements to construct a spectral assessment model suitable for evaluating pavement health. This model is then tested at a national highway traffic testing site in China, validating its effectiveness in distinguishing different pavement aging levels. The study's findings demonstrate that the proposed model can accurately assess road health, offering a valuable tool for road maintenance planning and infrastructure management.

**Keywords :** spectral analysis, asphalt pavement aging, high-resolution remote sensing, pavement health assessment

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