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An HSV and LBP-based method for identifying surface state

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A remote sensing method is usually used to invert the surface information, and which method to use varies with the surface state. Therefore, surface state identification is a prerequisite for inverting the surface information and the precision of identification determines the precision of the inverse calculation. This paper presents an HSV and LBP-based method to identify in real-time the state of the surface in the field. In this method, the LBP operator with an improved threshold is combined with the color histogram to form a single feature vector and the discriminant conditions are established. Then, the KNN algorithm is used to calculate the similarity between the single feature vector and the surface image to identify and classify the surface state. This method is tested on 200 randomly selected images taken in the field, and the result shows that the precision of identification is 100%, much higher than 95%, which is the precision of the LBP-based method.

Biography

Xiaojie Li received her PhD degree in optical engineering in 2010 from Tianjin University, Tianjin, China. Her major fields of study mainly include photoelectric detection technology, remote sensing data processing and high performance computing. She is presently an associate professor in Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences, China. Her current interests include remote sensing data processing and high performance computing.

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