5. CONCLUSIONS

There are two defects with the CNN rock image classification framework: slow training and poor classification accuracy. The former arises from the information redundancy of the original image, and the latter comes from the lack of differentiation of rock features extracted from the spatial domain. To overcome the defects, this paper establishes a DCT-CNN classification framework for rock image, which introduces 10 to 15 frequency coefficients after the DCT to the CNN framework. Experimental results show that our framework always consumed a shorter training time and output a more accurate classification result than the CNN rock image classification framework. This means the DCT can greatly reduce the redundancy of image information.

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