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Summary: In recent years, the spectral convolution method based on local first-order approximation has achieved significant advantages in semi-supervised node classification tasks. However, when updating the node feature representation at each stage, only the first-order neighbor node information is used, while the indirect neighbor node information is ignored. To this end, this paper combines Chebyshev’s truncated expansion and symmetric normalized Laplacian matrix, and by deducing and simplifying the two-order approximate spectral convolution module, an improved graph convolution model is proposed which fuses rich local structure information. A large number of experimental results show that the method proposed in this paper is superior to the existing popular methods on different datasets, which verifies the effectiveness of the model.

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