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MhAGCN: Multi-Head Attention Graph Convolutional Network for Web Services Classification

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Abstract : Web classification can promote the quality of service discovery and management in the service repository. It is widely used to locate developers desired services. Although traditional classification methods based on supervised learning models can achieve classification tasks, developers need to manually mark web services, and the quality of these tags may not be enough to establish an accurate classifier for service classification. With the doubling of the number of web services, the manual tagging method has become unrealistic. In recent years, the attention mechanism has made remarkable progress in the field of deep learning, and its huge potential has been fully demonstrated in various fields. This paper designs a multi-head attention graph convolutional network (MHAGCN) service classification method, which can assign different weights to the neighborhood nodes without complicated matrix operations or relying on understanding the entire graph structure. The framework combines the advantages of the attention mechanism and graph convolutional neural network. It can classify web services through automatic feature extraction. The comprehensive experimental results on a real dataset not only show the superior performance of the proposed model over the existing models but also demonstrate its potentially good interpretability for graph analysis.

Keywords : attention mechanism, graph convolutional network, interpretability, service classification, service discovery
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