Dynamic Graph Embedding Through Hub-aware Random Walks

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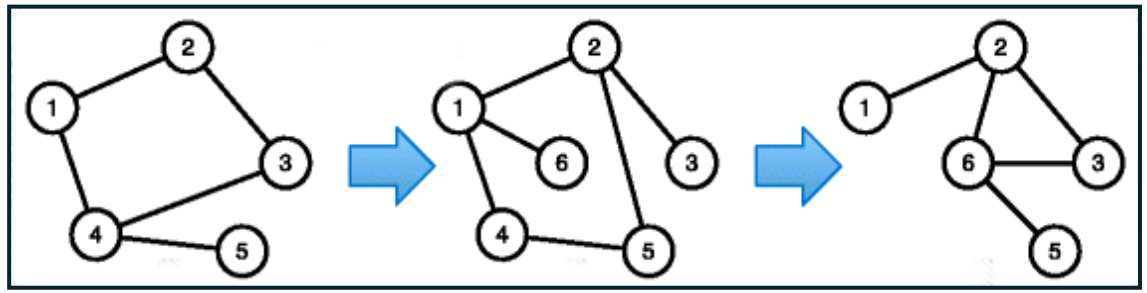

DeepHub

This paper introduces **DeepHub**, an innovative method designed to improve **dynamic graph embedding** by addressing a critical oversight in existing approaches: the disproportionate influence of high-degree nodes, or **hubs**. Traditional random walk-based methods, while effective at capturing network structure, often over-emphasize these hubs, leading to a biased representation. This bias can cause the embeddings to underfit the nuances of less-connected nodes and misrepresent the overall evolving local context of the network. DeepHub tackles this by incorporating a novel **hub-aware sampling strategy** into its random walks. This strategy ensures a more balanced exploration of the graph, allowing for a more accurate capture of both the global structure and the evolving local temporal dynamics.

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