

Peer Review

Review of: "Methods for Analyzing Large Bipartite Graphs with Applications to Link Prediction"

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This paper explores techniques for analyzing and characterizing large bipartite graphs to gain a deeper understanding of the performance of Graph Neural Networks (GNNs) in link prediction tasks. The key contributions of the paper include:

- A focus on the performance of GNNs, particularly Message Passing Neural Networks (MPNNs).
- An investigation into the use of small subgraph counts to characterize scaling behaviors in large bipartite graphs.
- The observation that the predictive capabilities of GNNs are influenced by the data distribution, especially in the presence of a potential power-law distribution.

The analytical methods discussed involve counting simple paths and conducting singular value analysis. The authors illustrate their approach using the Spotify dataset.

The methodology is novel and presents an interesting perspective. However, the inclusion of a simple, running example would significantly enhance the paper's accessibility and make it easier to generalize for similar applications.

I also strongly recommend considering a related approach with broader deployment potential, as introduced by O. Leblebici et al. in "*Link Prediction for Completing Graphical Software Models Using Neural Networks.*"

Declarations

Potential competing interests: No potential competing interests to declare.