

24.05.2022

Call for Master Thesis / Hiwi Job / Praktikum

“Scalable Graph Neural Networks on Knowledge Graphs”

(in English or German)

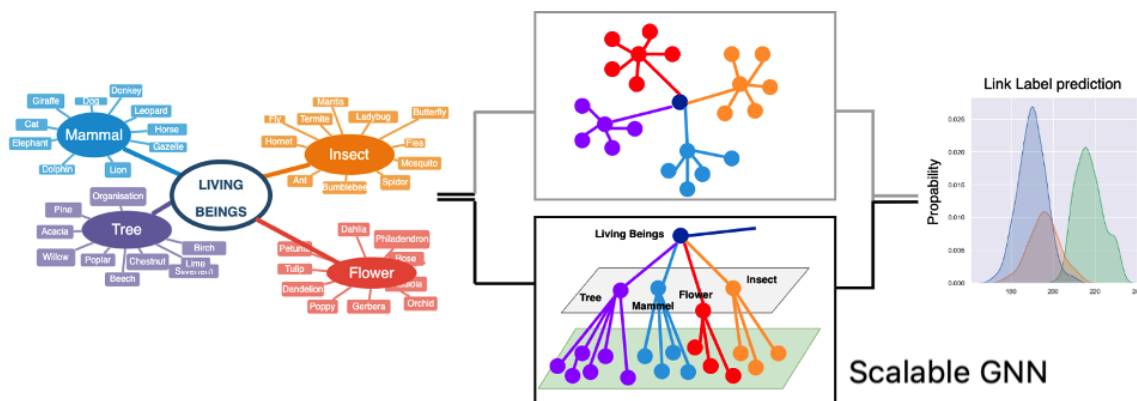


Figure 1. Illustration of a scalable graph neural network.

Graph neural networks target to learn representations of graphs. They have become a popular framework for prediction nodes, edges, and graphs in multi-relational knowledge graphs [1]. However, existing approaches mainly focus on learning node representations and not relation or subgraph representations. In addition, making graph neural networks scalable for large knowledge graphs is still a major issue [2].

The focus of the proposed thesis is to design a framework based on graph neural networks that can deal with multi-relational knowledge graphs, such as DBpedia and Wikidata. The student will implement, evaluate, and optimize the framework on current datasets and compare the performance with the state-of-the-art in new application areas (e.g., information extraction from text). Initial code and data will be provided to the student.

[1] <https://arxiv.org/abs/2104.05837>

[2] <https://arxiv.org/abs/2105.02315>

Which prerequisites should you have?

- Master student in computer science, electronic and information engineering, tech-mathematic, mechanics, or industry engineering.
- First experience in machine learning.

In case of good results, the findings of the thesis can be published as scientific paper together with the supervisor.

Starting date: As soon as possible.

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