John (Ziyuan) Zhou

Week 4 Summary

UW ID: 2150115

In the article “KGAT-SR: Knowledge-Enhanced Graph Attention Network for Session-based Recommendation”, the authors address the problem of next item recommendation given a session context of an ordered, single-type-action, and anonymous session, and investigates how to effectively model intra-session dependencies by leverage the knowledge from a knowledge graph (KG). The recent recommendation system approaches can be divided into conventional models and deep neural network-based model, and the drawback for them is usually failing to exploit the knowledge about items from external knowledge sources and effectively model intra-session dependencies; thus, resulting in inaccurate recommendations. To solve this problem, the authors propose a model named Knowledge-enhanced Graph Attention Network for Session-based Recommendation (KGAT-SR). The main idea is to learn the high-order inter-entity dependencies encoded in the KG by using the knowledge graph attention network; thus, forming a knowledge enhanced session graph (KESG). KGAT-SR will aggregate the KESG through a weighted graph attention and utilize both node features and graph topology via a readout function to generate accurate session embedding. This session embedding can be used to recommend the next item. So, the methodology of KGAT-SR consists of four layers: KESG generation, weighted aggregation, session embedding generation, and probability prediction. For testing and result, there are two real-world datasets are used, which are MovieLens 1M and LFM-1b. The authors deploy KGAT-SR and seven representative models consists of conventional models, RNN-based SR models, and GNN-based SR models, to testing the performance of KGAT-SR through comparison. The experiment shows that KGAT-SR outperforms the state-of-the-art models for next item recommendations.