Submission Summary

Conference Name
2021 IEEE 37th International Conference on Data Engineering (ICDE)

Track Name
Research Paper Second-Round

Paper ID
978

Paper Title
Community Embeddings for Friend Suggestions

Abstract

Graphs, such as social networks, emerge naturally from various real-world situations. Recently, graph embedding methods have gained traction in data science research.
Recommender systems are used in a wide range of business applications and are essential for online e-business models to survive and strive in the contemporary market. Using graph embeddings for recommendation tasks, have the possibility of improving upon recommender systems, because of data compression, their feature vector format, and sub-quadratic time complexity.
Graph and community embeddings generated with ComE BGMM+VI are used to build a recommender system for friend suggestions. ComE BGMM+VI is an alteration of the community embeddings algorithm ComE. ComE BGMM+VI applies a Bayesian Gaussian mixture model and variational inference for community embedding and detection.
Recommendations are evaluated by the top-N hit-rate over users with at least 50 friends. A friend suggestions recommender system with a top-10 leave-one-out hit-rate of 43.6% and run-time optimized 32.9% is presented.

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Primary Subject Area
Graphs, RDF, Web Data and Social Networks

Secondary Subject Areas
Data Mining and Knowledge Discovery
Data Science
Machine Learning for Database Systems

Domain Conflicts
fu-berlin.de;uni-passau.de;palantir.com;b10.vc;hse.ru

Submission Questions Response

1. Student paper

Yes

2. Consider for Poster Paper

Yes