CSCI 6250: HW5

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Question 1

Community Detection in Attributed Graphs: An Embedding Approach

- Abstract

Community Detection focuses on the detection of the densely connected groups of nodes. However, most existing attributed community detection methods uses the original network topology leading to poor results because it ignores inherent community structures

- Introduction

Community are prevalent in use of detecting social networks, collaboration networks, and web graphs. In this paper they identify communities using network structure, including metric-based algorithms and generative model. Because of two different kind of information as network structure and node attribution, it causes difficulties to form meaningful communities

- Contributions

They introduced community structure embedding method to encode inherent community structure for community detection. They also consider the node attributes and explore associated attributes for detected communities. Then they integrated community structure embedding matrix and node attribute matrix. Which forms the Community Detection in attributed graphs as Embedding Approach.

- Limitation Solved

Symmetric nonnegative matrix factorization has a limitation where it only uses the network topology by directly factorizing the adjacency matrix. Hence, their novel community structure embedding resolves this issue

Other papers read

- Network community detection on small quantum computers
- Analysis of research topics and scientific collaborations in renewable energy using community detection
- Community detection in networks: A multidisciplinary review
- Hierarchical community detection by recursive partitioning