1. Introduction
   1. Motivation
   2. Objective of the work

1.2.1 contribution

* 1. Thesis outline

1. Background
   1. Graph mining concepts
      1. Graph
      2. Graph mining
         1. Application of graph mining
      3. Graph mining techniques
         1. Frequency subgraph mining
         2. Link prediction
         3. Classification
         4. Clustering
   2. Community detection
      1. Non-overlapping community detection
      2. Overlapping community detection
2. Literature review
   1. Non-overlapping community detection algorithms
      1. D-walks
      2. Multi-level kernel k-means
      3. Bi-partite graph co-clustering
   2. Overlapping community detection algorithms
      1. Community- affiliation graph model (AGM)
      2. Cluster affiliation graph model for big networks (BIGCLAM)
      3. Ego-Splitting Framework
   3. Graph mining tools
      1. Graphi
      2. NetworkX
      3. Neo4j
      4. Cytoscape
      5. Apache Spark
3. Design concept
   1. Problem definition
   2. ETL process for datasets
   3. Dataset analysis
      1. WossiDiA data
      2. Verhalenbank
      3. Etkspace
4. Prototype implementation
   1. Framework design
   2. Implementation using Karate club library
5. Result and evaluation
   1. Evaluation of BIGCLAM result
   2. Evaluation of Ego-Splitting Framework result
   3. Result comparison
6. Conclusion
   1. Contribution
   2. Future work
   3. Recommendation

Bibliography

Code Reference