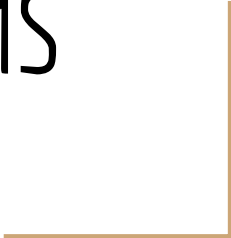


ANALYZING COMMUNITY DETECTION ALGORITHMS



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Outline

- Motivation
- Goal
- Tools
- Algorithms
- Graphs and Results

Motivation

- The study of community detection is a standard problem in analyzing large and complex social networks.
- Communities help us to find clusters of nodes which have common properties and evaluate relationships between them.
- Identifying communities allows us to evaluate individual objects, interaction between them, and predict missing information.



Goal

To analyze 5 different algorithms which come under either an agglomerative hierarchical clustering or divisive hierarchical clustering.

Tools



GitHub

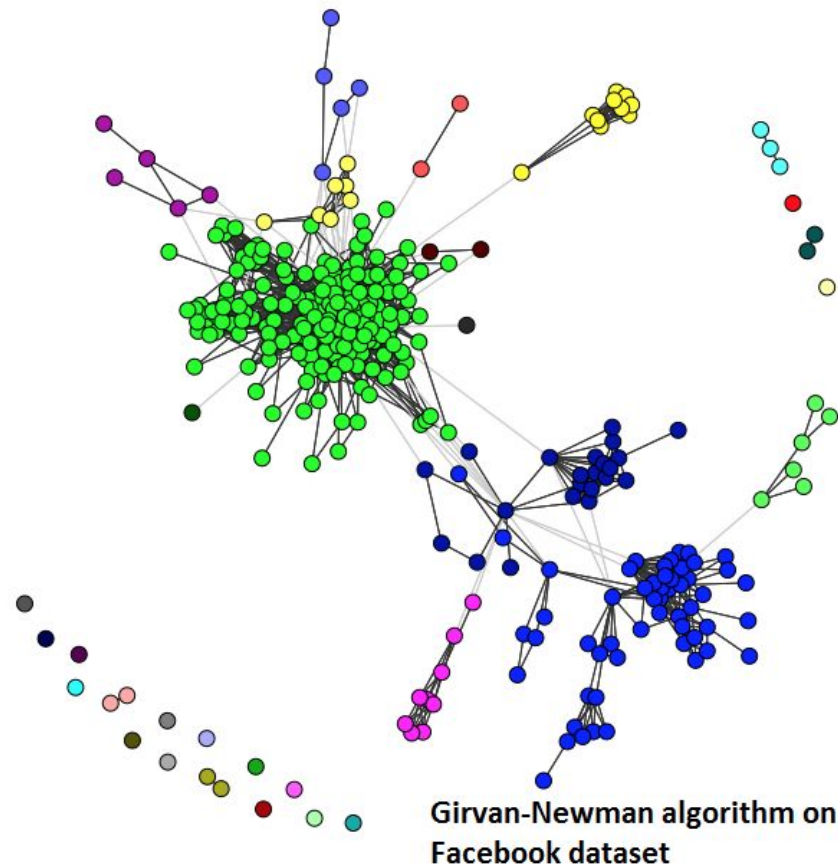
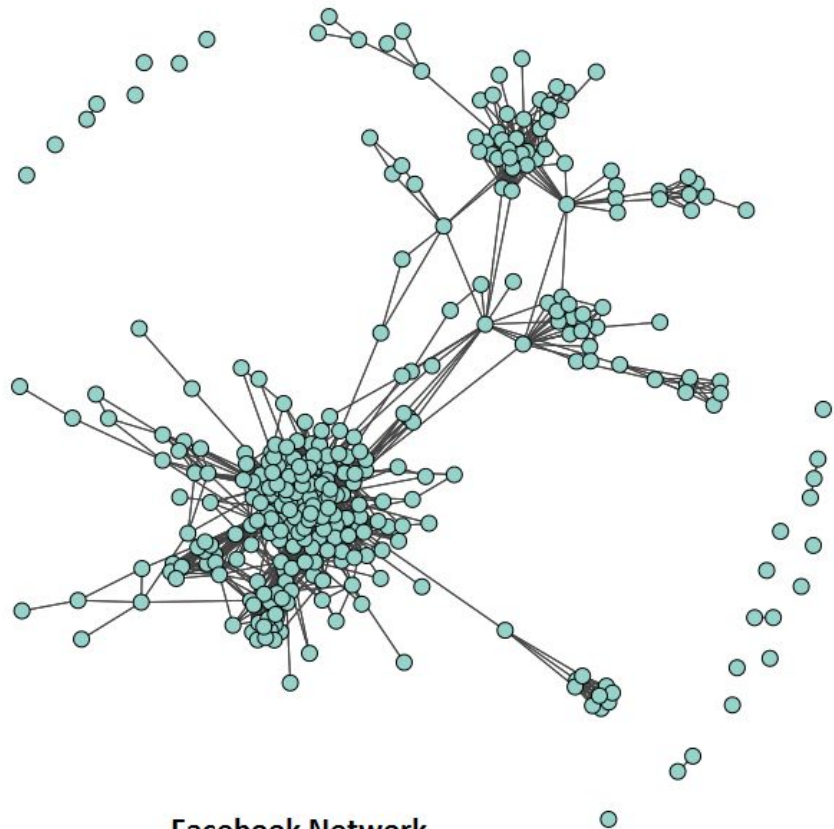
Datasets

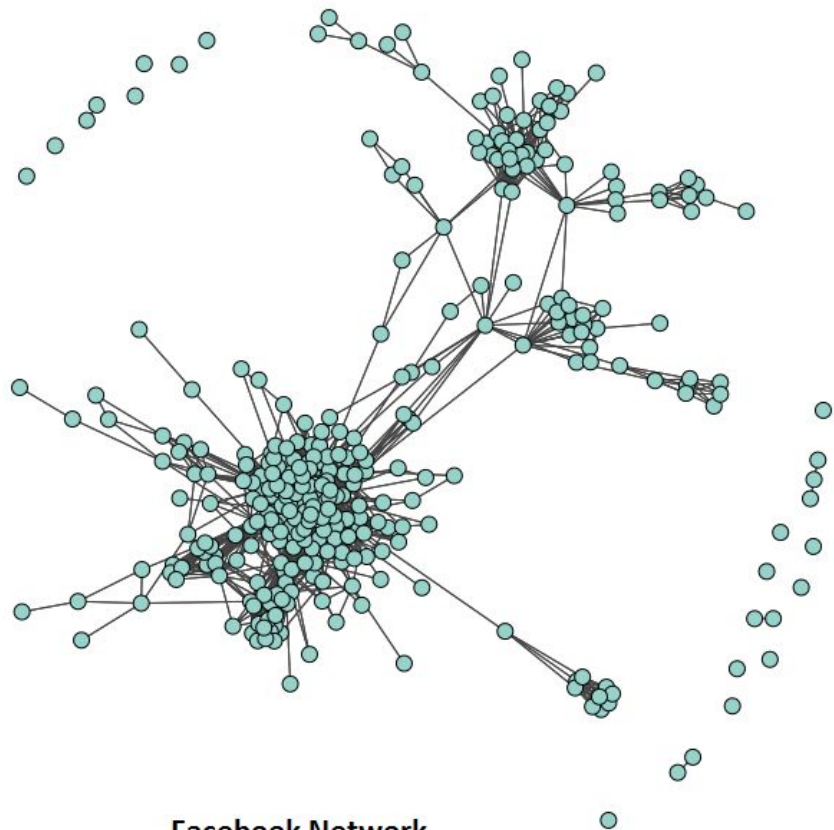
1. Zachary's Karate Club
2. Albert-Barabasi Model
3. Erdos-Renyi Model
4. Facebook

Algorithms

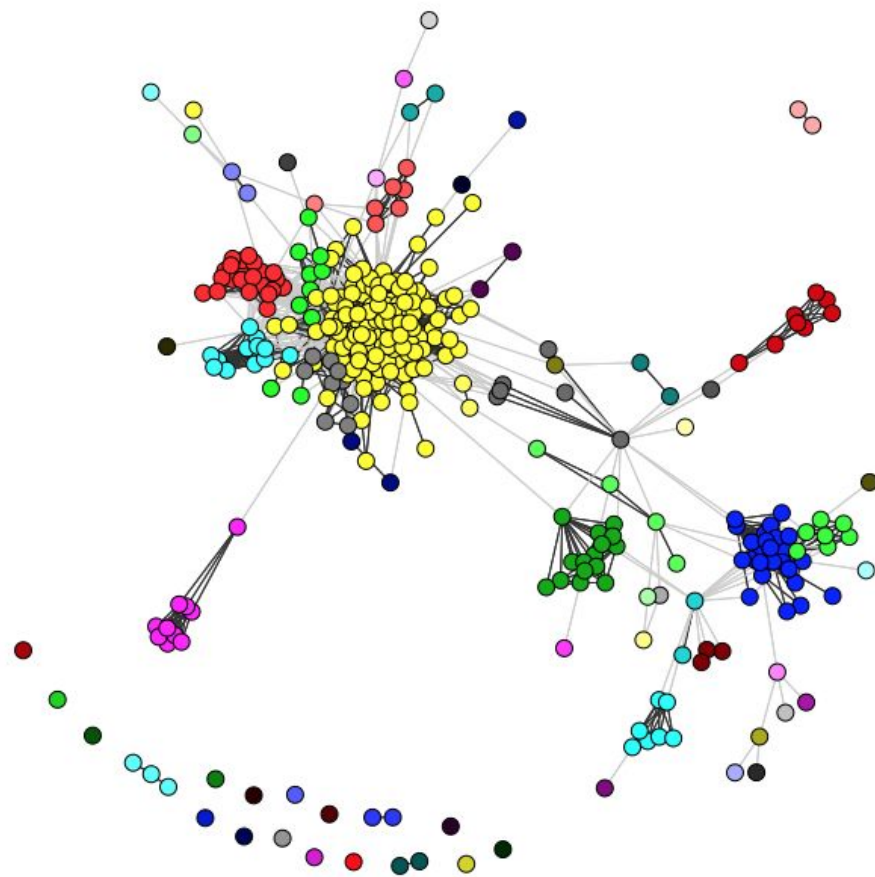
1. Girvan-Newman
2. Louvain Method
3. Label Propagation
4. Random Walks
5. Fast Greedy

Results

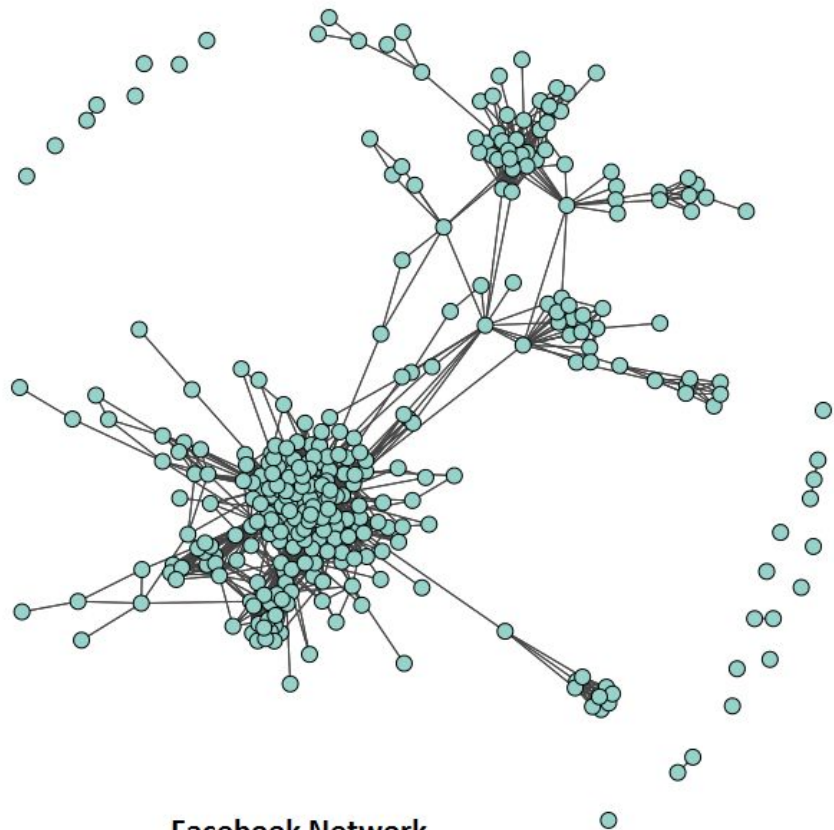




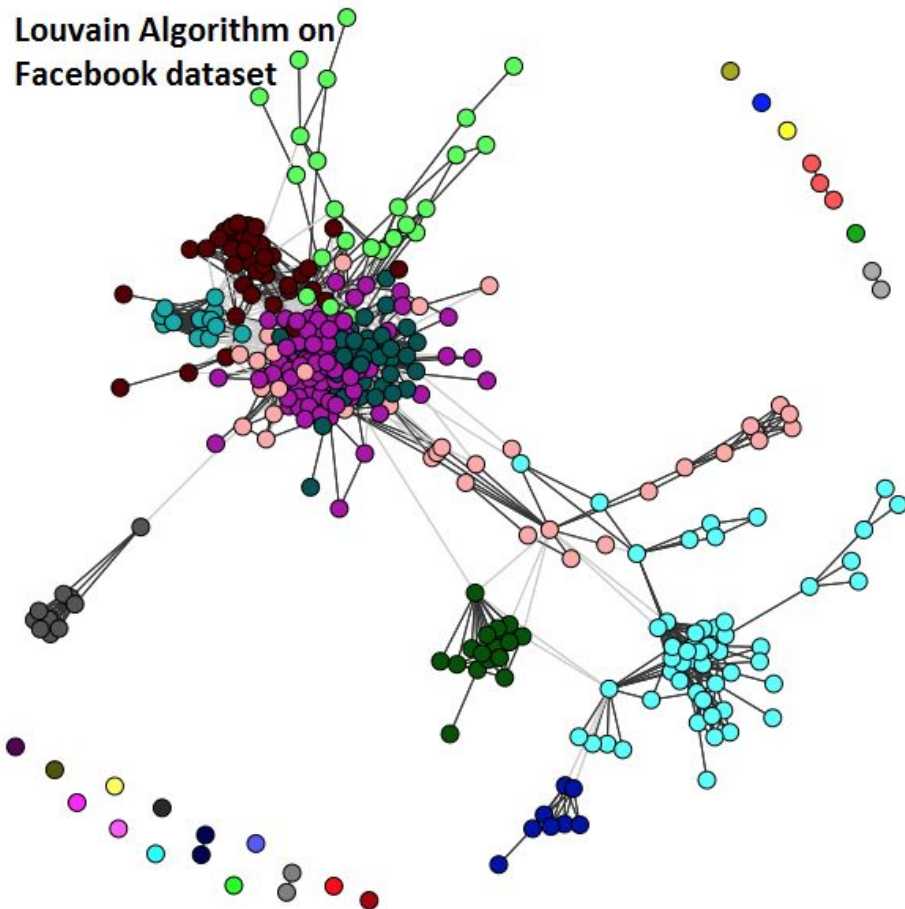
Facebook Network



Random-walk Algorithm on Facebook dataset



Facebook Network



Conclusion

With advancement of parallel computing, storage, and supercomputing, use of these methods on large social networks is becoming relatively easy and efficient.

All the methods mentioned are the classical methods to detect communities. There are many other techniques to detect the community structure e.g. Machine Learning algorithms

There are many other means using which we can store, retrieve and analyze this large amount of information.

Thank you!