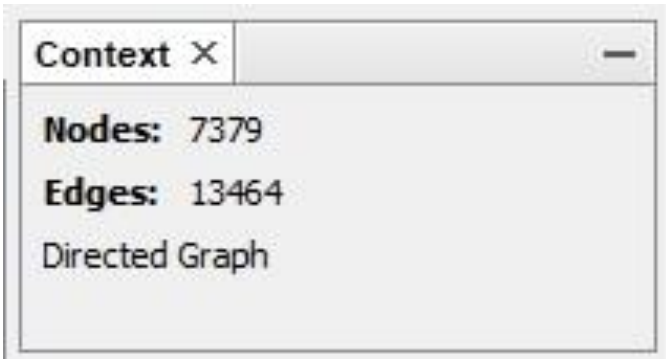
Francesco Gradi 17/07/2018

Social Network Analysis Assignment

The aim of this assignment was to analyze data from *dblp.org* and to work with the correspondent graph in *Gephi* program. The reference resource was the DBLP dataset limited to the co-authorship network: each node of the graph represented an author and each edge held if the authors appears on the same document.

My dataset was limited to the word “evolutionary” for a minimum of 7000 authors.

As next picture shows, I obtained a dataset with 7379 nodes and 13464 edges.



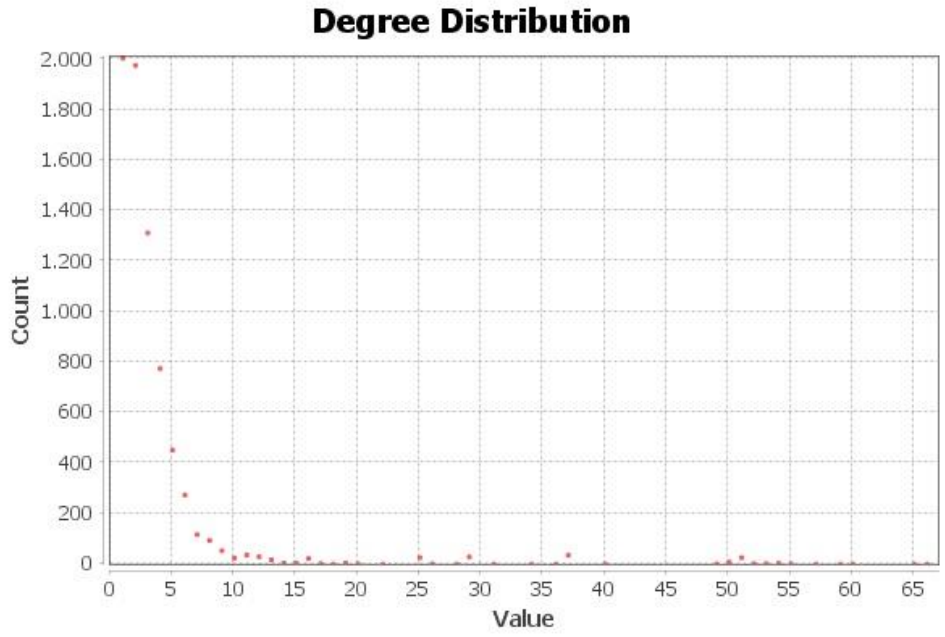
Then I computed the following statistics (on next page):

Degree Distribution and Average Degree

Degree Report

Results:

Average Degree: 1,825



Diameter

Graph Distance Report

Results:

Diameter: 16
Radius: 0
Average Path length: 5.732861199985621

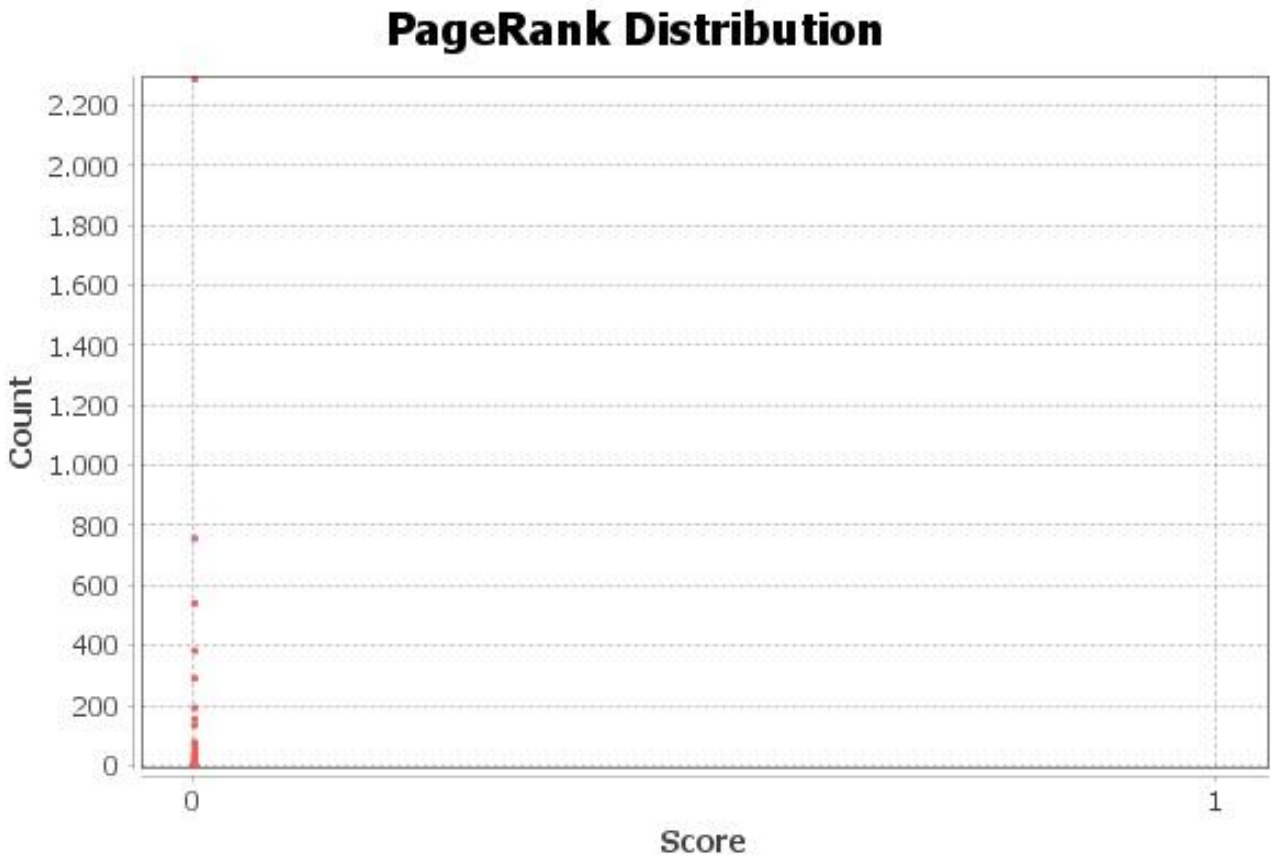
PageRank

PageRank Report

Parameters:

Epsilon = 0.001
Probability = 0.85

Results:



Clustering Coefficient

Clustering Coefficient Metric Report

Results:

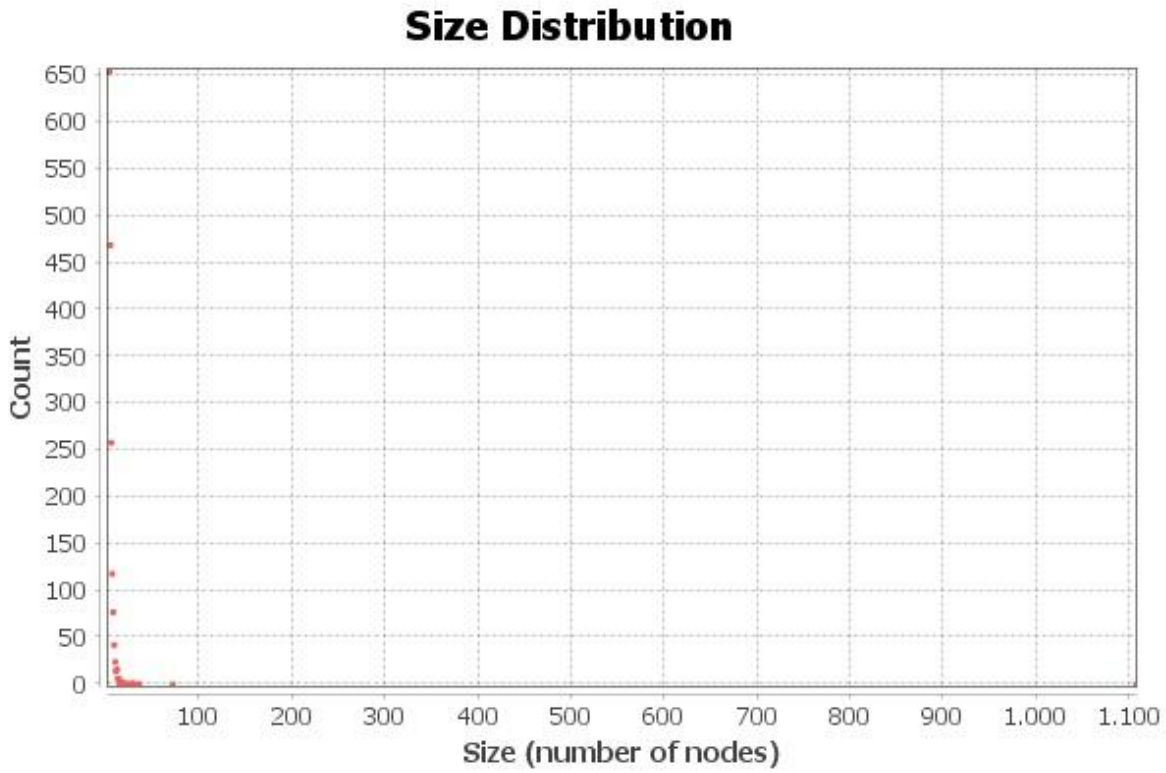
Average Clustering Coefficient: 0,309
The Average Clustering Coefficient is the mean value of individual coefficients.

Connected Components

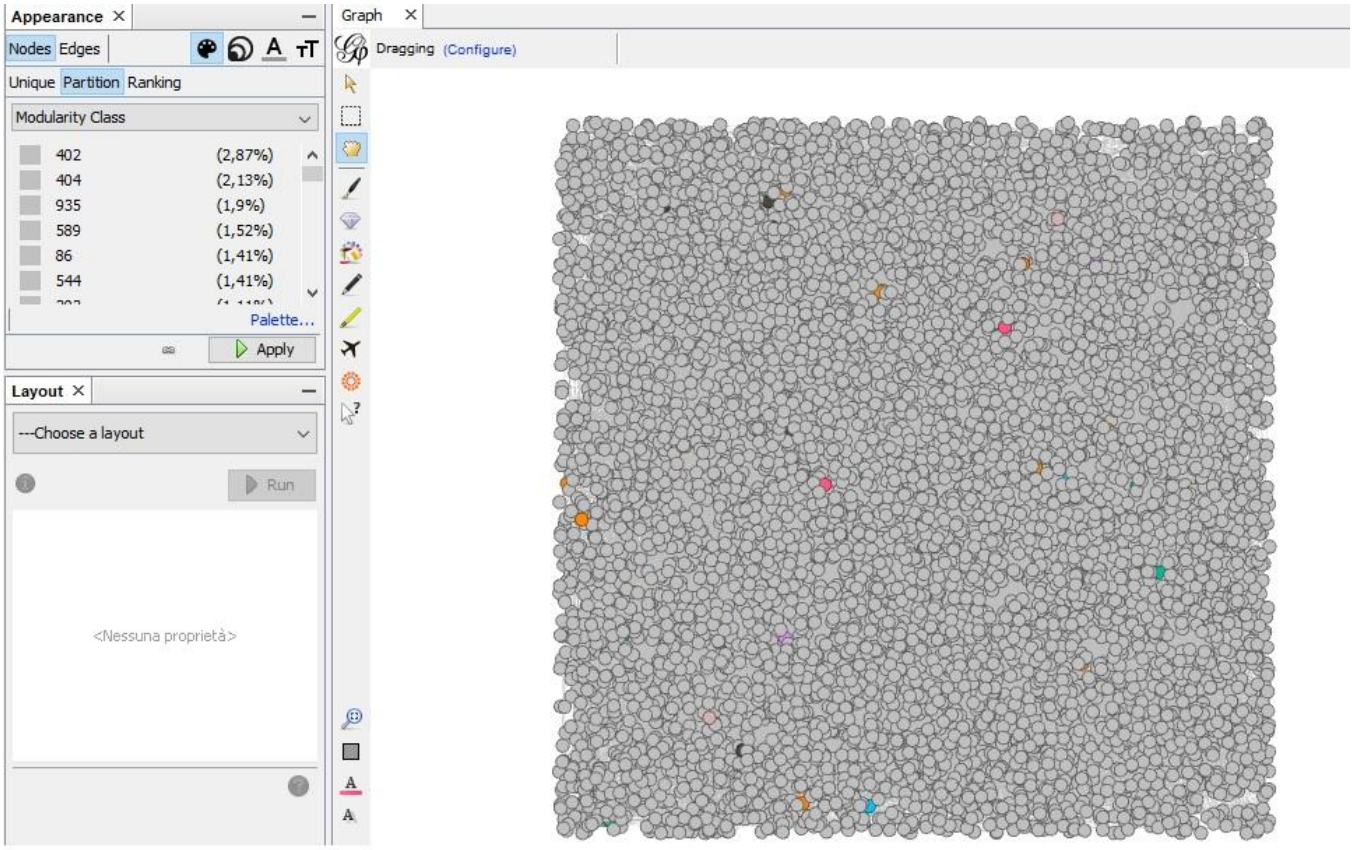
Connected Components Report

Results:

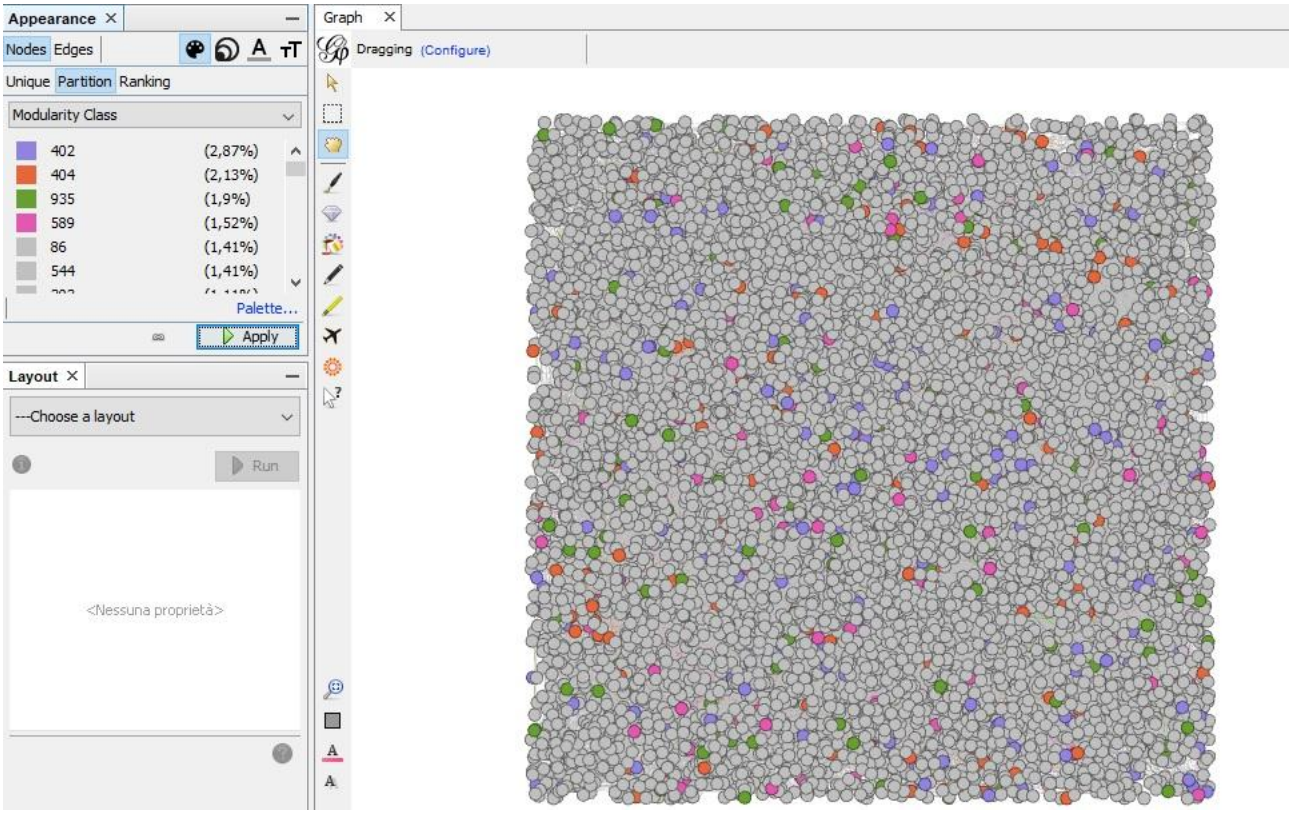
Number of Weakly Connected Components: 1718
Number of Strongly Connected Components: 7054



Distribution of Connected Components

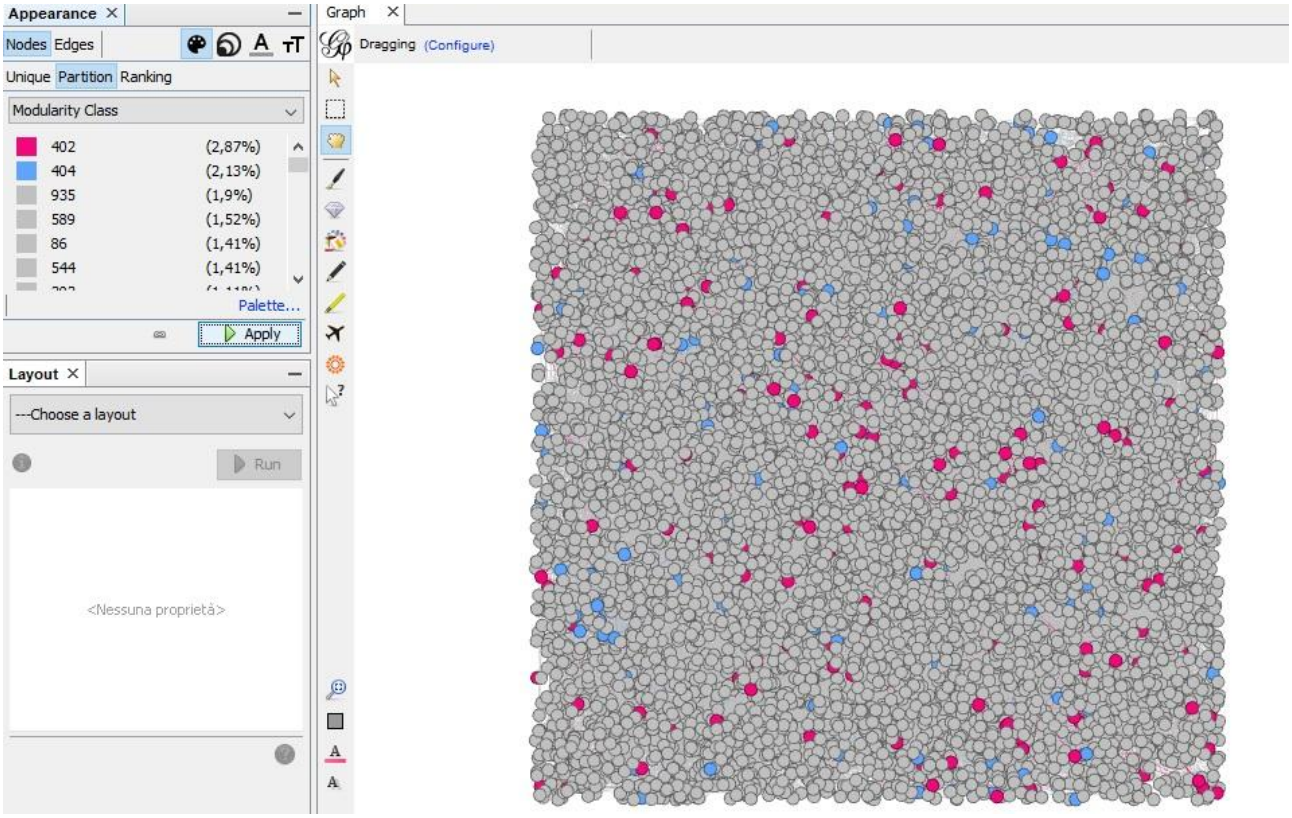


The Main 4 communities



As you can see, there’s not a component containing at least 30% of the nodes.

The Main 2 communities



As you can see, there’s not a component containing at least 50% of the nodes.

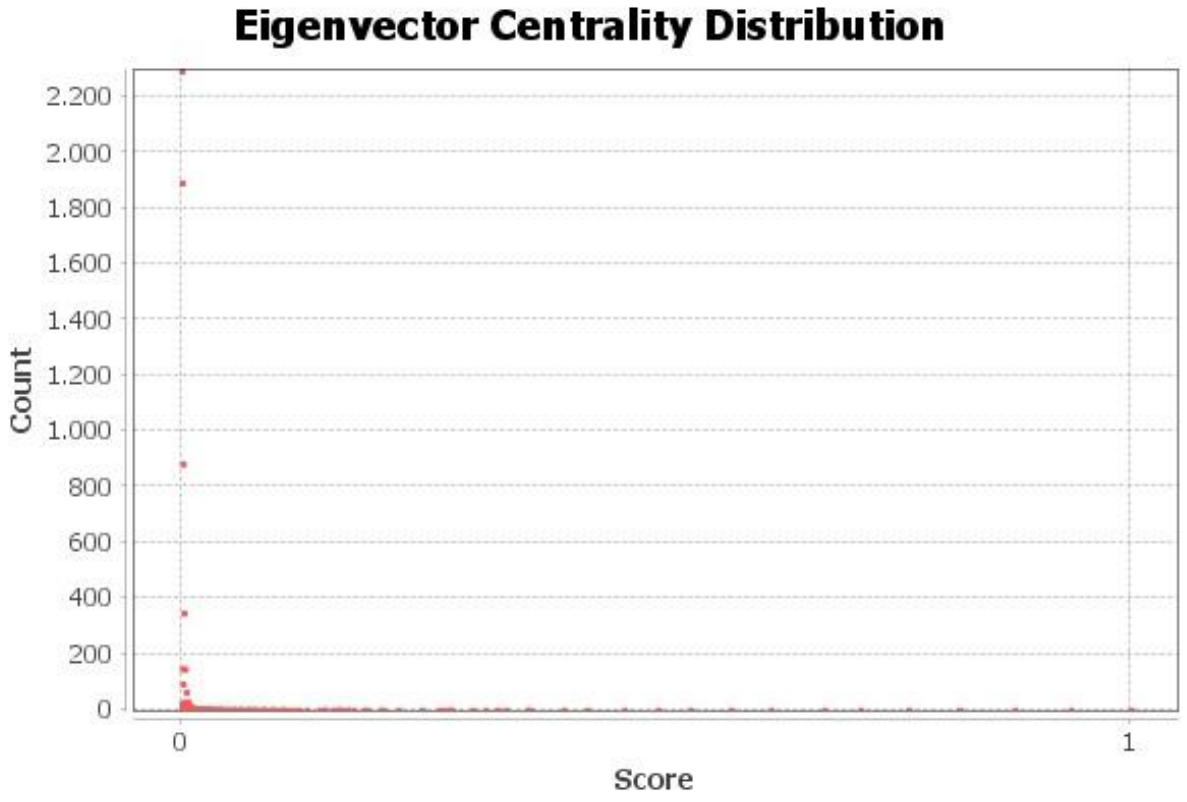
Eigenvector Centrality

Eigenvector Centrality Report

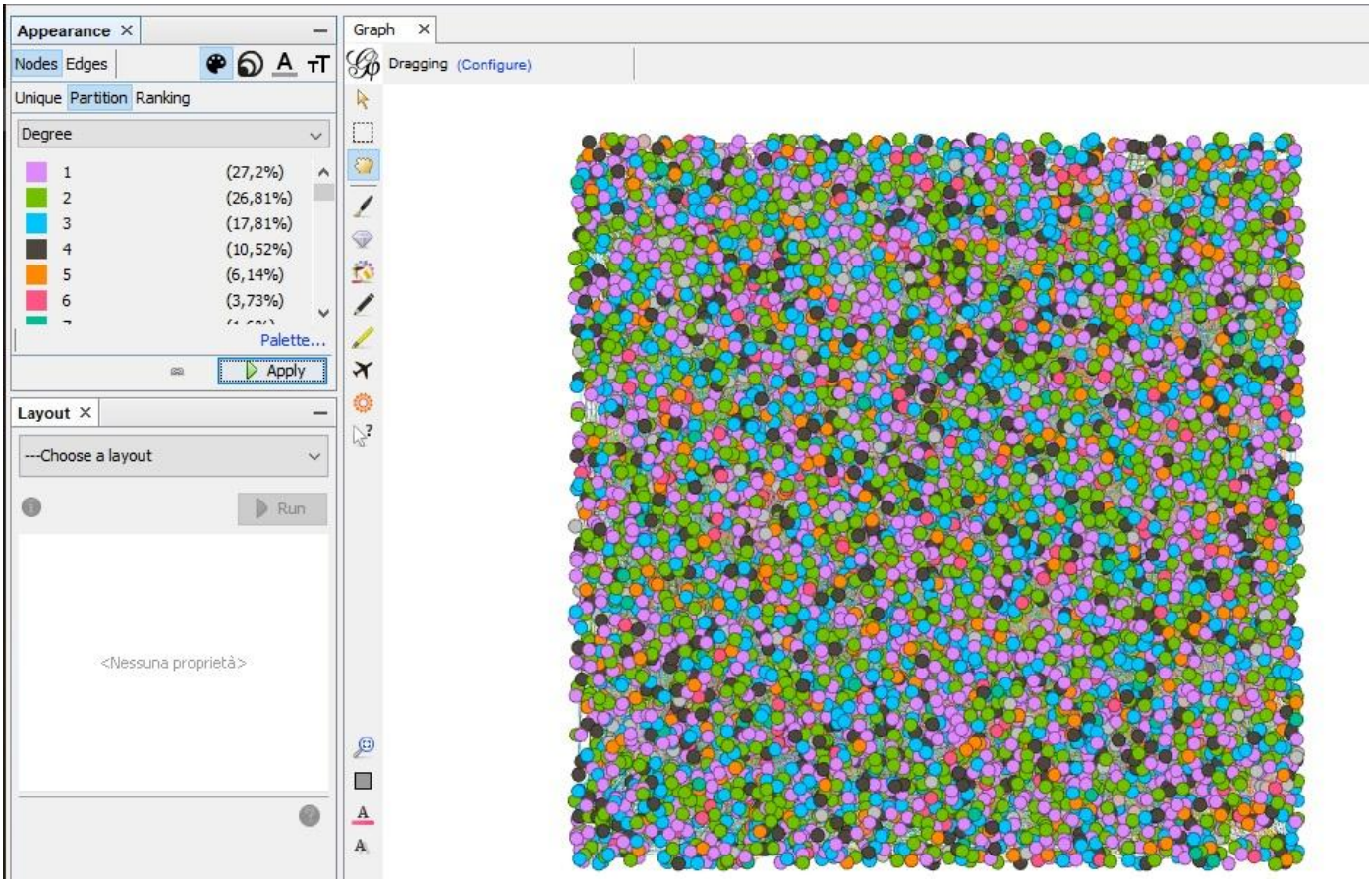
Parameters:

Network Interpretation: directed
Number of iterations: 100
Sum change: 0.10927315590151025

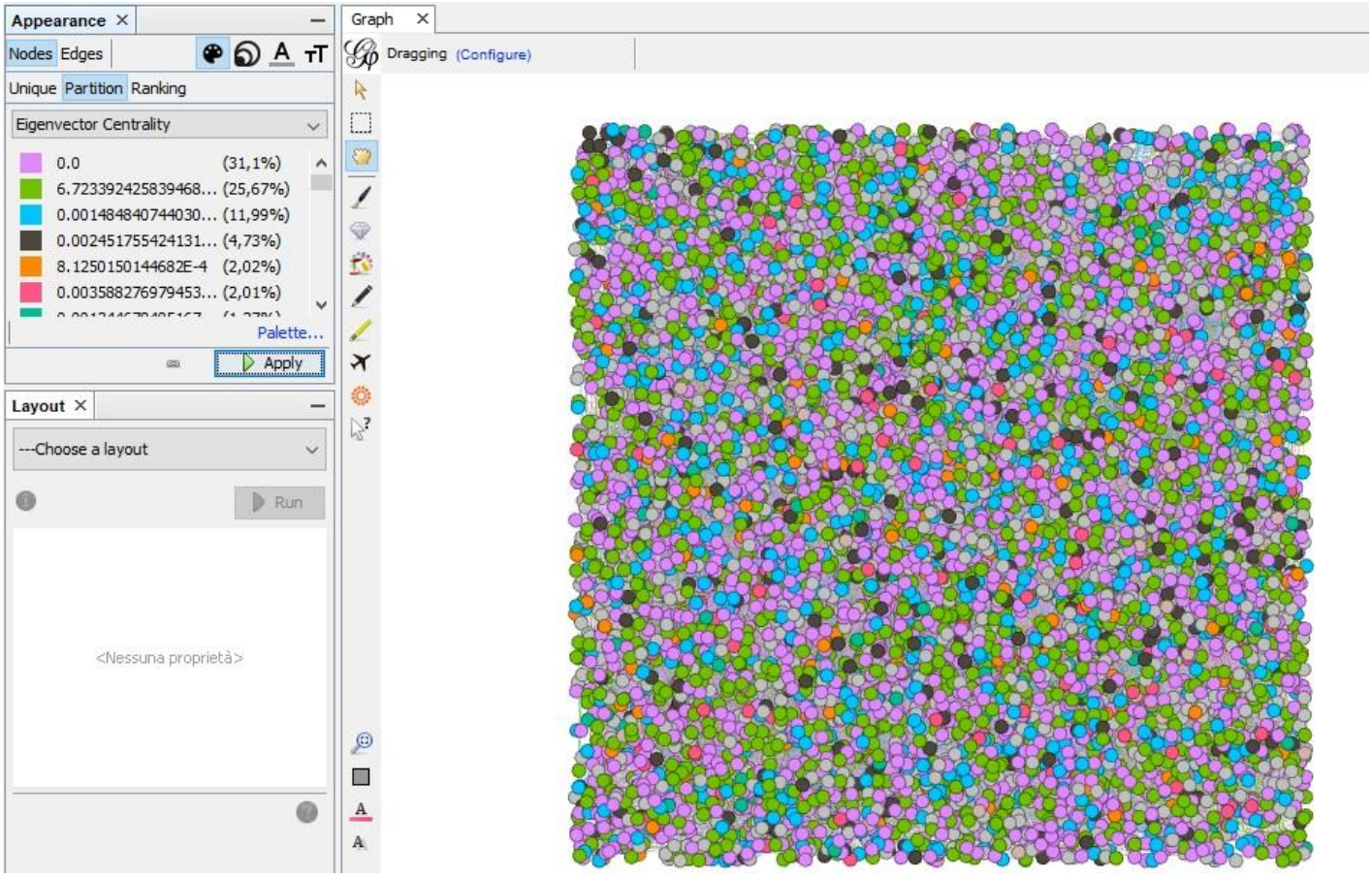
Results:



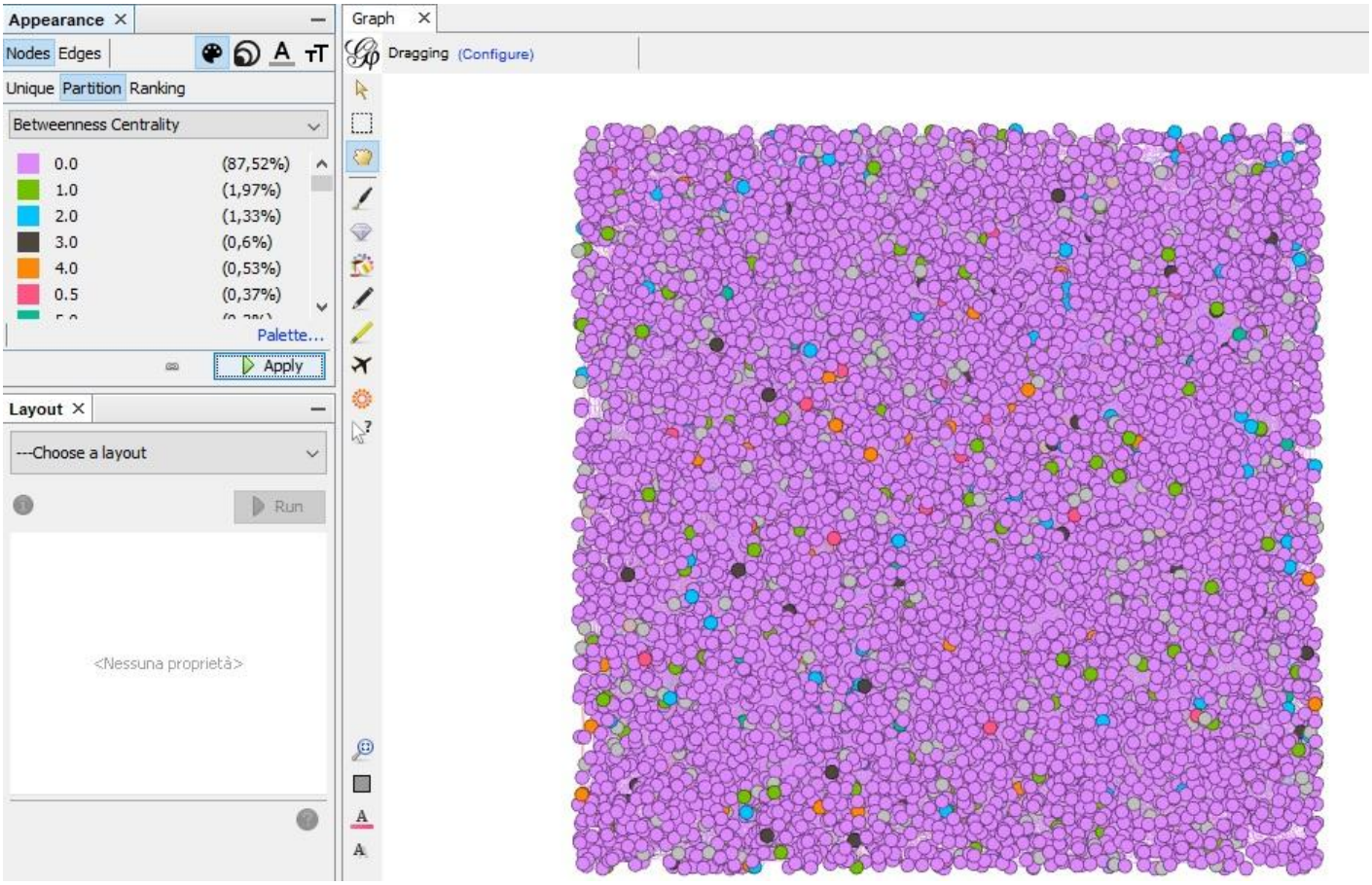
The Network Degree-partitioned



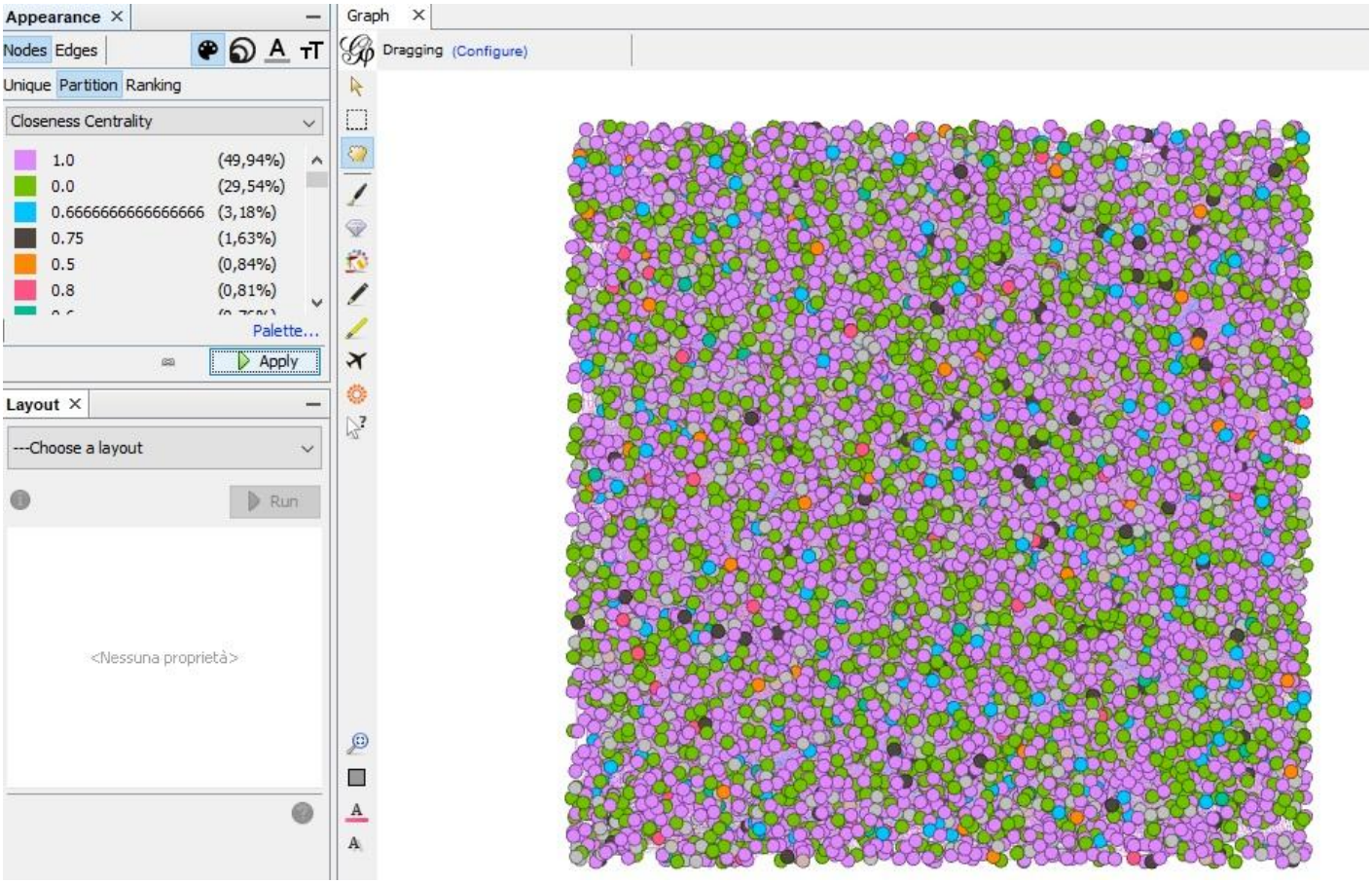
The Network Eigenvector-Centrality-partitioned



The Network Betweenness-Centrality-partitioned



The Network Closeness-Centrality-partitioned



The Network In-Degree-partitioned