Matrix Multiplication analyses on Java

Santiago Sánchez

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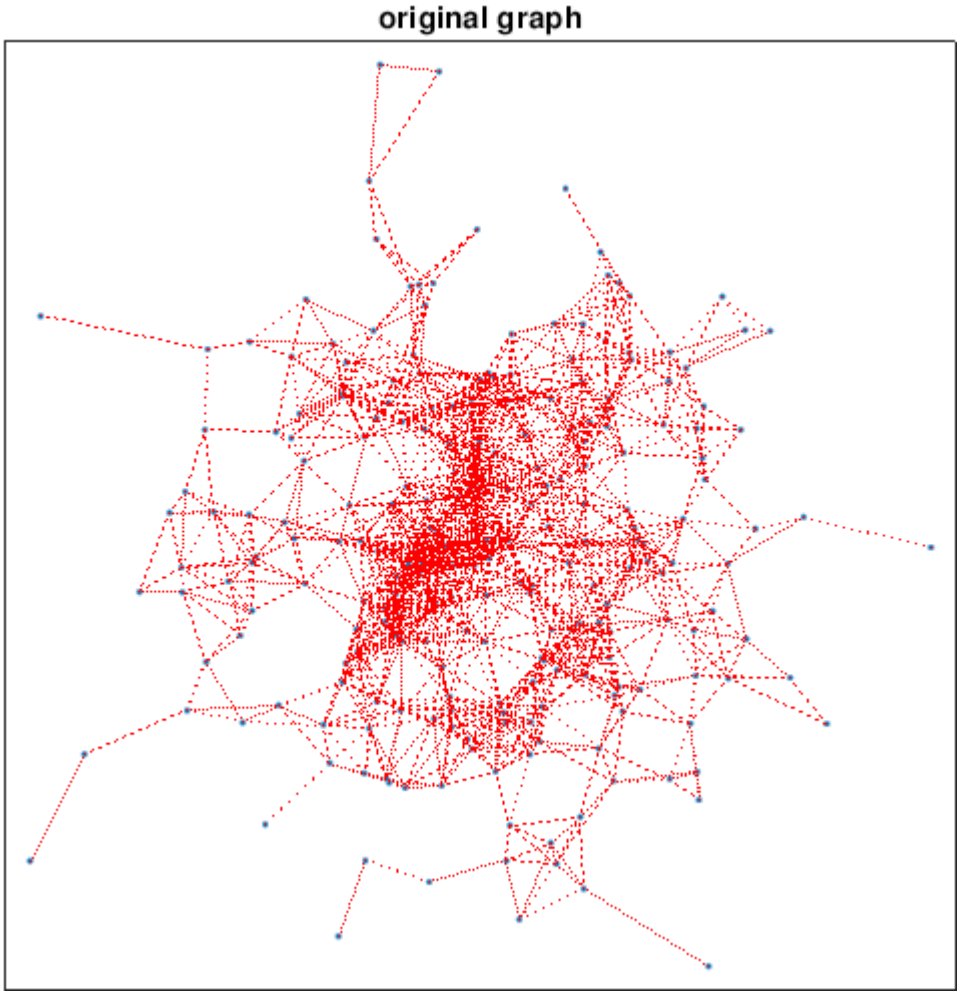
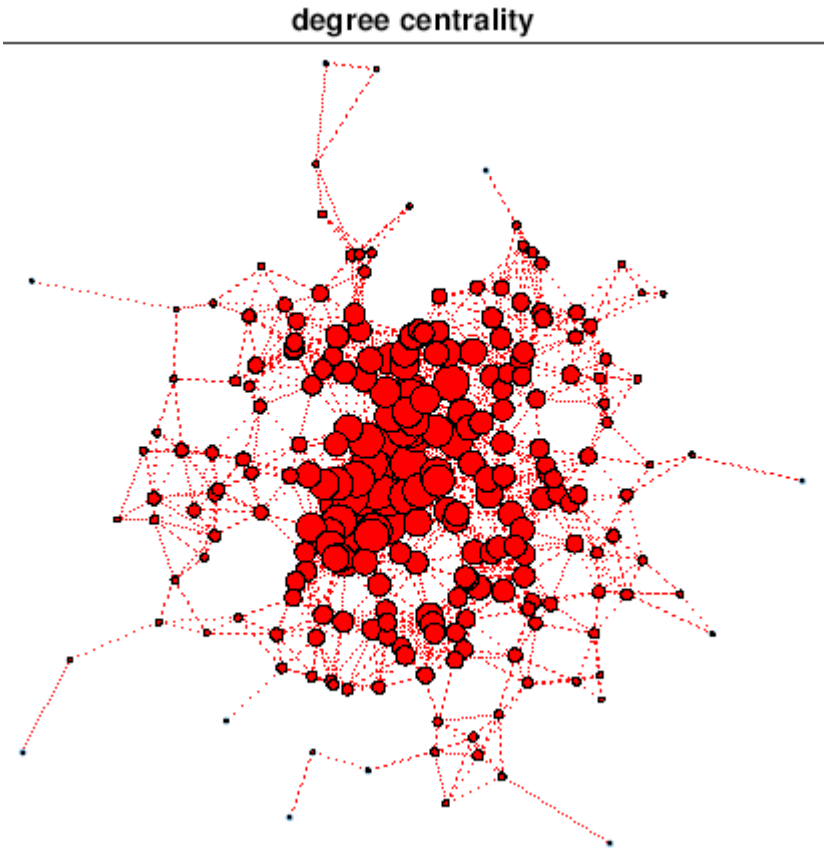
1 Introduction

We are analyzing different centrality measures of graphs. Centrality measures help us to localize most important nodes. With neural networks seeming to be in rise and many more applications on different kind of networks a correct analysis of them is becoming very important.

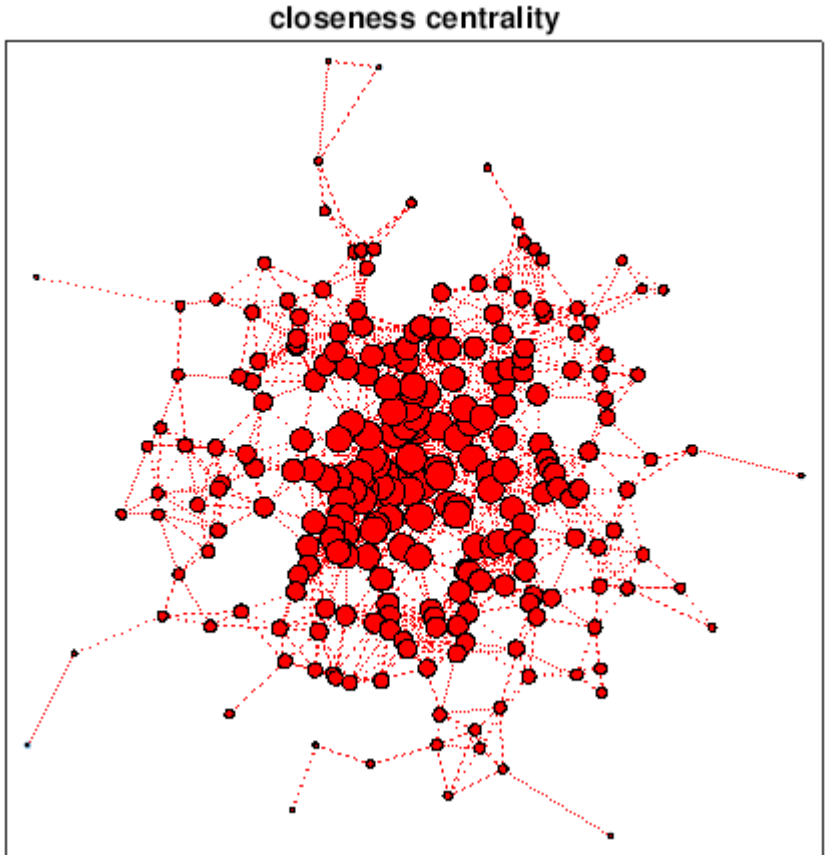
2 Analysis



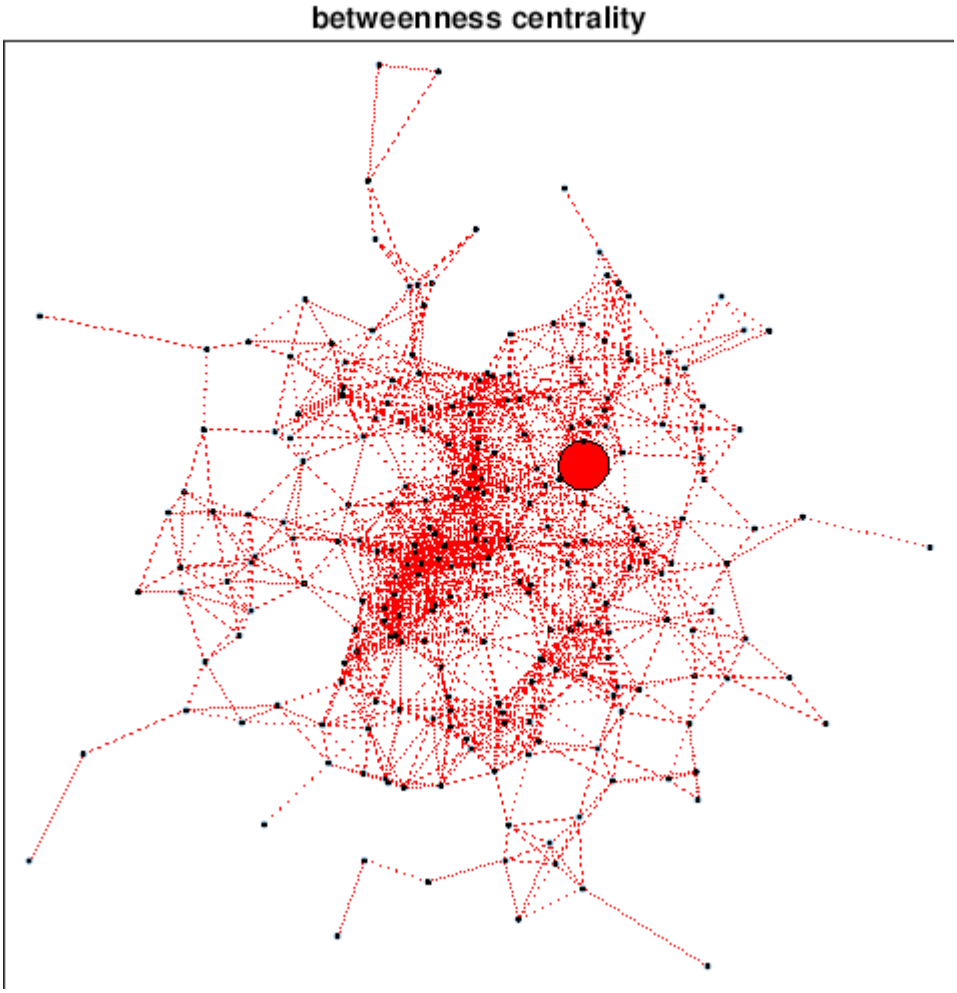
Our first graph shows us a network with 250 vertices, they are very close in the center of the graph and by the time we go further the concentration is lesser.



With the degree centrality analysis we can conclude that the nodes that are in the inner part of the network are the ones with the larger amount of connections, the ones on the outermost parts have a much lesser number of connections.



On the other hand the measure of closeness centrality is the inverse of the average distance to the other nodes, it is reasonable that the vertices on the innermost part are the one with a bigger closeness centrality.



Lastly we can see the betweenness centrality. This one is difficult to analyze. It is because at most the number of connections that go through a node is n and this number is going to be divided by n^2 so the number are going to be really small and are not appreciated.