

SOCIAL NETWORK ANALYSIS, NETWORK SCIENCE

ADAMENKO PAVEL
2018

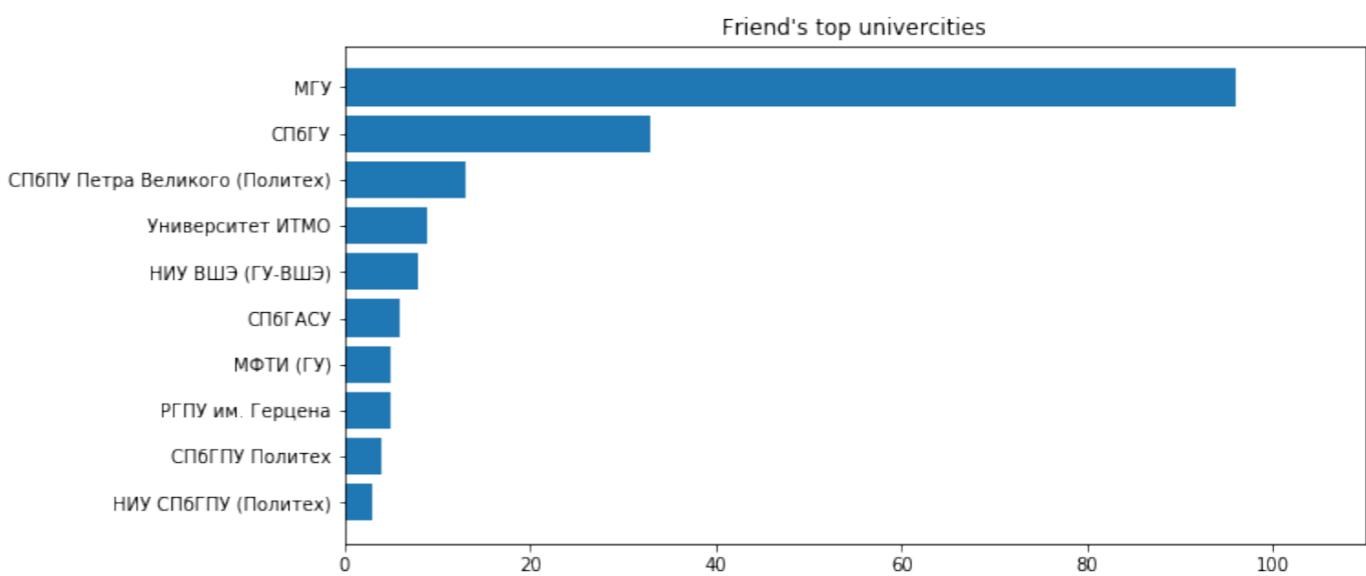
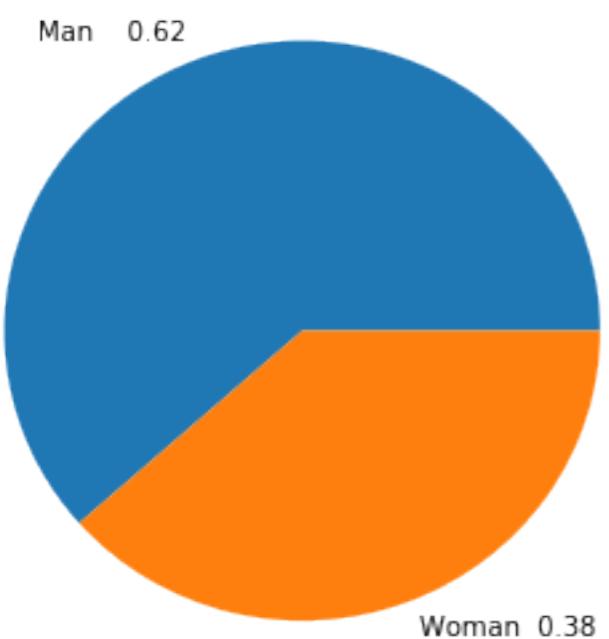
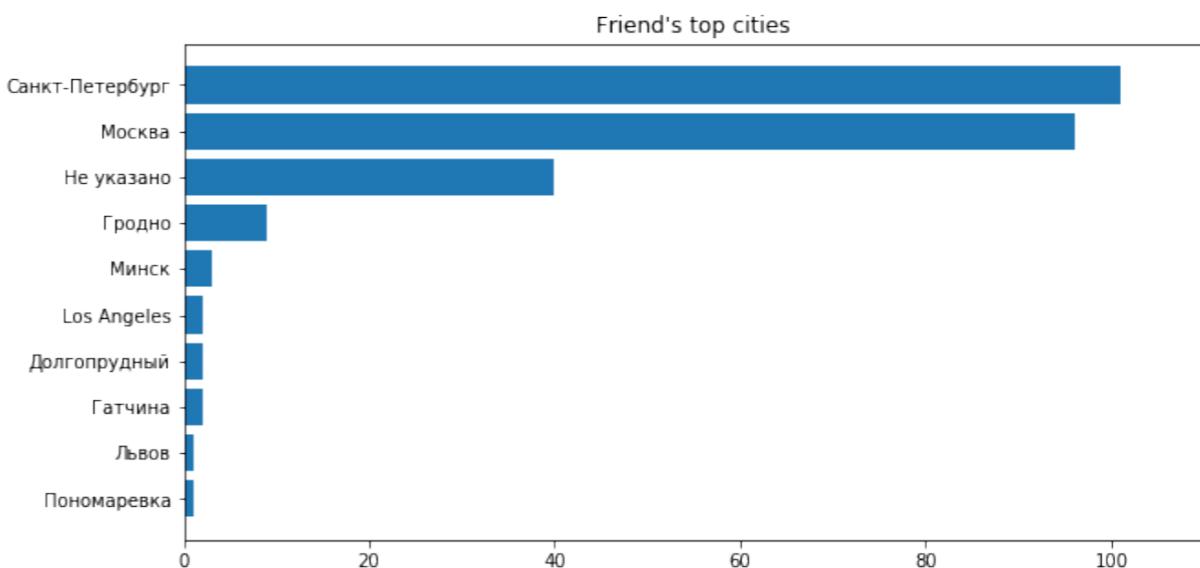


BASIC GRAPH STATS

ATTRIBUTES DESCRIPTIONS

Using attributes:

- ▶ Sex
- ▶ City
- ▶ University

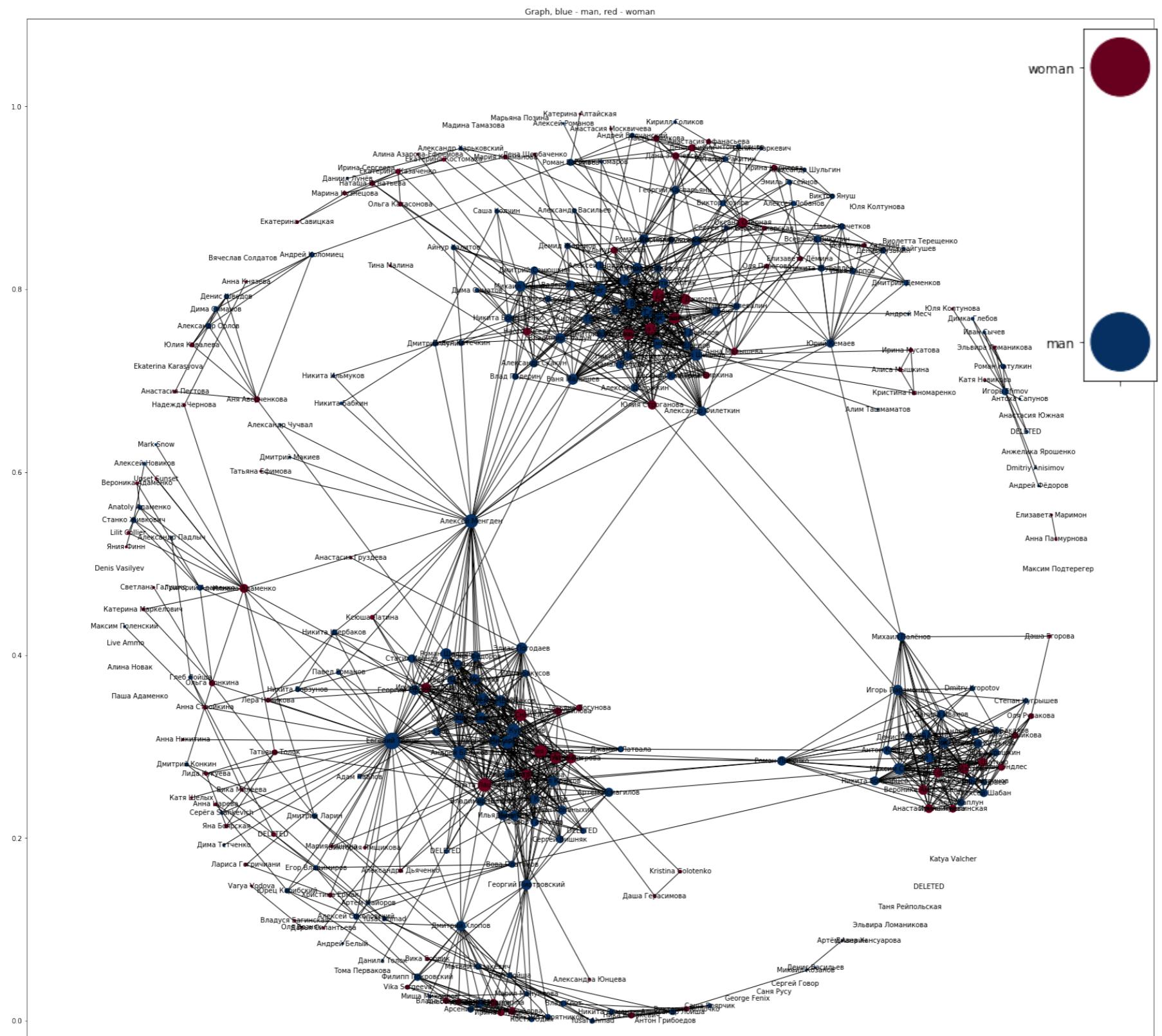


FRIEND'S STATS

- ▶ 312 friends (30 banned)
- ▶ Graph nodes 312
- ▶ Graph edges 1417
- ▶ 29 subgraph, main - 271 nodes, "banned" subgraph - 12 nodes, 27 cluster with size 1
- ▶ Main subgraph diameter 10
- ▶ Main subgraph radius. 5
- ▶ Main clustering coefficient. 0.505

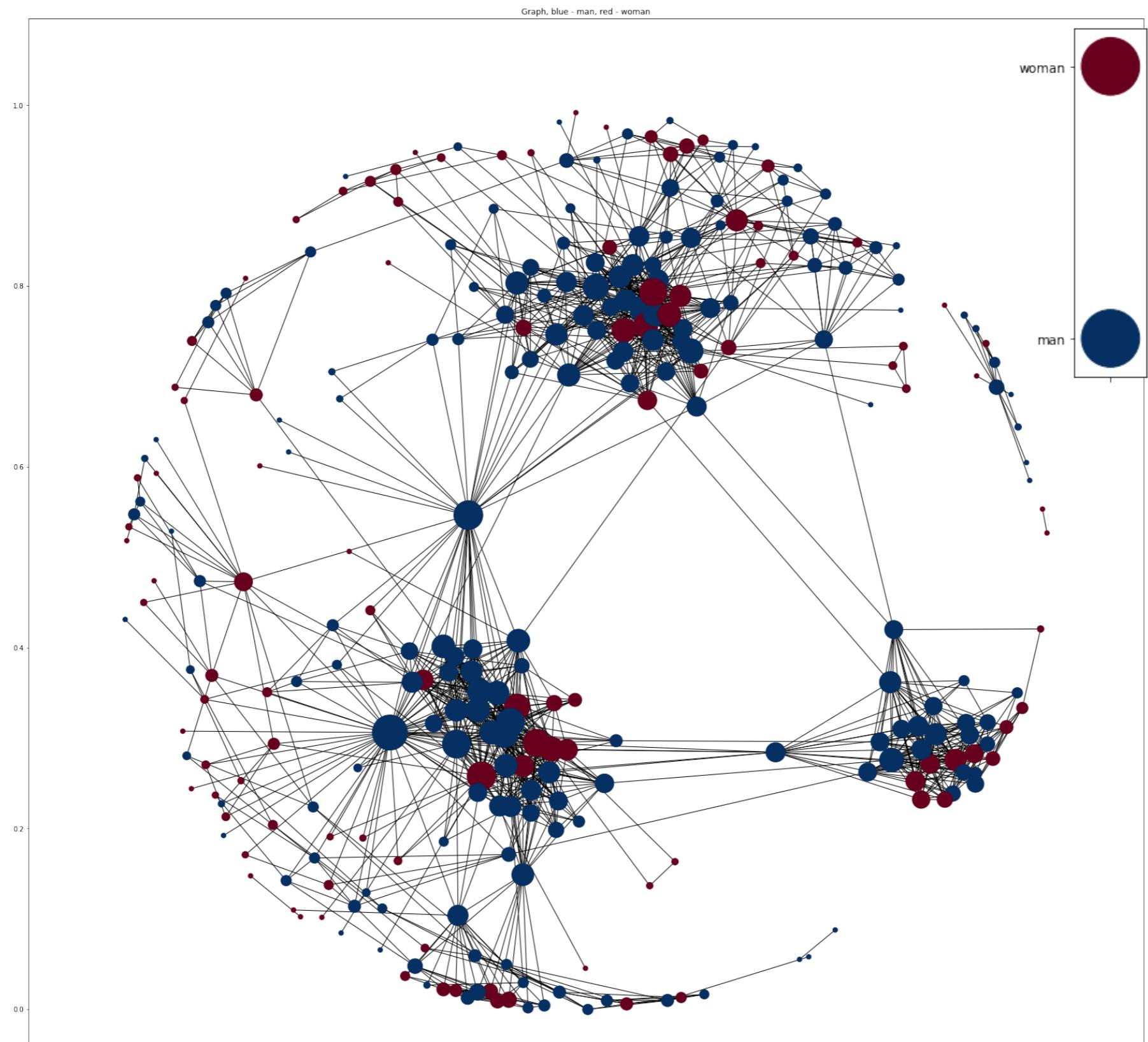
ATTRIBUTES VISUALIZATION

FRIEND'S GRAPH, WITH GENDER, WITH LABELS



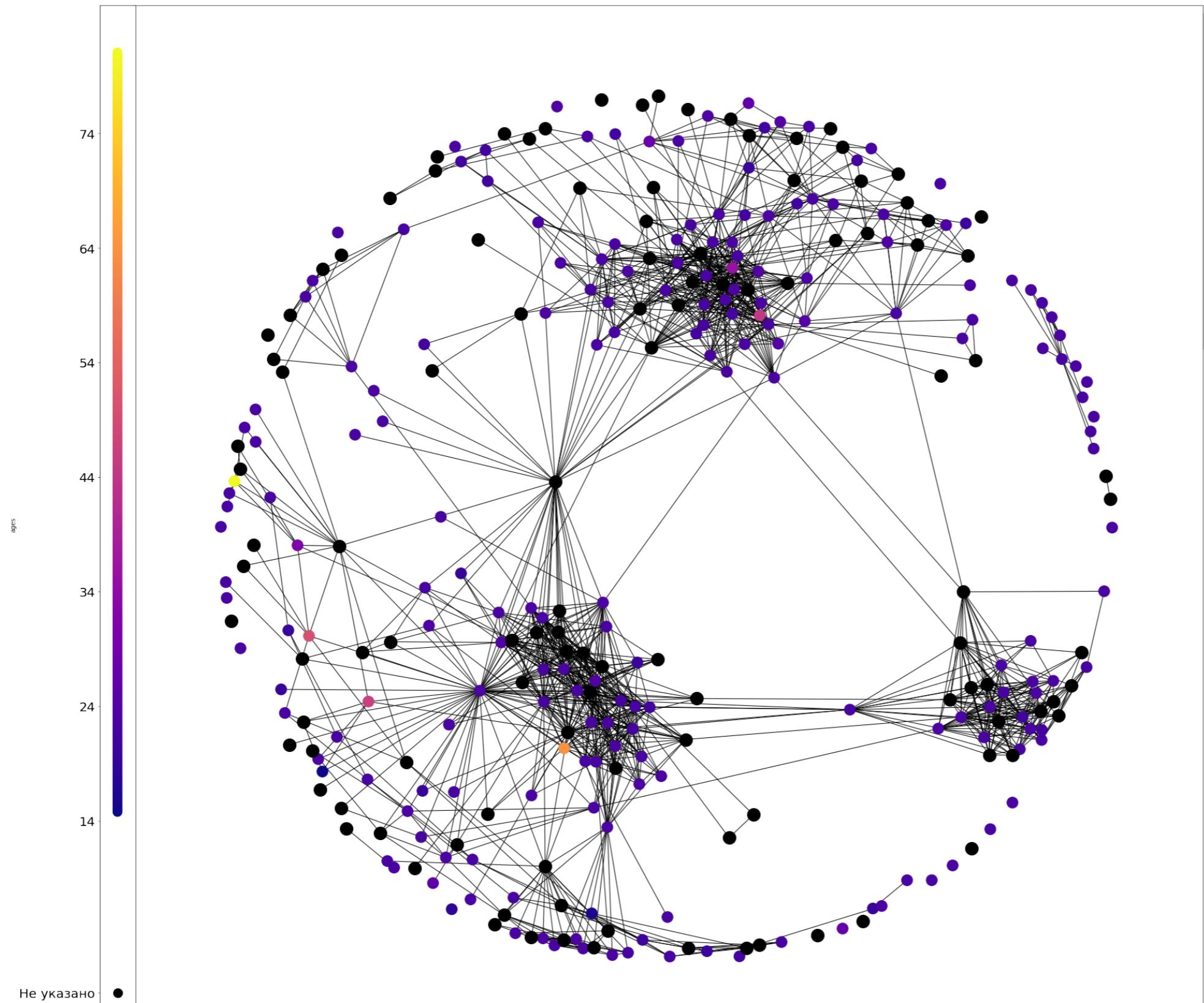
ATTRIBUTES VISUALIZATION

FRIEND'S GRAPH, WITH GENDER, WITH-OUT LABELS



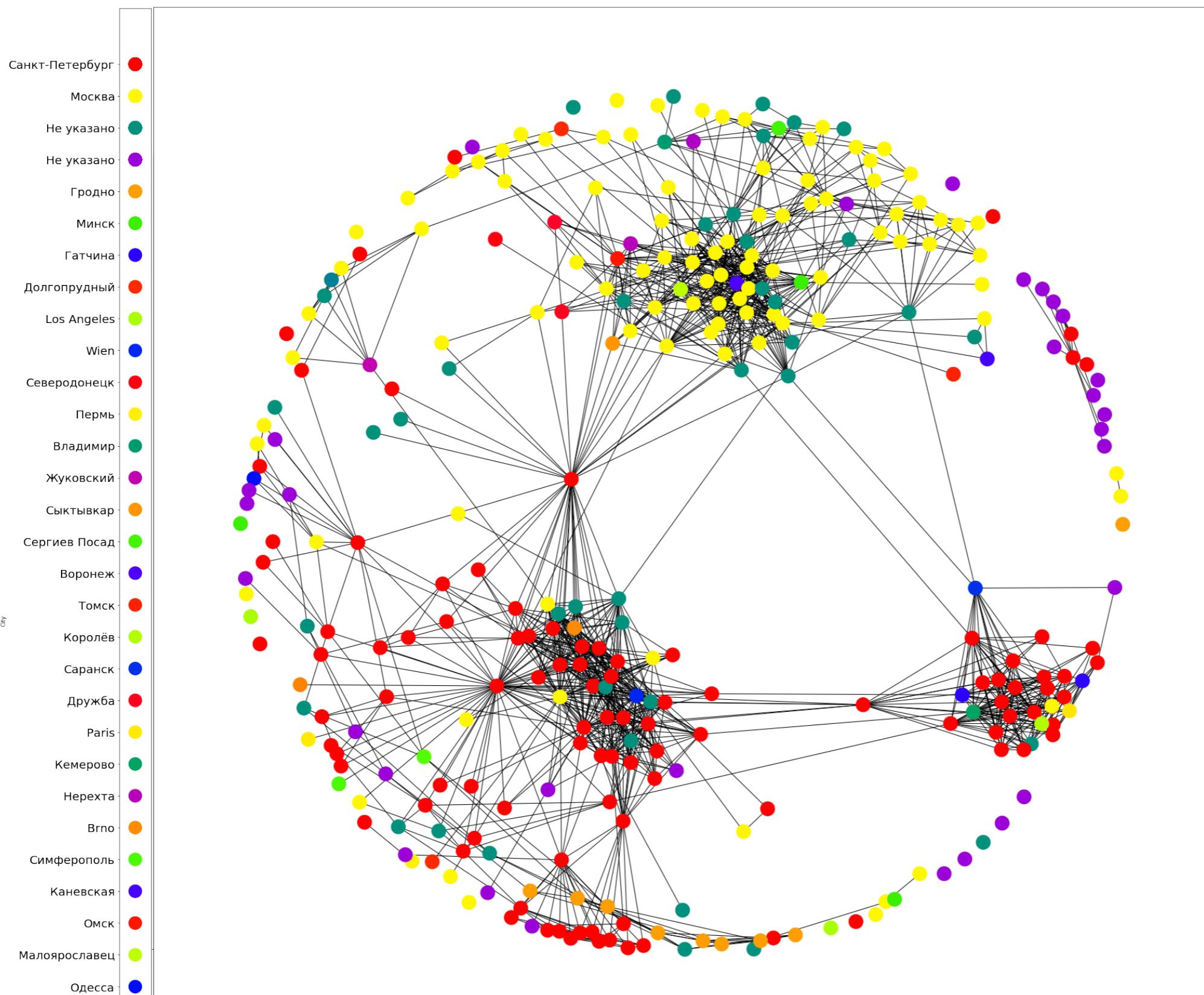
ATTRIBUTES VISUALIZATION

FRIEND'S GRAPH, WITH AGE



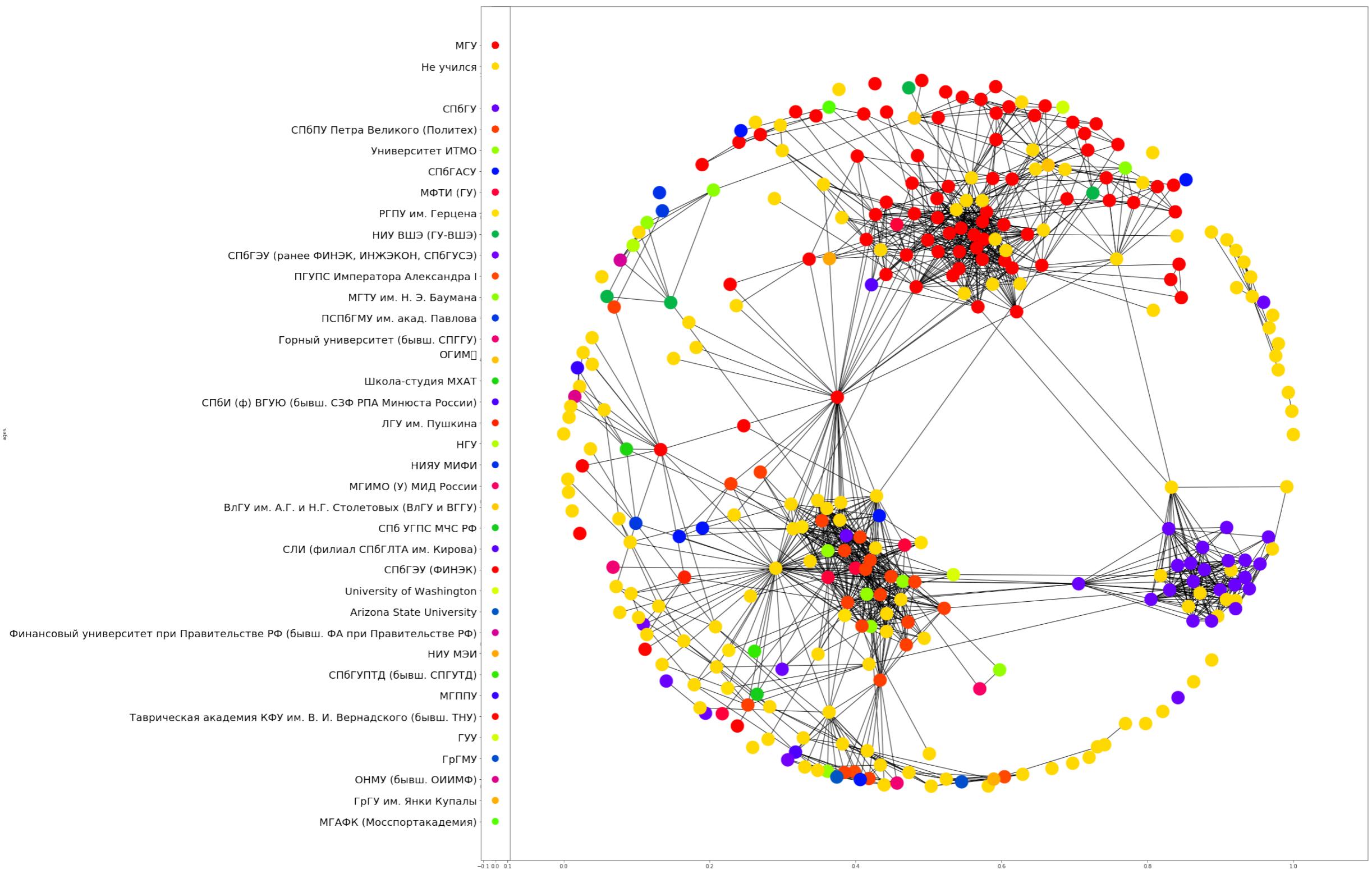
ATTRIBUTES VISUALIZATION

FRIEND'S GRAPH, WITH CITY



ATTRIBUTES VISUALIZATION

FRIEND'S GRAPH, WITH UNIVERSITY

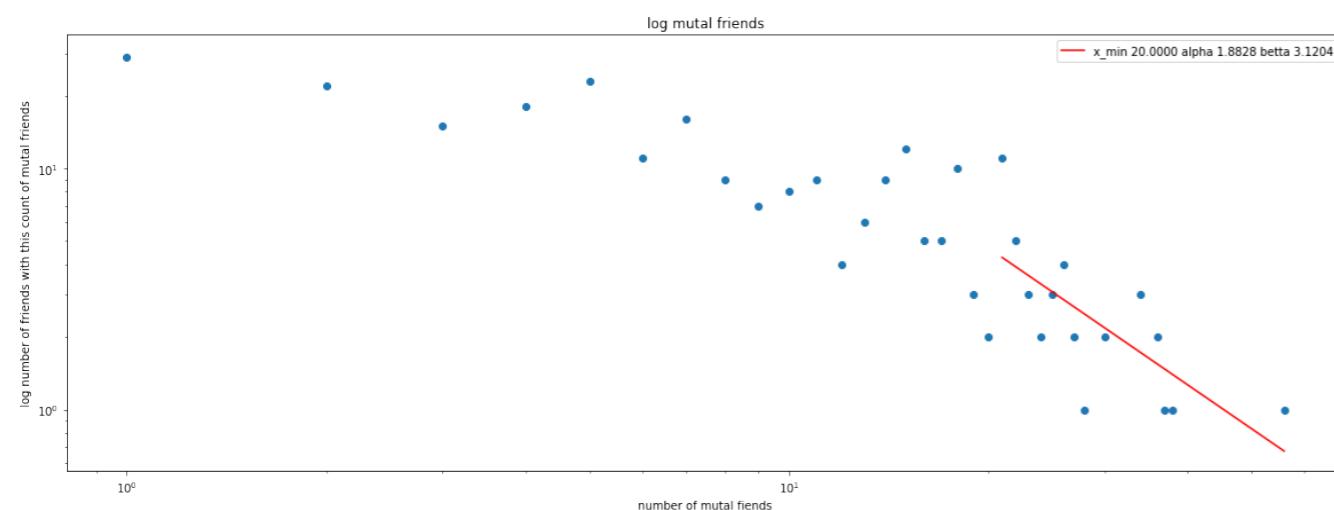


FRIEND'S GRAPH, ATTRIBUTE ASSORTATIVE MIXING

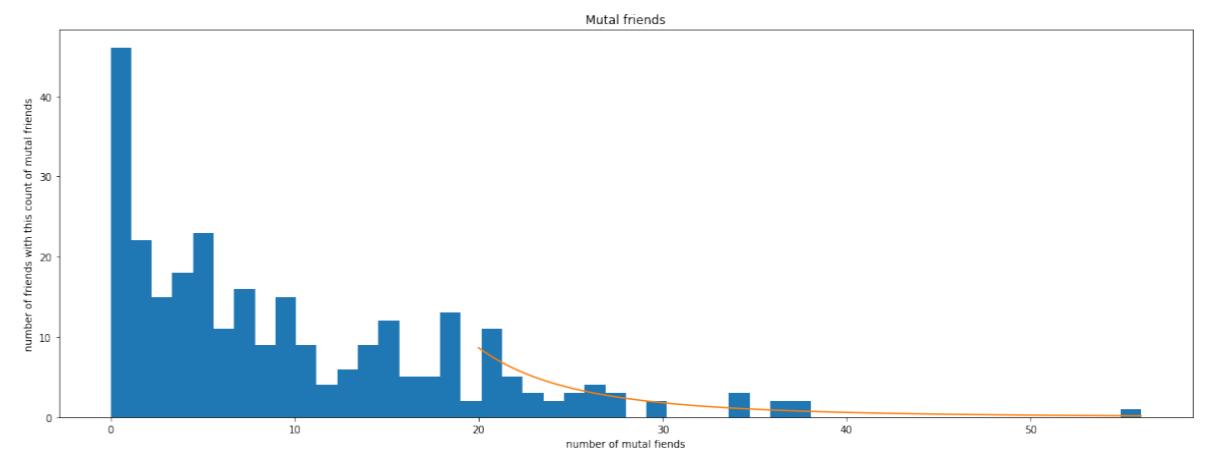
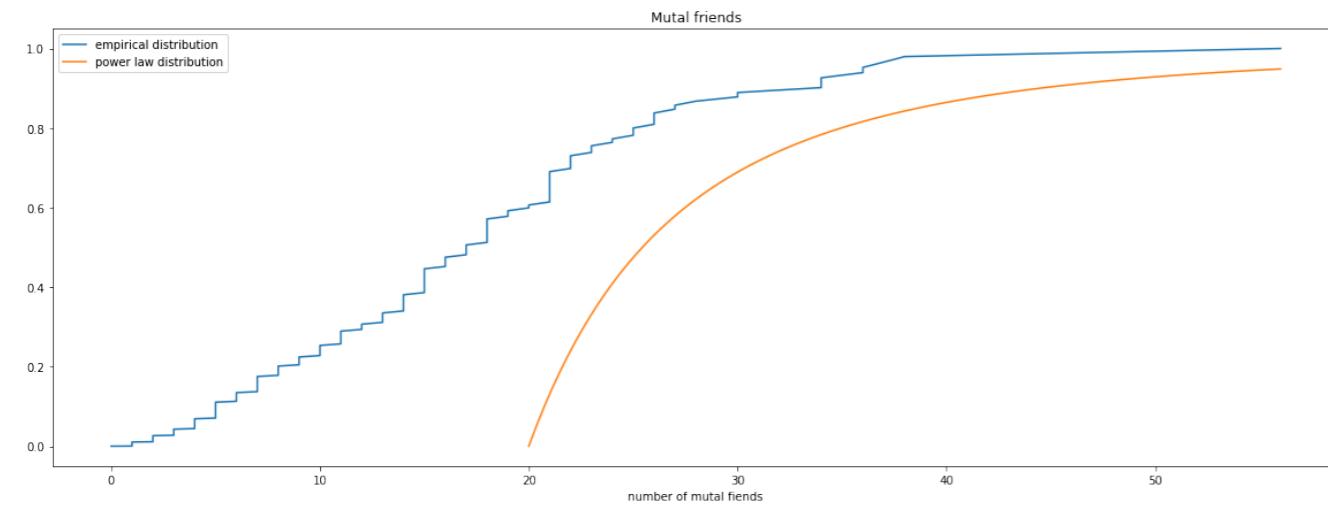
- ▶ city 0.31
- ▶ university 0.27
- ▶ home_town 0.09
- ▶ sex 0.05
- ▶ age 0.0025
- ▶ user_name -0.0064

DEGREE DISTRIBUTION

DEGREE DISTRIBUTION

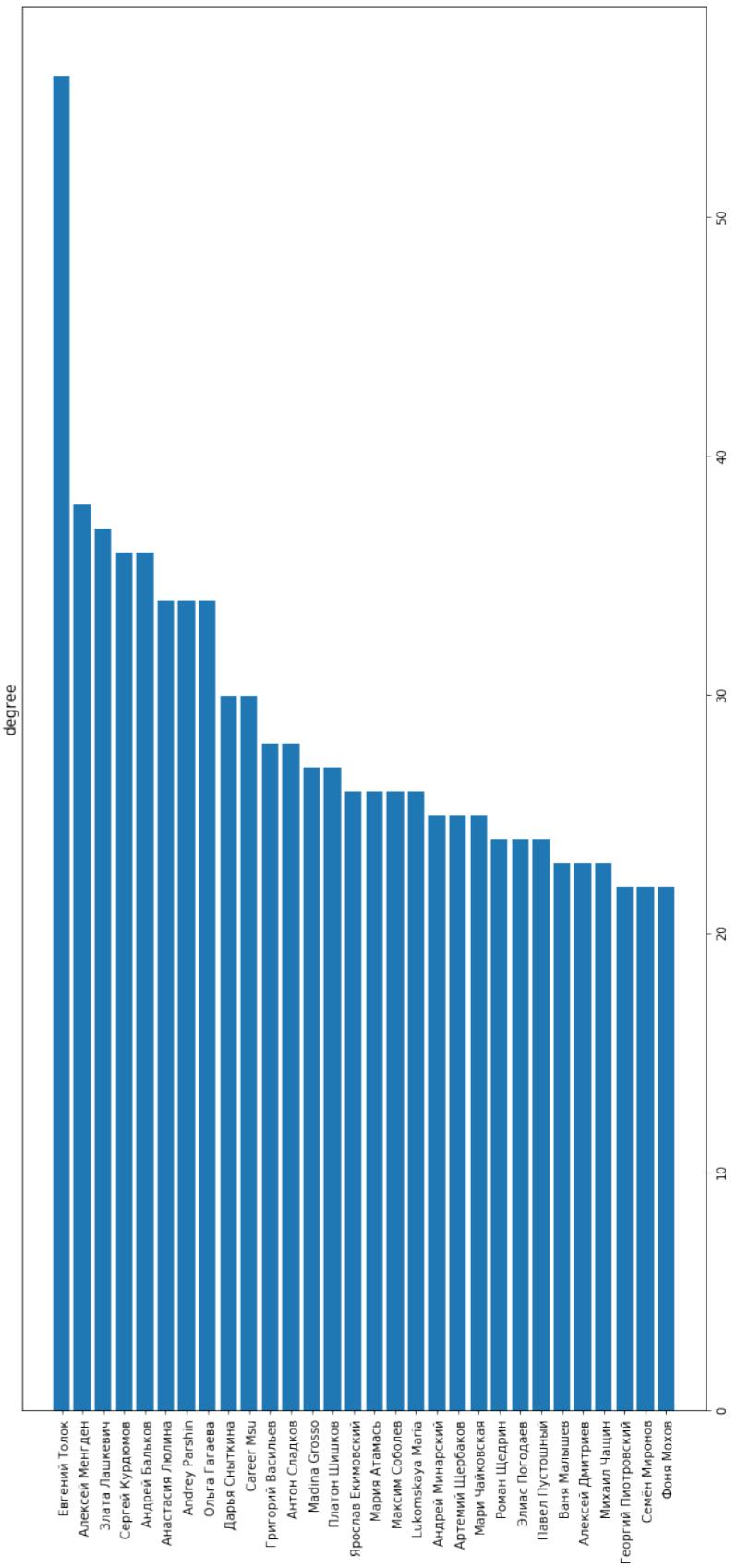
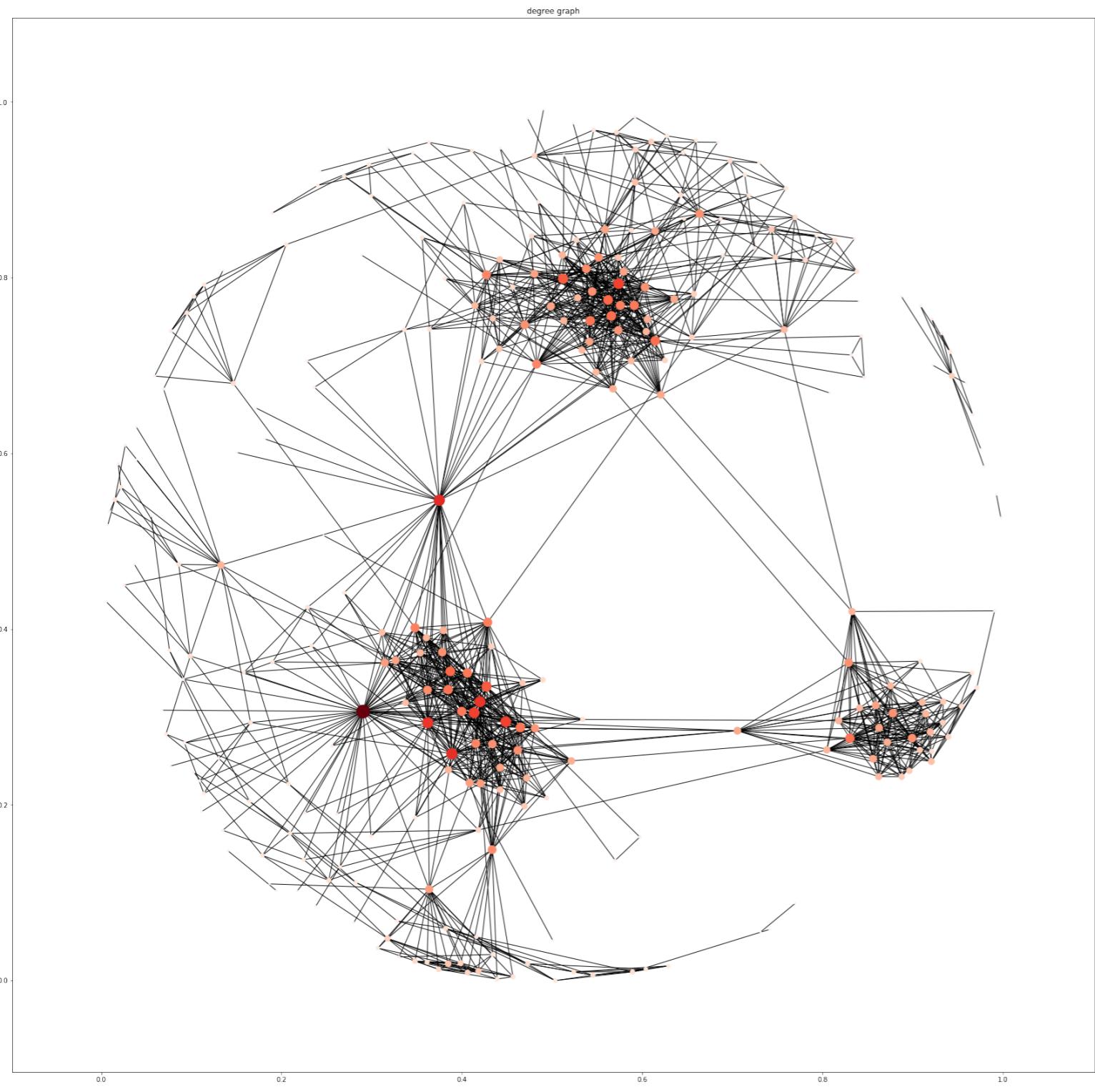


$$\gamma = 1.9$$



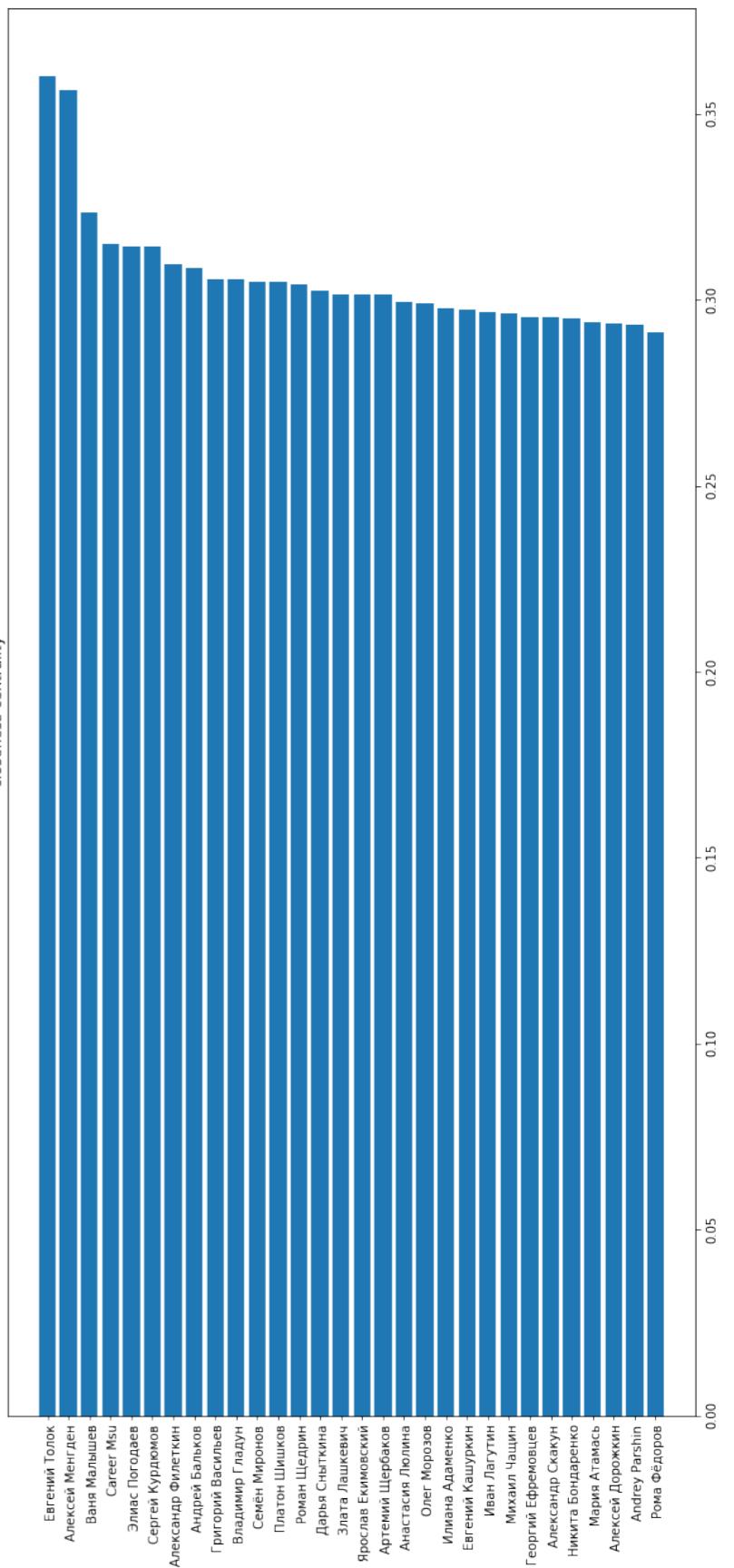
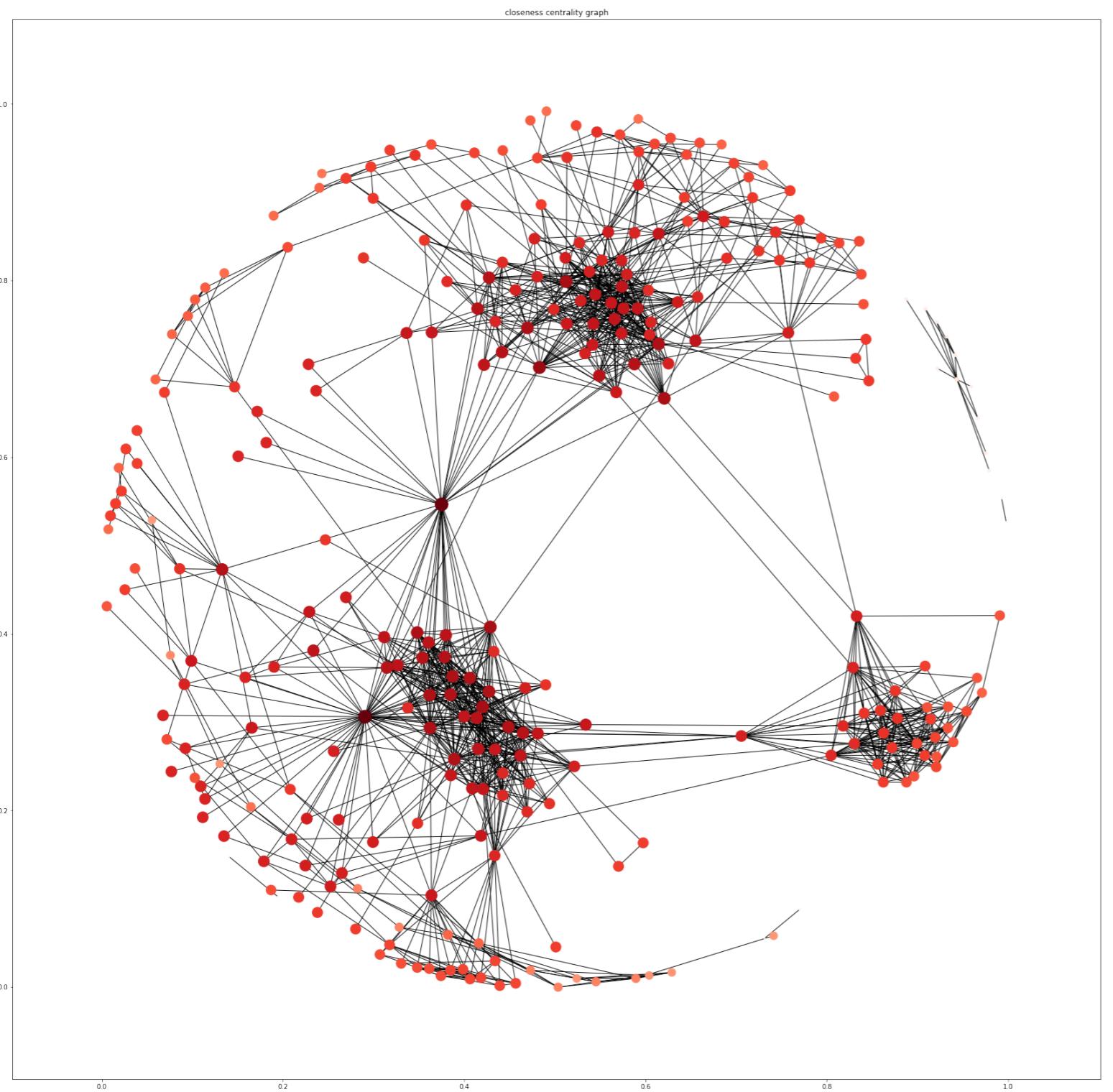
STRUCTURAL ANALYSIS

FRIEND'S GRAPH, DEGREE



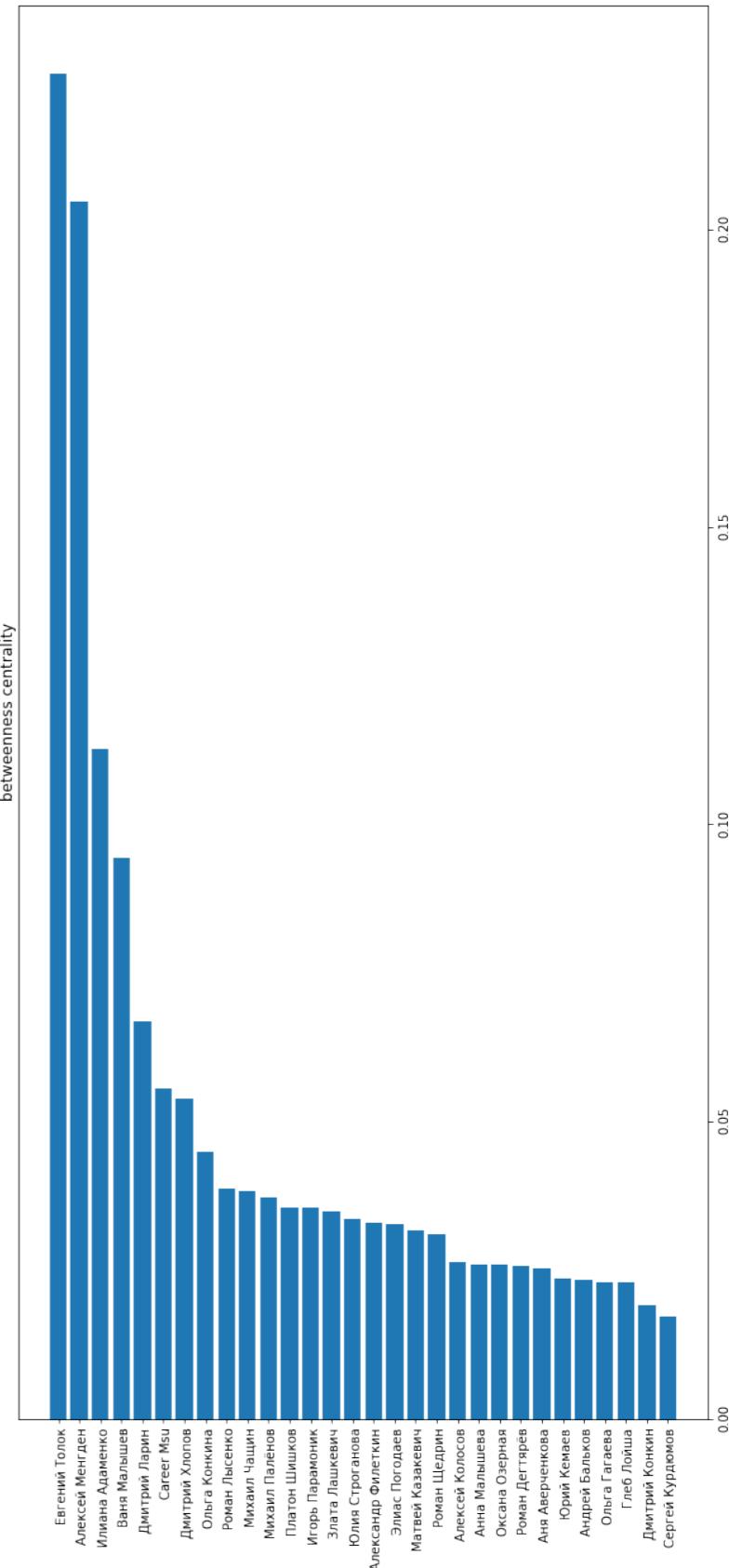
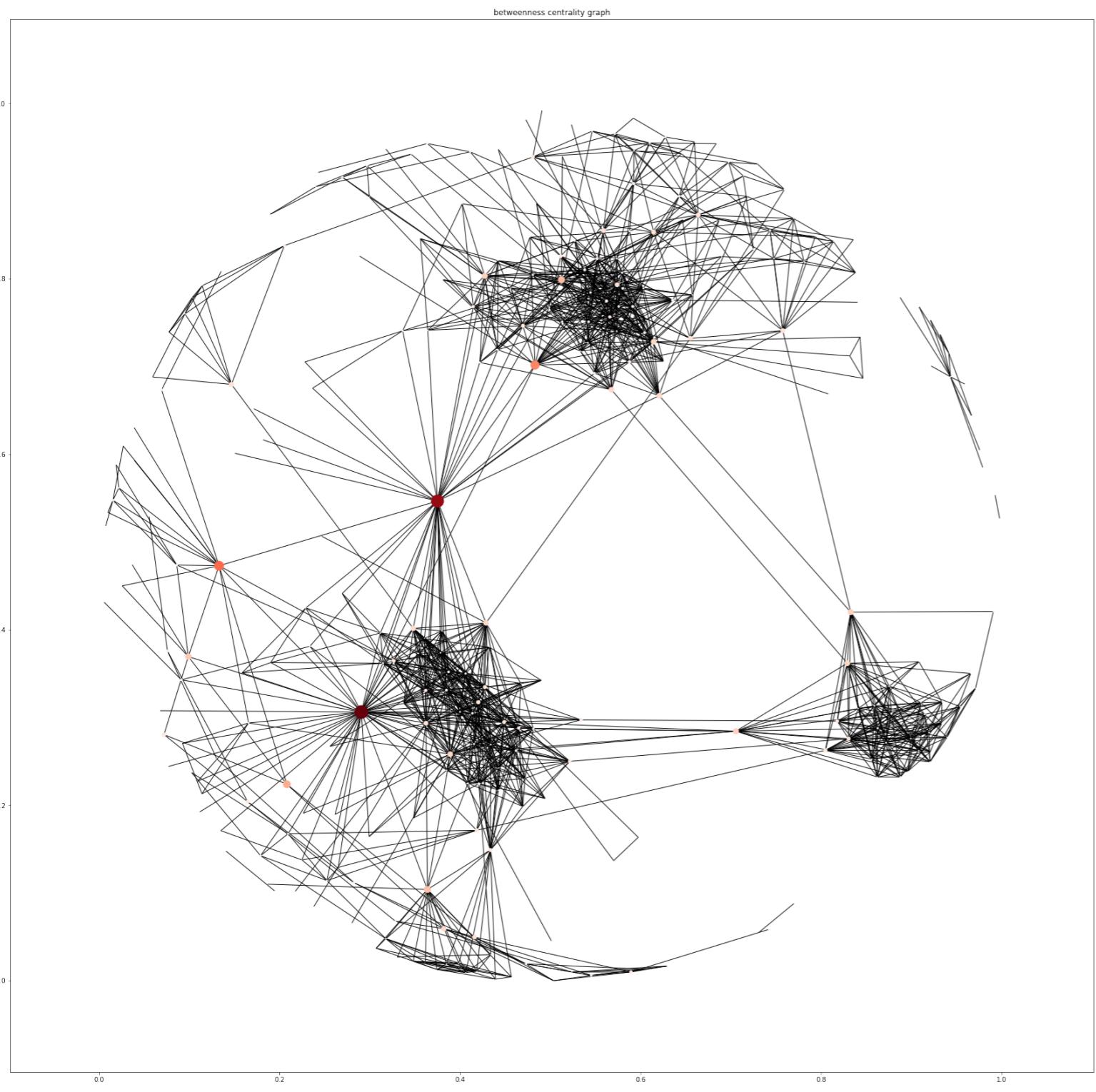
STRUCTURAL ANALYSIS

FRIEND'S GRAPH, CLOSENESS CENTRALITY



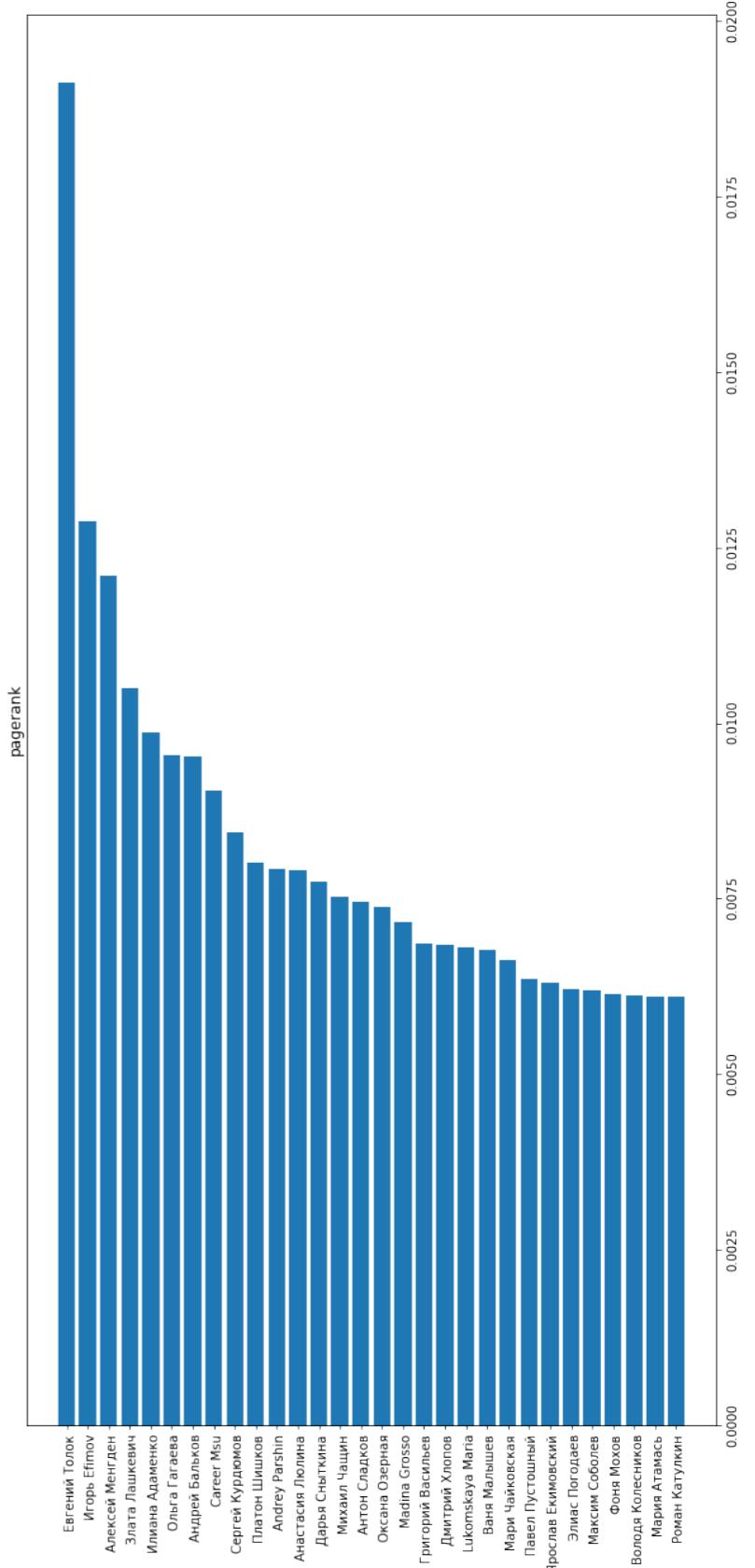
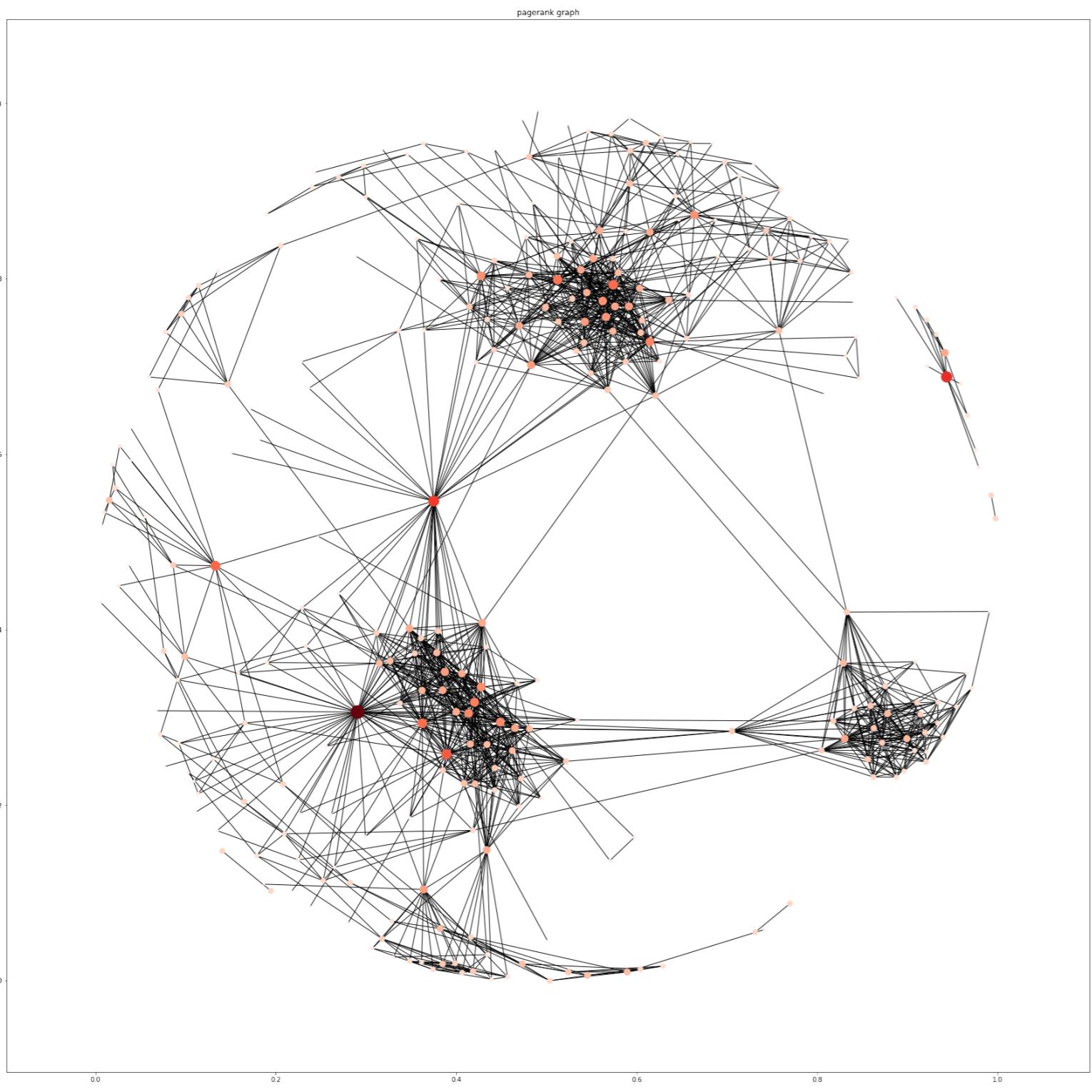
STRUCTURAL ANALYSIS

FRIEND'S GRAPH, BETWEENNESS CENTRALITY



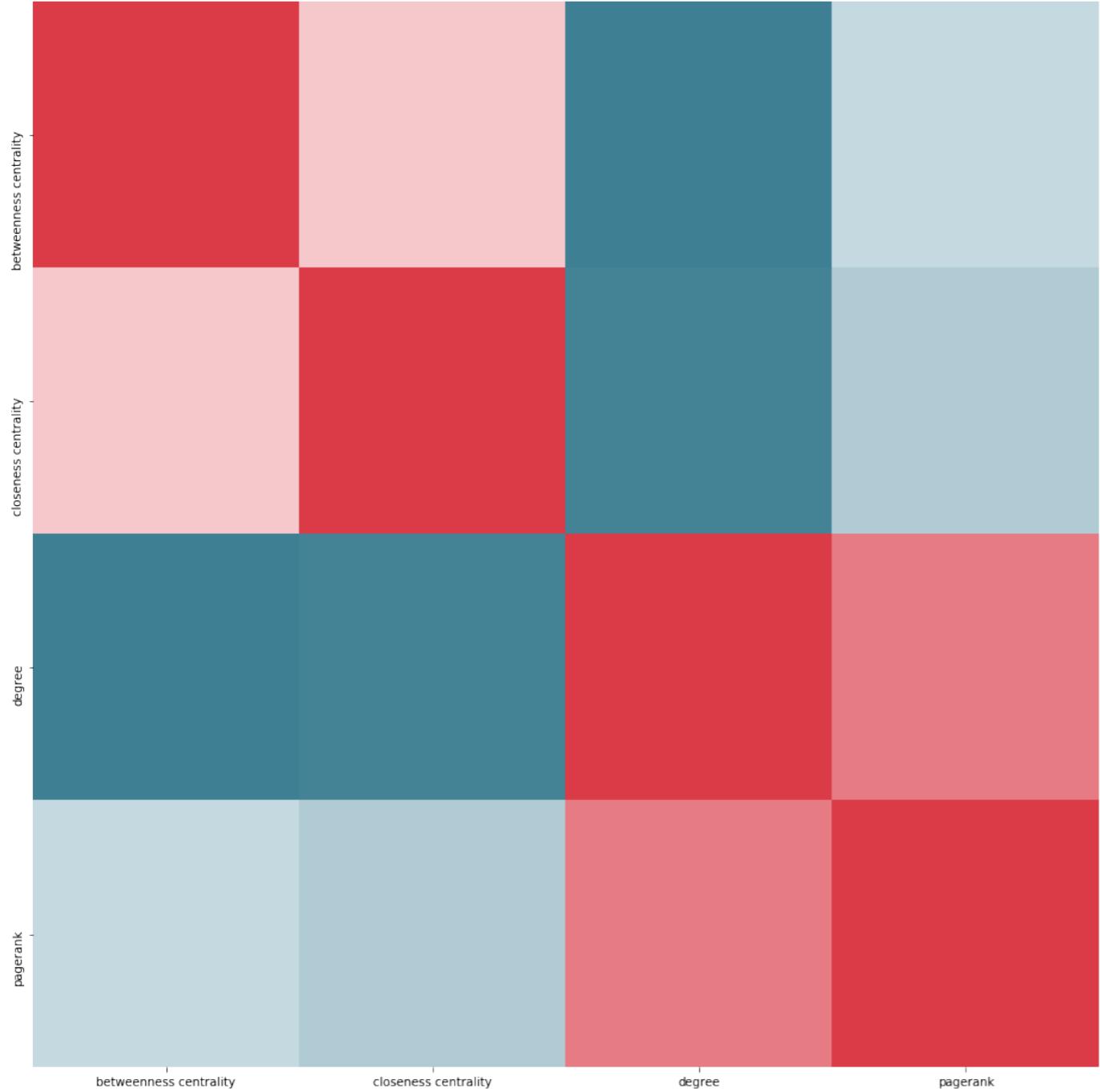
STRUCTURAL ANALYSIS

FRIEND'S GRAPH, PAGERANK



CENTRALITIES METRICS COMPARISON

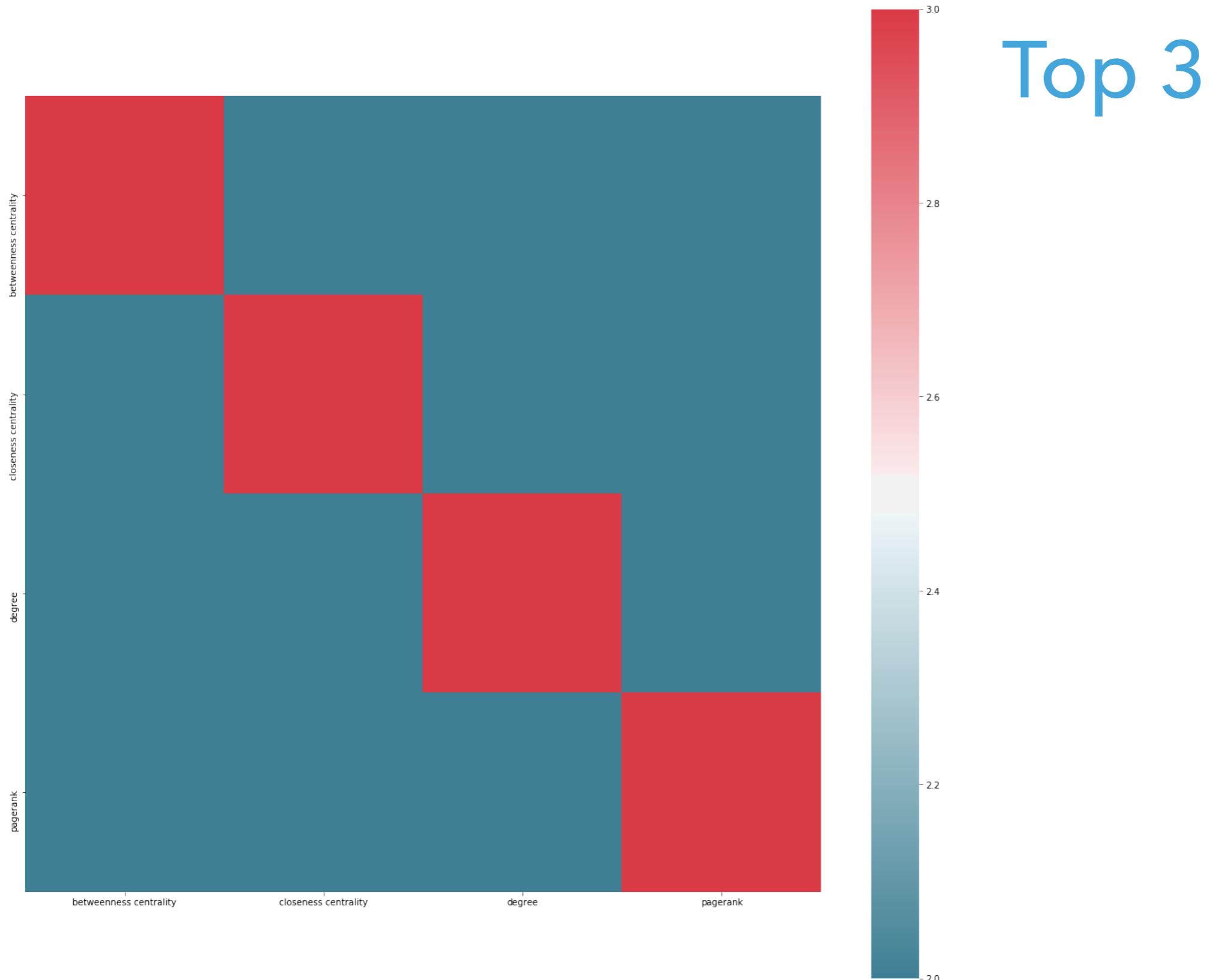
FRIEND'S GRAPH, DEPENDENCES BETWEEN MAIN CENTRALITIES METRICS



Correlation

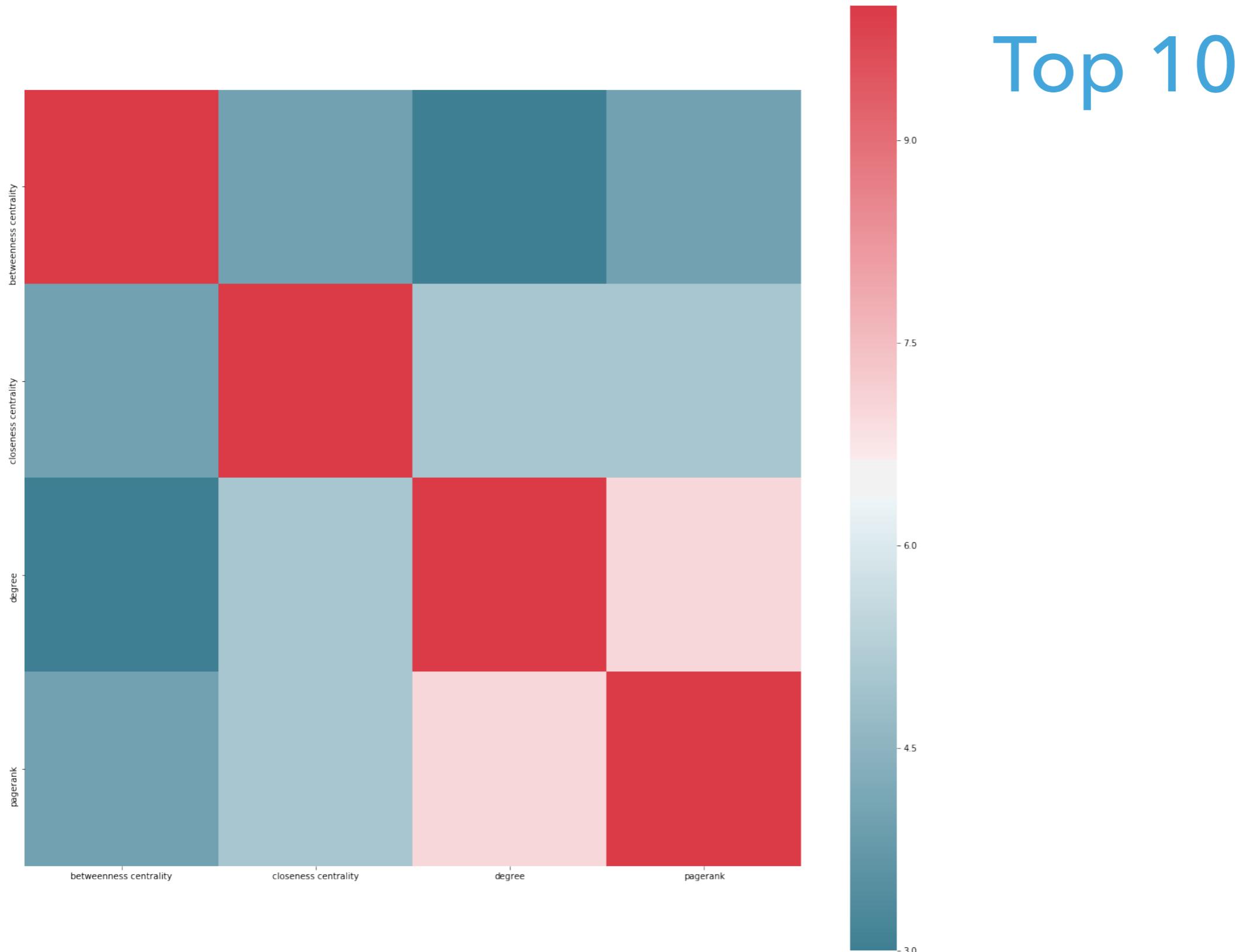
CENTRALITIES METRICS COMPARISON

FRIEND'S GRAPH, DEPENDENCES BETWEEN MAIN CENTRALITIES METRICS

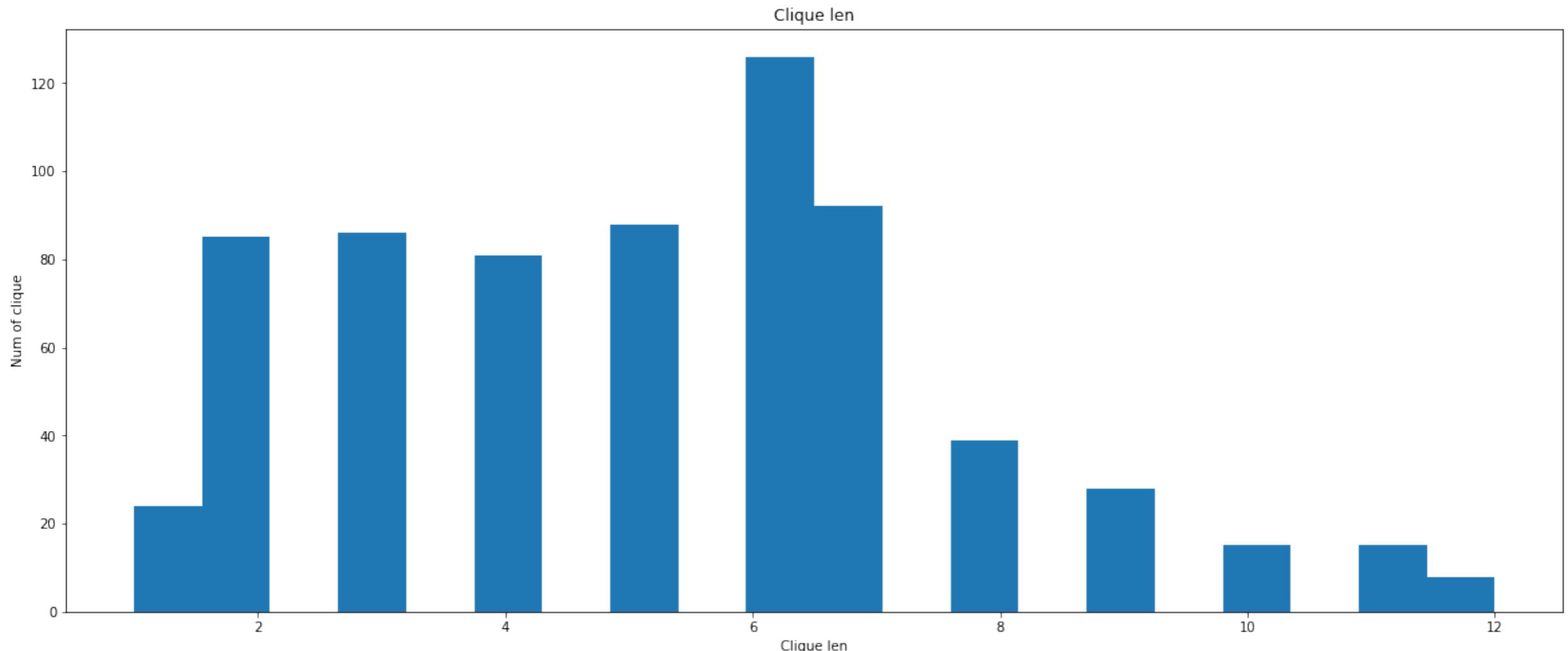


CENTRALITIES METRICS COMPARISON

FRIEND'S GRAPH, DEPENDENCES BETWEEN MAIN CENTRALITIES METRICS

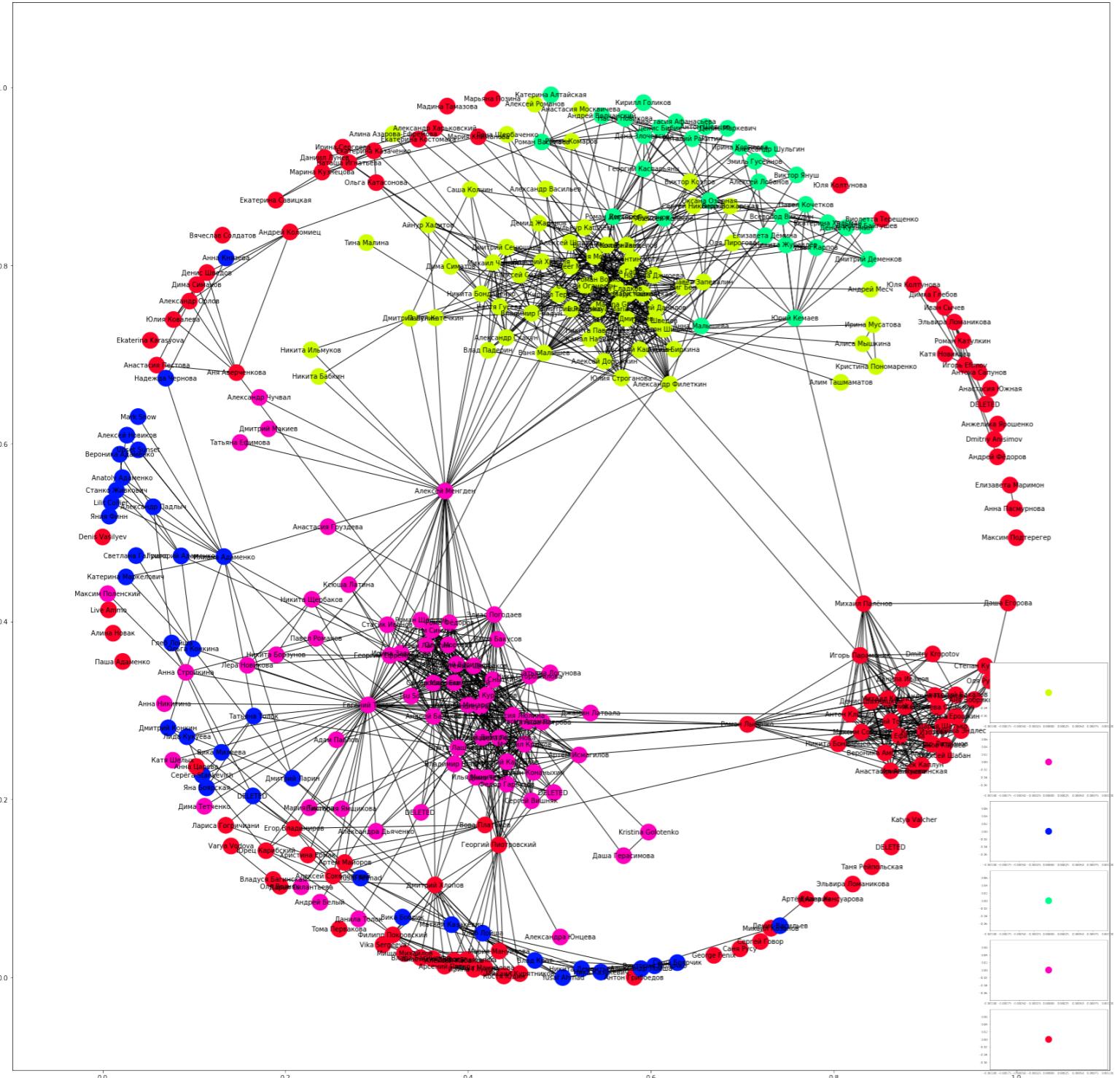


FRIEND'S GRAPH, CLIQUE SEARCH

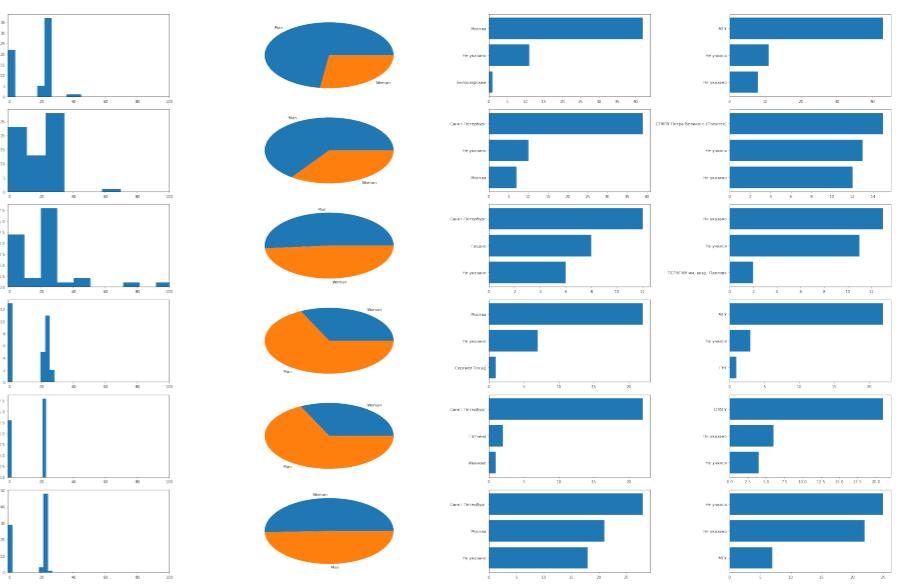


COMMUNITY DETECTION

FRIEND'S GRAPH, COMMUNITY DETECTION, USING LOUVAIN MODULARITY



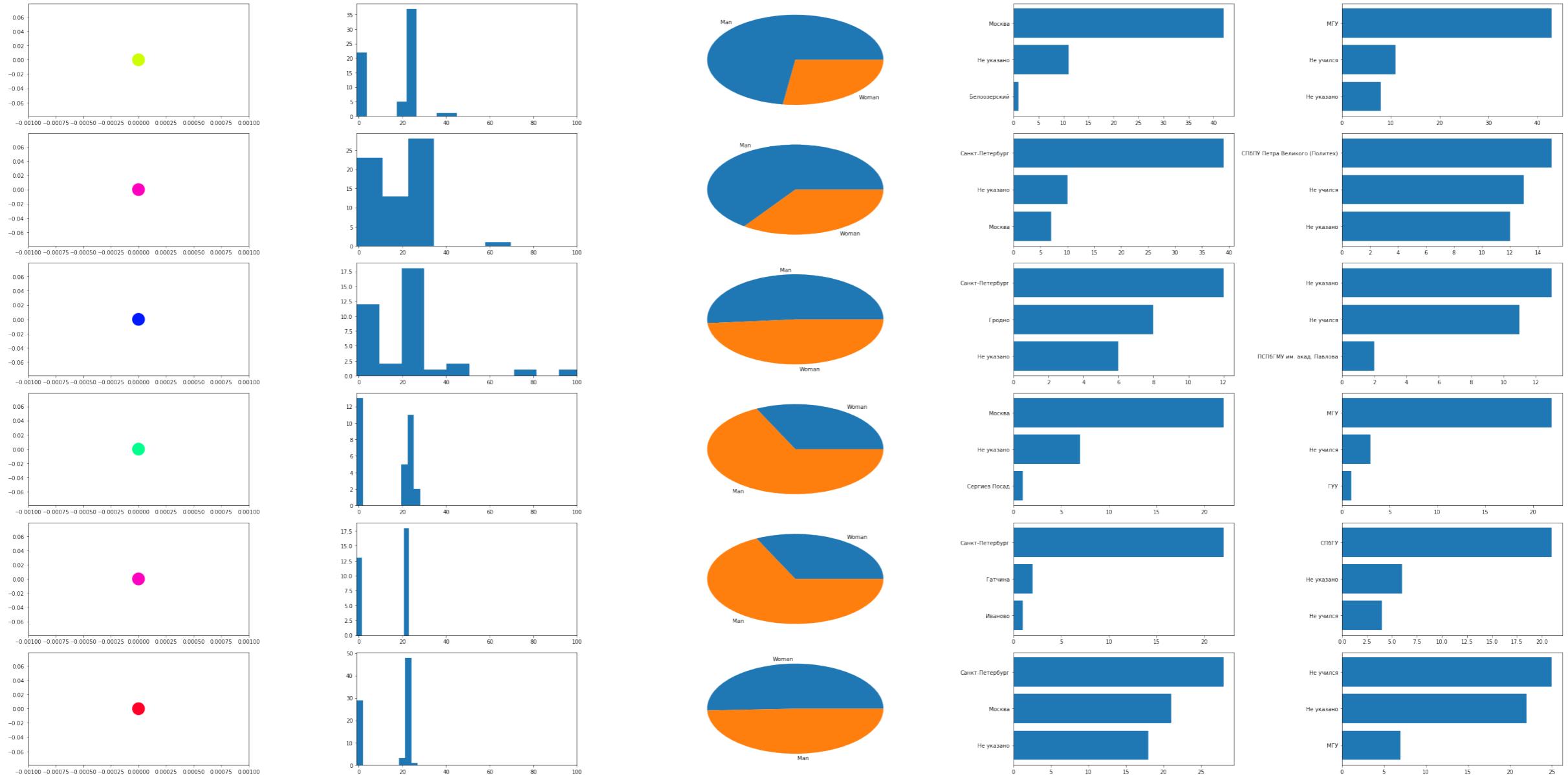
- ▶ There are 5 clusters
- ▶ - Saint-Petersburg PTHS school friends
- ▶ - Moscow physics MSU friends
- ▶ - Saint-Petersburg second school friends
- ▶ - Moscow programists MSU friends
- ▶ - Also there are some SPBGU friend's



Modularity = 0.6585

COMMUNITY DETECTION

FRIEND'S GRAPH, COMMUNITY DETECTION, USING LOUVAIN MODULARITY



Modularity = 0.6585



FIN

THANK YOU FOR ATTENTION