

Gephi: a network visualisation tool



Lejla Džanko
lejla.dzanko@studenti.unipd.it



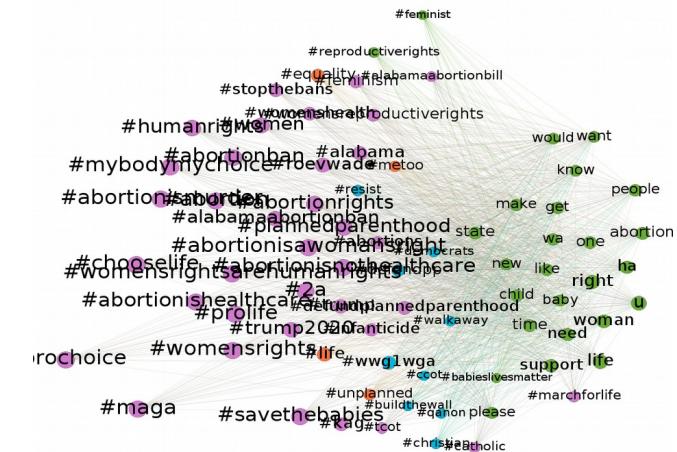
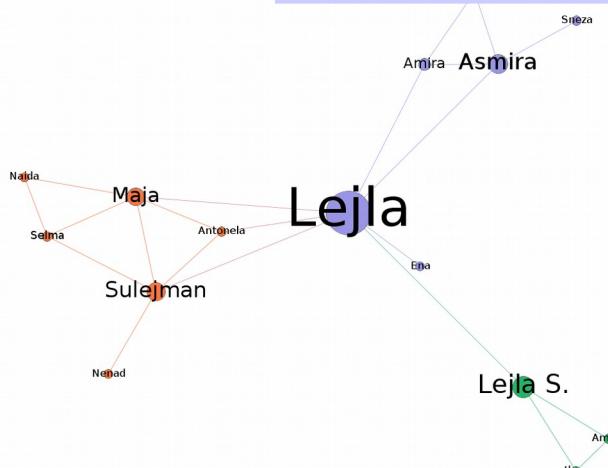
Overview

1. What is Gephi?
2. Gephi download and installation
3. Gephi network visualization demo



What is Gephi?

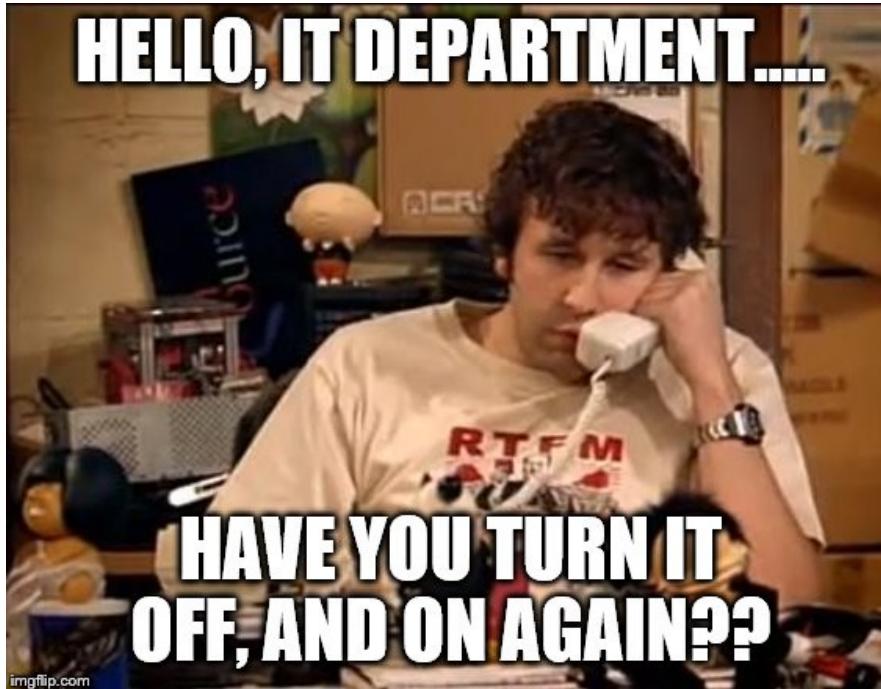
- Gephi is an open-source software for visualization of graphs and networks
 - Offers built-in network analysis with few simple clicks
 - For more information, examples and tutorials: [official website](#)





Gephi instalation

- pretty straightforward
- if you run into issues contact me :)



The Open Graph Viz Platform

Gephi is the leading visualization and exploration software for all kinds of graphs and networks. Gephi is open-source and free.

Runs on Windows, Mac OS X and Linux.

[Learn More on Gephi Platform »](#)

 Download FREE
Gephi 0.9.2

[Release Notes](#) | [System Requirements](#)

► [Features](#)
► [Quick start](#)

► [Screenshots](#)
► [Videos](#)



Gephi nw visualization demo

What we'll do:

- start from a (small) friendship network
- import nodes and edges
- adjust graph layout
- set node color according to degree
- set node size according to PageRank
- detect communities
- set node color according to community
- export graph image
- visualize communities in bigger networks



Gephi nw visualization demo

File Workspace View Tools Window Help

New Project Ctrl+Shift+N y Preview

Open... Ctrl+O

Open Recent...

Close Project

Properties...

Import spreadsheet... **Import spreadsheet...**

Import Database

Import...

Generate

Save Ctrl+S

Save As...

Export

Exit

<No Properties>

Preview ratio: 100% Refresh

Export: SVG/PDF/PNG

Background Reset zoom - +

Go to Import spreadsheet...

A screenshot of the Gephi software interface. The window title is 'Preview x'. The 'File' menu is open, showing various options like 'New Project', 'Open...', and 'Import spreadsheet...'. The 'Import spreadsheet...' option is highlighted with a red arrow pointing to it from the bottom right. A red box also surrounds this menu item. The main workspace is empty, and the status bar at the bottom shows 'Background' and 'Reset zoom' buttons.



Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Preview Settings x

Presets

Settings Manage renderers

<No Properties>

Preview ratio: 100%

Export: SVG/PDF/PNG Refresh

Background Reset zoom - +

Open

Look In: Documents

Projects
Zoom
edges.csv
edges.ods
node...
nodes.ods

File Name: nodes.csv

Files of Type: All Files

OK Cancel

Select your nodelist Excel spreadsheet.

The screenshot shows the Gephi software interface with a file dialog box overlaid. The dialog is titled 'Open' and has 'nodes.csv' selected in the 'File Name:' field. A red oval highlights this field. The 'Look In:' dropdown is set to 'Documents'. The 'Files of Type:' dropdown shows 'All Files'. At the bottom right of the dialog are 'OK' and 'Cancel' buttons. The background of the Gephi interface shows a preview window and various toolbars.



Gephi nw visualization demo

Activities Gephi 0.9.2 • mer 19:33 •

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Preview Settings x

Presets

...
Settings Manage renderers

<No Properties>

Preview ratio: 100% Refresh

Export: SVG/PDF/PNG

Background Reset zoom - +

Spreadsheet (CSV)...

Steps

1. General CSV options
2. Import settings

General CSV options (1 of 2)

CSV file to import:
`/home/malidzanko/Documents/nodes.csv`

Separator: Import as: Charset:
colon Nodes t... UTF-8

Preview:

Id	Label
1	Lejla
2	Antonela
3	Sulejman
4	Maja
5	Lejla S.
6	Amina
7	Ilma

< Back Next > Finish Cancel Help

A screenshot of the Gephi software interface. A modal dialog box titled "Spreadsheet (CSV)..." is open, showing the "General CSV options (1 of 2)" step. The "CSV file to import" field contains the path "/home/malidzanko/Documents/nodes.csv". The "Separator" dropdown is set to "colon", "Import as" to "Nodes t...", and "Charset" to "UTF-8". Below the dialog is a preview table with 7 rows of data. The "Next >" button at the bottom of the dialog is circled in red. The main Gephi workspace shows a blank canvas with a "Preview" tab selected in the top bar.



Gephi nw visualization demo

Activities Gephi 0.9.2 ● mer 19:33 ●

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Preview Settings x

Presets

Settings Manage renderers

<No Properties>

Preview ratio: 100%

Export: SVG/PDF/PNG Refresh

Background Reset zoom - +

Spreadsheet (CSV)...

Steps

1. General CSV options
2. Import settings

Import settings (2 of 2)

Time representation

Intervals

Imported columns:

Id
 Label

<Back Next > Finish Cancel Help

A screenshot of the Gephi software interface. The main window shows a preview area with a light gray background. On the left, there's a vertical toolbar with various icons for file operations like opening, saving, and zooming. A central panel titled 'Preview Settings' contains sections for 'Presets' and 'Settings'. Below these are buttons for 'Overview', 'Data Laboratory', and 'Preview'. At the bottom, there are buttons for 'Background', 'Reset zoom', and export formats ('SVG/PDF/PNG'). A status bar at the bottom shows 'Preview ratio: 100%' and a zoom slider. Overlaid on the main window is a modal dialog titled 'Spreadsheet (CSV)...'. It has a 'Steps' section with 'General CSV options' and 'Import settings' (the second step is highlighted). The 'Import settings' section shows 'Time representation' set to 'Intervals' and 'Imported columns' with 'Id' and 'Label' checked. At the bottom of the dialog are buttons for '<Back' and 'Next >', and a large 'Finish' button which is circled in red to indicate it as the next action to take.



Gephi nw visualization demo

Activities Gephi 0.9.2 • mer 19:33 •

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Preview Settings x

Presets

Settings Manage renderers

Pick undirected graph, append to existing workspace, no self-loops

<No Properties>

Import report

Source: Stream ImporterSpreadsheetCSV

Issues Report

No issue found during import

Graph Type: Mixed

More options...

Directed

Undirected

Mixed

Auto-scaling

Create new workspace

Self-loop

Edges merge strategy: Sum

of Nodes: 15

of Edges: 0

New workspace

Append to existing workspace

Dynamic Graph: no

Dynamic Attributes: no

Multi Graph: no

OK Cancel

Preview ratio: 100%

Refresh

Export: SVG/PDF/PNG

Background Reset zoom - +

A screenshot of the Gephi software interface. A red box highlights the text "Pick undirected graph, append to existing workspace, no self-loops". A red circle highlights the "Graph Type" dropdown menu in the "Import report" dialog, which shows "Directed" and "Undirected" as options. The "Undirected" option is selected. The "Import report" dialog also displays "No issue found during import". The main workspace shows a preview area with a white background and a toolbar at the bottom.



Gephi nw visualization demo

File Workspace View Tools Window Help

New Project Ctrl+Shift+N y | Preview

Open... Ctrl+O

Open Recent...

Close Project

Properties...

Import spreadsheet... **Import spreadsheet...**

Import Database

Import...

Generate

Save Ctrl+S

Save As...

Export

Exit

Graph x Dragging (Configure)

Context x

Nodes: 15
Edges: 0
Directed Graph

Filters Statistics x

Settings

Network Overview

- Average Degree Run ●
- Avg. Weighted Degree Run ●
- Network Diameter Run ●
- Graph Density Run ●
- HITS Run ●
- Modularity Run ●
- PageRank Run ●
- Connected Components Run ●

Node Overview

- Avg. Clustering Coefficient Run ●
- Eigenvector Centrality Run ●

Edge Overview

- Avg. Path Length Run ●

Dynamic

- # Nodes Run ●
- # Edges Run ●
- Degree Run ●
- Clustering Coefficient Run ●

Layout x

---Choose a layout

Run

Performance

- Tolerance (speed) 1.0
- Approximate Repulsion
- Approximation 1.2

Tuning

- Scaling 100.0
- Stronger Gravity
- Gravity 1.0

Behavior Alternatives

- Dissuade Hubs
- LinLog mode
- Prevent Overlap
- Edge Weight Influence 1.0

ForceAtlas 2

Presets... Reset

Go to Import spreadsheet...

Dialog:bold, 32



Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges | A Unique Partition Ranking

#c0c0c0

Layout x

--Choose a layout Run

Performance

Tolerance (speed) 1.0

Approximate Repulsion

Approximation 1.2

Tuning

Scaling 100.0

Stronger Gravity

Gravity 1.0

Behavior Alternatives

Dissuade Hubs

LinLog mode

Prevent Overlap

Edge Weight Influence 1.0

ForceAtlas 2

Presets... Reset

Graph x

Dragging (Configure)

Context x

Nodes: 15
Edges: 0
Directed Graph

Filters Statistics x

Settings

Network Overview

Average Degree Run ●

Avg. Weighted Degree Run ●

Network Diameter Run ●

Graph Density Run ●

HITS Run ●

Modularity Run ●

PageRank Run ●

Connected Components Run ●

Node Overview

Avg. Clustering Coefficient Run ●

Eigenvector Centrality Run ●

Edge Overview

Avg. Path Length Run ●

Dynamic

Nodes Run ●

Edges Run ●

Degree Run ●

Clustering Coefficient Run ●

Open

Look In: Documents

Projects Zoom edge... edges.ods nodes.csv nodes.ods

File Name: edges.csv

Files of Type: All Files

OK Cancel

Select your edgelist Excel spreadsheet.



Gephi nw visualization demo

Activities Gephi 0.9.2 • mer 19:34 •

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance Nodes Edges Unique Partition Ranking #c0c0c0

Graph Dragging (Configure)

Context Nodes: 15 Edges: 0 Directed Graph

Filters Statistics Settings

Network Overview

- Average Degree Run
- Avg. Weighted Degree Run
- Network Diameter Run
- Graph Density Run
- HITS Run
- Modularity Run
- PageRank Run
- Connected Components Run

Node Overview

- Avg. Clustering Coefficient Run
- Eigenvector Centrality Run

Edge Overview

- Avg. Path Length Run

Dynamic

- # Nodes Run
- # Edges Run
- Degree Run
- Clustering Coefficient Run

Spreadsheet (CSV)...

Steps

General CSV options (1 of 2)

CSV file to import: /home/malidzanko/Documents/edges.csv

Separator: Import as: Charset:

Colon Edges... UTF-8

Preview:

Source	Target	Label
1	2	Leila-A...
1	3	Leila-S...
1	4	Leila-M...
1	5	Leila-L...
1	11	Leila-A...
1	12	Leila-A...
1	15	Leila-Ena

< Back Next > Finish Cancel Help

Layout ---Choose a layout Run

Performance

- Tolerance (speed) 1.0
- Approximate Repulsion
- Approximation 1.2

Tuning

- Scaling 100.0
- Stronger Gravity
- Gravity 1.0

Behavior Alternatives

- Dissuade Hubs
- LinLog mode
- Prevent Overlap

ForceAtlas 2

Presets... Reset

Dialog.bold, 32



Gephi nw visualization demo

Activities Gephi 0.9.2 File Workspace View Tools Window Help Overview Data Laboratory Preview Workspace 1

mer 19:34 ●

Graph Dragging (Configure)

Import report

Source: Stream ImporterSpreadsheetCSV

Issues Report

No issue found during import

Graph Type: Undirected More options...

Auto-scale

Create missing nodes

Self-loops

Edges merge strategy: Sum

of Nodes: 15

of Edges: 22

Dynamic Graph: no

Dynamic Attributes: no

Multi Graph: no

New workspace Append to existing workspace

OK Cancel

Appearance Nodes Edges Unique Partition Ranking #c0c0c0

Layout ---Choose a layout Run

Performance Tolerance (speed) 1.0 Approximate Repulsion Approximation 1.2

Tuning Scaling 100.0 Stronger Gravity Gravity 1.0

Behavior Alternatives Dissuade Hubs LinLog mode Prevent Overlap

ForceAtlas 2 Presets... Reset

Context Nodes: 15 Edges: 0 Directed Graph

Filters Statistics Settings

Network Overview Average Degree Run Avg. Weighted Degree Run Network Diameter Run Graph Density Run HITS Run Modularity Run PageRank Run Connected Components Run Node Overview Avg. Clustering Coefficient Run Eigenvector Centrality Run Edge Overview Avg. Path Length Run Dynamic # Nodes Run # Edges Run Degree Run

The screenshot shows the Gephi 0.9.2 interface with a central 'Import report' dialog box. The dialog displays the following information:

- Source: Stream ImporterSpreadsheetCSV
- Issues Report: No issue found during import
- Graph Type: Undirected (circled in red)
- Edges merge strategy: Sum
- Auto-scale (checked)
- Create missing nodes (checked)
- Self-loops (unchecked)
- # of Nodes: 15
- # of Edges: 22
- Dynamic Graph: no
- Dynamic Attributes: no
- Multi Graph: no
- Buttons: OK (circled in red), Cancel

Below the dialog, the main Gephi interface includes:

- Toolbar: Activities, Gephi 0.9.2, File, Workspace, View, Tools, Window, Help, Overview, Data Laboratory, Preview, Workspace 1.
- Left sidebar: Appearance (Nodes, Edges, Unique, Partition, Ranking, color #c0c0c0), Layout (---Choose a layout, Run), Performance, Tuning, Behavior Alternatives, ForceAtlas 2, Presets..., Reset.
- Right sidebar: Context (Nodes: 15, Edges: 0, Directed Graph), Filters, Statistics, Settings, Network Overview, Edge Overview, Dynamic.



Gephi nw visualization demo

Currently we have a random node layout

Choose ForceAtlas2

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges A

Unique Partition Ranking

#c0c0c0

Layout x

---Choose a layout

Contraction

Expansion

Force Atlas

ForceAtlas2

Fruchterman Reingold

Label Adjust

Nooverlap

Presets... Reset

Graph x

G Dragging (Configure)

Context x

Nodes: 15
Edges: 22
Undirected Graph

Filters Statistics x

Settings

Network Overview

Average Degree Run ●

Avg. Weighted Degree Run ●

Network Diameter Run ●

Graph Density Run ●

HITS Run ●

Modularity Run ●

PageRank Run ●

Connected Components Run ●

Node Overview

Avg. Clustering Coefficient Run ●

Eigenvector Centrality Run ●

Edge Overview

Avg. Path Length Run ●

Dynamic

Nodes Run ●

Edges Run ●

Degree Run ●

Clustering Coefficient Run ●

Apply

A Dialog:bold, 32



Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges A

Unique Partition Ranking

#c0c0c0

Apply

Layout x

ForceAtlas 2

i Run the layout algorithm

Threads number 3

Performance

Tolerance (speed) 1.0

Approximate Repulsion

Approximation 1.2

Tuning

Scaling 1000.0

Stronger Gravity

Gravity 1.0

Behavior Alternatives

Dissuade Hubs

LinLog mode

Prevent Overlap

Use only when spatialized. Should not be used with "Approximate Repulsion"

Presets... Reset

Graph x

Gp Dragging (Configure)

Context x

Nodes: 15
Edges: 22
Undirected Graph

Filters Statistics x

Settings

Network Overview

Average Degree Run

Avg. Weighted Degree Run

Network Diameter Run

Graph Density Run

HITS Run

Modularity Run

PageRank Run

Connected Components Run

Node Overview

Avg. Clustering Coefficient Run

Eigenvector Centrality Run

Edge Overview

Avg. Path Length Run

Dynamic

Nodes Run

Edges Run

Degree Run

Clustering Coefficient Run

Run the layout algorithm

Set scaling to 1000 (to force nodes to repulse each other, creating a better spaced graph)

The screenshot shows the Gephi interface with a network graph consisting of 15 nodes and 22 edges. The left sidebar contains the 'ForceAtlas 2' layout configuration, where the 'Scaling' parameter is set to 1000.0. A red arrow points from a callout box containing the text 'Set scaling to 1000 (to force nodes to repulse each other, creating a better spaced graph)' to this 'Scaling' field. The right sidebar provides network statistics and various analytical tools.



Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges Unique Partition Running

#c0c0c0

Graph x

Gp Dragging (Configure)

Context x

Nodes: 15
Edges: 22
Undirected Graph

Filters Statistics x

Settings

Network Overview

Average Degree Run
Avg. Weighted Degree Run
Network Diameter Run
Graph Density Run
HITS Run
Modularity Run
PageRank Run
Connected Components Run

Node Overview

Avg. Clustering Coefficient Run
Eigenvector Centrality Run

Edge Overview

Avg. Path Length Run

Dynamic

Nodes Run
Edges Run
Degree Run
Clustering Coefficient Run

Layout x

ForceAtlas 2

Threads number 3

Performance

Tolerance (speed) 1.0
Approximate Repulsion
Approximation 1.2

Tuning

Scaling 1000.0
Stronger Gravity
Gravity 1.0

Behavior Alternatives

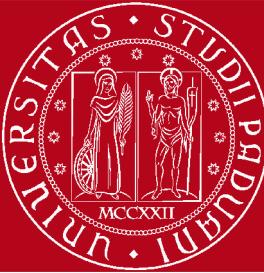
Dissuade Hubs
LinLog mode
Prevent Overlap

ForceAtlas 2

Presets... Reset

Now we have a nice layout. Let's color our nodes according to their node degree.

Pick Nodes, Color under the Appearance tab



Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges | A Unique Partition Ranking

---Choose an attribute

---Choose an attribute

Degree

Graph x

Gp Dragging (Configure)

Context x

Nodes: 15
Edges: 22
Undirected Graph

Filters Statistics x

Settings

Network Overview

- Average Degree Run
- Avg. Weighted Degree Run
- Network Diameter Run
- Graph Density Run
- HITS Run
- Modularity Run
- PageRank Run
- Connected Components Run

Node Overview

- Avg. Clustering Coefficient Run
- Eigenvector Centrality Run

Edge Overview

- Avg. Path Length Run

Dynamic

- # Nodes Run
- # Edges Run
- Degree Run
- Clustering Coefficient Run

Layout x

ForceAtlas 2

Run

Threads number 3

Performance

- Tolerance (speed) 1.0
- Approximate Repulsion
- Approximation 1.2

Tuning

- Scaling 1000.0
- Stronger Gravity
- Gravity 1.0

Behavior Alternatives

- Dissuade Hubs
- LinLog mode
- Prevent Overlap

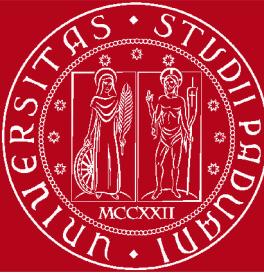
ForceAtlas 2

Presets... Reset

A A

A Dialog.bold, 32

A A



Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges

Unique Partition Ranking

Degree

Color:

Spline... |

Layout x

ForceAtlas 2

Threads number 3

Performance

Tolerance (speed) 1.0

Approximate Repulsion

Approximation 1.2

Tuning

Scaling 1000.0

Stronger Gravity

Gravity 1.0

Behavior Alternatives

Dissuade Hubs

LinLog mode

Prevent Overlap

ForceAtlas 2

Presets... Reset

Graph x

Dragging (Configure)

Context x

Nodes: 15
Edges: 22
Undirected Graph

Filters Statistics x

Settings

Network Overview

Average Degree Run ●

Avg. Weighted Degree Run ●

Network Diameter Run ●

Graph Density Run ●

HITS Run ●

Modularity Run ●

PageRank Run ●

Connected Components Run ●

Node Overview

Avg. Clustering Coefficient Run ●

Eigenvector Centrality Run ●

Edge Overview

Avg. Path Length Run ●

Dynamic

Nodes Run ●

Edges Run ●

Degree Run ●

Clustering Coefficient Run ●

Pick a Default palette you like or create your own using the Color picker

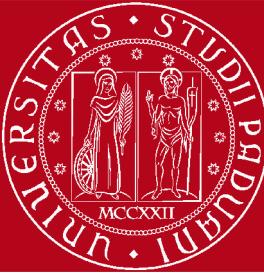


Gephi nw visualization demo

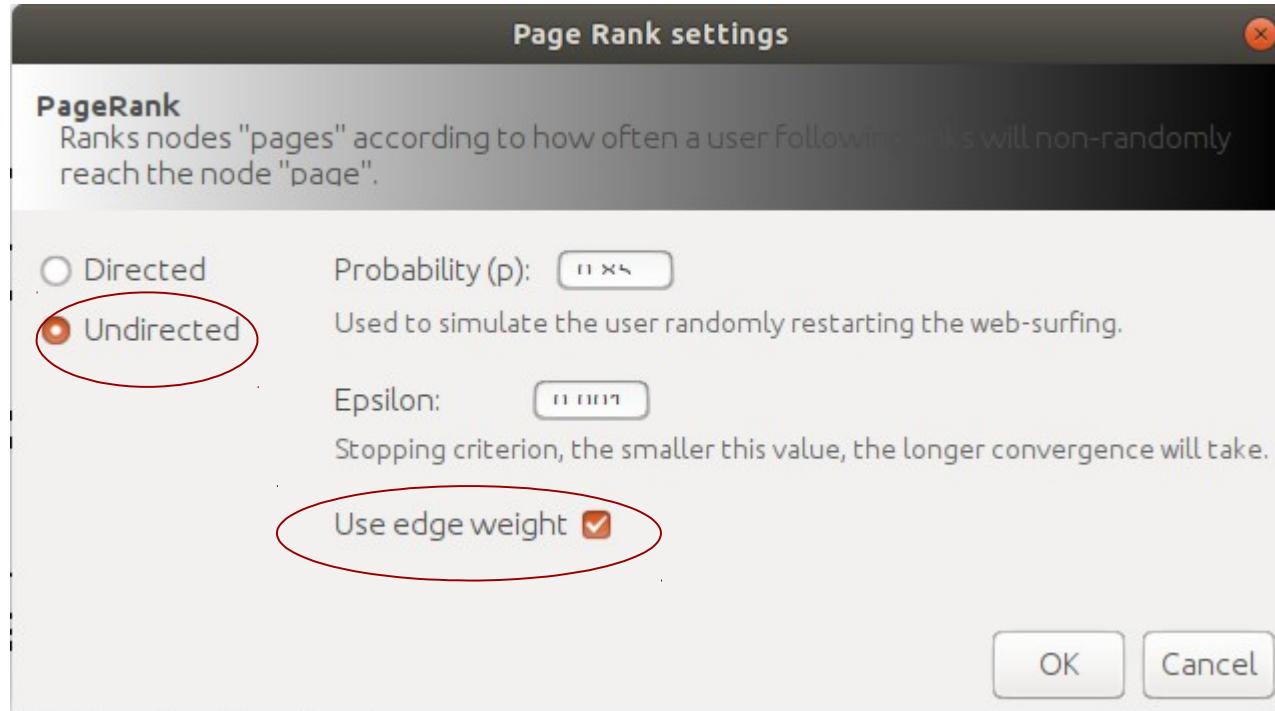
Nice colors, but we can't really appreciate them because our nodes are too small. Let's adjust their size so it fits their (betweenes) centrality metric!

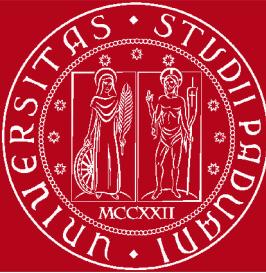
Under Statistics - Network Overview run the PageRank Algorithm.

The screenshot shows the Gephi interface with various panels: Appearance, Layout (ForceAtlas 2), Graph (with a 'Dragging (Configure)' tool), Context, and Statistics. The Statistics panel is circled in red, and the 'Connected Components' algorithm is also circled in red with an arrow pointing to it from the explanatory text.



Gephi nw visualization demo





Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges | A

Unique Ranking

---Choose an attribute

---Choose an attribute

Degree

PageRank

Pick Nodes - Size - Ranking.
From the dropdown menu of
attributes choose PageRank.

Apply



Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges A

Unique Partition Ranking

Degree

Color:

Spline... |

Layout x

ForceAtlas 2

Run

Threads number 3

Performance

Tolerance (speed) 1.0

Approximate Repulsion

Approximation 1.2

Tuning

Scaling 1000.0

Stronger Gravity

Gravity 1.0

Behavior Alternatives

Dissuade Hubs

LinLog mode

Prevent Overlap

ForceAtlas 2

Presets... Reset

Graph x

Gp Dragging (Configure)

Lets display node labels.

Show Node Labels

A- A+ Dialog:bold, 32

Context x

Nodes: 15
Edges: 22
Undirected Graph

Filters Statistics x

Settings

Node Overview

Avg. Clustering Coefficient Run

Eigenvector Centrality Run

Edge Overview

Avg. Path Length 2.429 Run

Dynamic

Nodes Run

Edges Run

Degree Run

Clustering Coefficient Run



Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1 x

Appearance x

Nodes Edges A T

Unique Partition Ranking

Degree

Color:

Spline... I Apply

Layout x

ForceAtlas 2

Run

Performance

Tolerance (speed) 1.0

Approximate Repulsion

Approximation 1.2

Tuning

Scaling 1000.0

Stronger Gravity

Gravity 1.0

Behavior Alternatives

Dissuade Hubs

UnLogMode

Prevent Overlap

Edge Weight Influence 1.0

Presets... Reset

Graph x

Gp Dragging (Configure)

Select Prevent Overlap and run ForceAtlas2 again, in case some of the node labels overlap.

Context x

Nodes: 15
Edges: 22
Undirected Graph

Filters Statistics x

Settings

Average Degree Run

Avg. Weighted Degree Run

Network Diameter 4 Run

Graph Density Run

HITS Run

Modularity Run

PageRank Run

Connected Components Run

Node Overview

Avg. Clustering Coefficient Run

Eigenvector Centrality Run

Edge Overview

Avg. Path Length 2.429 Run

Dynamic

Nodes Run

Edges Run

Degree Run

Clustering Coefficient Run



Gephi nw visualization demo

The screenshot shows the Gephi 0.9.2 interface with the following details:

- Toolbar:** Activities, Gephi 0.9.2, File, Workspace, View, Tools, Window, Help.
- Preview Tab:** The "Preview" tab is selected, highlighted with a red oval.
- Preview Settings Panel:** A red box highlights the "Presets" section, which contains a "Default Straight" preset. Another red box highlights the "Edge Labels" section under "Edges", specifically the "Show Labels" checkbox which is checked.
- Preview Window:** The main window shows a graph visualization.
- Bottom Panel:** Shows "Preview ratio: 100%", a "Refresh" button, and an "Export: SVG/PDF/PNG" button.

Go to Preview tab. Pick “Default Straight Preset”. Unselect the Edge Labels - Show Labels option and click on refresh. You’ll see your graph and you can export it as an image(File - Export - SVG/PDF/PNG File)



Gephi nw visualization demo

Activities Gephi 0.9.2 • mer 19:38 • Gephi 0.9.2 - Project 1 - Project 2 - Project 3 - Project 4

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges | Unique Partition Ranking

Degree

Color:

Spline... | Apply

Layout x

ForceAtlas 2 | Run

Performance

Tolerance (speed) 1.0

Approximate Repulsion

Approximation 1.2

Tuning

Scaling 1000.0

Stronger Gravity

Gravity 1.0

Behavior Alternatives

Dissuade Hubs

LinLog mode

Prevent Overlap

ForceAtlas 2

Presets... Reset

Graph x

Dragging (Configure)

Lejla S.

Lejla

Suleiman

Maja

Najiba

Amira

Astirra

Sneza

Merab

Antigela

To detect communities, we run the Statistics - Network Overview - Modularity algorithm

Context x

Nodes: 15
Edges: 22
Undirected Graph

Filters Statistics x

Settings

Network Overview

Average Degree Run

Avg. Weighted Degree Run

Network Diameter 4 Run

Graph Density Run

HITS Run

Modularity Run

PageRank Run

Connected Components Run

Node Overview

Avg. Clustering Coefficient Run

Eigenvector Centrality Run

Edge Overview

Avg. Path Length 2.429 Run

Dynamic

Nodes Run

Edges Run

Degree Run

Toolbar: Dialog.bold, 32



Gephi nw visualization demo

Activities Gephi 0.9.2

mer 19:38 ●
Gephi 0.9.2 - Project 1 - Project 2 - Project 3 - Project 4

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges | Partition Ranking

Degree

Color:

Spline... | Apply

Layout x

ForceAtlas 2

Run

Performance

Tolerance (speed) 1.0

Approximate Repulsion

Approximation 1.2

Tuning

Scaling 1000.0

Stronger Gravity

Gravity 1.0

Behavior Alternatives

Dissuade Hubs

LinLog mode

Prevent Overlap

ForceAtlas 2

Presets... Reset

Graph x

Dragging (Configure)

Modularity settings

Community detection algorithm.

Randomize Produce a better decomposition but increases computation time

Use weights Use edge weight

Resolution: 1.0

Lower to get more communities (smaller ones) and higher than 1.0 to get less communities (bigger ones).

OK Cancel

Lejla S.

Context x

Nodes: 15
Edges: 22
Undirected Graph

Filters Statistics x

Settings

Network Overview

Average Degree Run

Avg. Weighted Degree Run

Network Diameter 4 Run

Graph Density Run

HITS Run

Modularity Run

PageRank Run

Connected Components Run

Node Overview

Avg. Clustering Coefficient Run

Eigenvector Centrality Run

Edge Overview

Avg. Path Length 2.429 Run

Dynamic

Nodes Run

Edges Run

Degree Run

Toolbar: Dialog.bold, 32



Gephi nw visualization demo

Activities Gephi 0.9.2 • mer 19:39 • Gephi 0.9.2 - Project 1 - Project 2 - Project 3 - Project 4

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Data Table x

Nodes Edges Configuration Add node Add edge Search/Replace Import Spreadsheet Export table More actions Filter: Id

ID	Label	Interval	Eccentricity	Closeness Centrality	Harmonic Closeness Centrality	Betweenness Centrality	Modularity Class
1	Lejla		2.0	0.666667	0.75	67.0	0
11	Asmira		3.0	0.482759	0.583333	18.5	0
12	Amira		3.0	0.466667	0.547619	5.5	0
13	Azra		4.0	0.341463	0.422619	0.0	0
14	Sneza		4.0	0.333333	0.386905	0.0	0
15	Ena		3.0	0.411765	0.452381	0.0	0
2	Antonela		3.0	0.482759	0.559524	0.0	1
3	Sulejman		3.0	0.518519	0.630952	18.0	1
4	Maja		3.0	0.518519	0.630952	16.0	1
8	Nenad		4.0	0.35	0.404762	0.0	1
9	Selma		4.0	0.378378	0.488095	1.0	1
10	Naida		4.0	0.358974	0.440476	0.0	1
5	Lejla S.		3.0	0.466667	0.547619	24.0	2
6	Amina		4.0	0.333333	0.410714	0.0	2
7	Ilma		4.0	0.333333	0.410714	0.0	2

We can see the results in the Data Laboratory tab. We can sort them or filter by Modularity Class to inspect which nodes were assigned to which class. We can also export this table (as .csv file).

Add column Merge columns Delete column Clear column Copy data to other column Fill column with a value Duplicate column Create a boolean column from regex match Create column with list of regex matching groups Negate boolean values Convert column to dynamic



Gephi nw visualization demo

Activities Gephi 0.9.2 • mer 19:39 • Gephi 0.9.2 - Project 1 - Project 2 - Project 3 - Project 4

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Data Table x

Nodes Edges Configuration Add node Add edge Search/Replace Import Spreadsheet Export table More actions Filter: Id

ID	Label	Interval	Eccentricity	Closeness Centrality	Harmonic Closeness Centrality	Betweenness Centrality	Modularity Class
1	Lejla		2.0	0.666667	0.75	67.0	0
11	Asmira		3.0	0.482759	0.583333	18.5	0
12	Amira		3.0	0.466667	0.547619	5.5	0
13	Azra		4.0	0.341463	0.422619	0.0	0
14	Sneza		4.0	0.333333	0.386905	0.0	0
15	Ena		3.0	0.411765	0.452381	0.0	0
2	Antonela		3.0	0.482759	0.559524	0.0	1
3	Sulejman		3.0			18.0	1
4	Maja		3.0			16.0	1
8	Nenad		4.0			0.0	1
9	Selma		4.0			1.0	1
10	Naida		4.0			0.0	1
5	Lejla S.		3.0			24.0	2
6	Amina		4.0			0.0	2
7	Ilma		4.0			0.0	2

Export

Save In: Desktop

cne knjige BusinessGames TJ
cintly Books Music SocSci.csv
d Semester SecondSemester

File Name: SocSci.csv

Files of Type: Spreadsheet Files (*.csv *.tsv)

Graph: Full The complete graph is exported
 Visible only only the current visualized graph is exported

OK Cancel Save selected file Options...

Add column Merge columns Delete column Clear column Copy data to other column Fill column with a value Duplicate column Create a boolean column from regex match Create column with list of regex matching groups Negate boolean values Convert column to dynamic



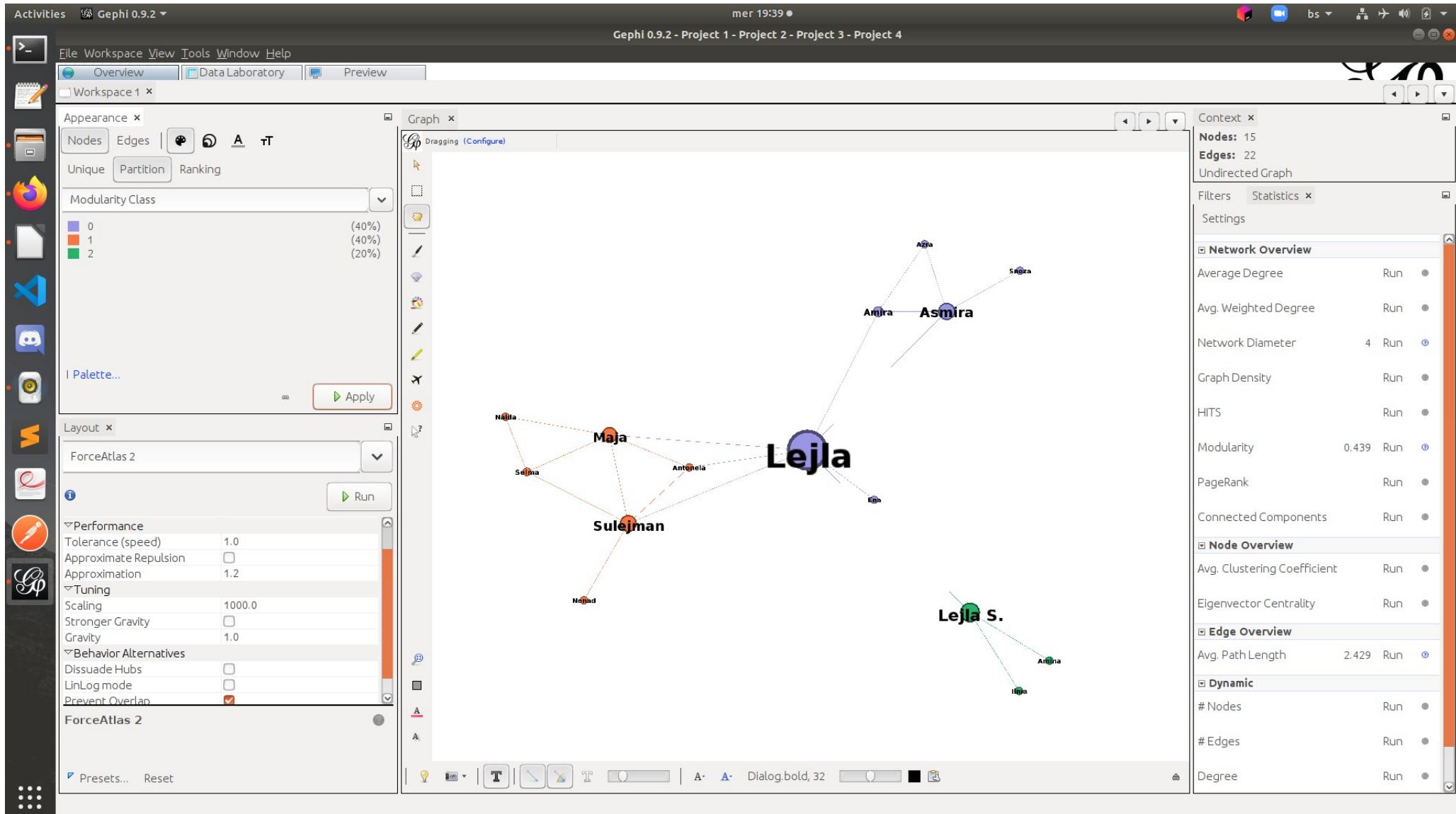
Gephi nw visualization demo

The screenshot shows the Gephi 0.9.2 software interface. The left panel contains the 'Appearance' tab with 'Nodes' selected, showing a list of attributes like Betweenness Centrality, Closeness Centrality, Eccentricity, Harmonic Closeness Centrality, and Modularity Class. The 'Modularity Class' option is highlighted with a red oval. The 'Layout' tab is also visible, showing ForceAtlas 2 settings. A central red box contains the text: "We can also color the nodes according to their community by choosing Modularity Class as the partition attribute." The main graph area displays a network with nodes labeled Lejla, Sulejman, Maja, Antojebla, Enes, Amira, Asmira, Snejza, and Nejnad. The node 'Lejla' is a large purple circle, while others are smaller. The right panel shows network statistics and filters.

We can also color the nodes according to their community by choosing Modularity Class as the partition attribute.



Gephi nw visualization demo





Gephi nw visualization demo

Activities Gephi 0.9.2 ● mer 19:39 ● Gephi 0.9.2 - Project 1 - Project 2 - Project 3 - Project 4

File Workspace View Tools Window Help

New Project Ctrl+Shift+N Open... Ctrl+O Properties... Import spreadsheet... Import Database Import... Generate Save Save As... Export Graph file... SVG/PDF/PNG file... Exit

Box Box color parent Box opacity 100.0

Edges Show Edges Thickness 1.0 Rescale weight Min. rescaled weight 0.1 Max. rescaled weight 1.0 Color mixed Opacity 100.0 Curved Radius 0.0

Edge Arrows Size 3.0

Edge Labels Show Labels Font Arial 10 Plain Color original Shorten label Max characters 30 Outline size 0.0 Outline color custom [255,255,255] Outline opacity 80.0 Preview ratio: 100% Refresh Export: SVG/PDF/PNG

Preview

Go to Preview tab. Pick “Default Straight Preset”. Unselect the Edge Labels - Show Labels option and click on refresh. You’ll see your graph and you can export it as an image(File - Export - SVG/PDF/PNG File)

Background Reset zoom - +

Lejla

Sulejman

Maja

Selma

Antonela

Nenad

Ena

Amira

Asmira

Azra

Sneza

Lejla S.

Ilma

Amina



Gephi nw visualization demo

Activities Gephi 0.9.2

mer 19:40 ●
Gephi 0.9.2 - Project 1 - Project 2 - Project 3 - Project 4

File Workspace View Tools Window Help

Overview Data Laboratory Preview
Workspace 1

Preview Settings x

Presets

Default Straight

Proportional size

Color custom [0,0,0]

Shorten label

Max characters 30

Outline size 0.0

Outline color custom [255,255,255]

Box

Box color parent

Box opacity 100.0

Edges

Show Edges

Thickness 1.0

Rescale weight

Min. rescaled weight 0.1

Max. rescaled weight 1.0

Color mixed

Opacity 100.0

Curved

Radius 0.0

Edge Arrows

Size 3.0

Edge Labels

Show Labels

Font Arial 10 Plain

Color original

Shorten label

Max characters 30

Outline size 0.0

Outline color custom [255,255,255]

Outline opacity 80.0

Preview ratio: 100%

Export: SVG/PDF/PNG Refresh

Preview x

Export

Save In: Desktop

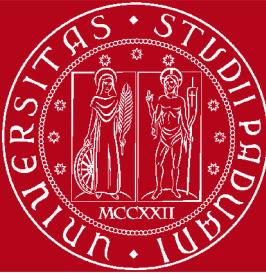
File Name: SocSci

Files of Type: PNG Files (*.png)

OK Cancel Save selected file Options...

Background Reset zoom - +

The screenshot shows the Gephi interface with a network visualization. The graph consists of several nodes represented by colored circles and labeled with names: Asmira (purple), Azra (light blue), Sneza (light blue), Amira (purple), Ena (light blue), Lejla S. (green), Amina (green), Ilma (green), and Nenad (orange). Edges connect nodes such as Asmira to Azra, Asmira to Sneza, and Lejla S. to Amina. A large black letter 'a' is overlaid on the graph. An 'Export' dialog box is open in the center, prompting for a file name 'SocSci'. The interface includes a left sidebar with various settings and a top menu bar with tabs like 'Overview', 'Data Laboratory', and 'Preview'.

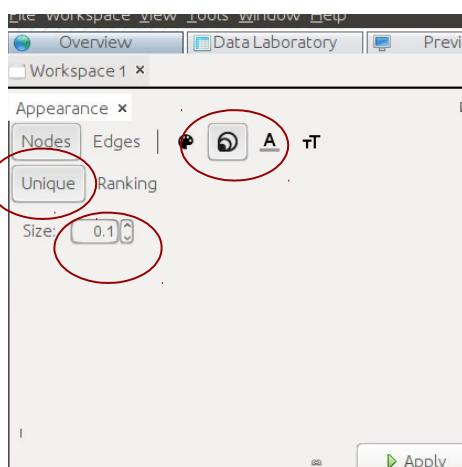


Displaying communities in larger network

For semantic networks, we are going to display labels only.



Turn on the Show Node Labels.



Change unique node size to 0.1 one.



File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1 x

Appearance x

Nodes Edges | A T

Unique Ranking

PageRank

Min size: 0.6 Max size: 2

Spline... I

Layout x

Radial Axis Layout (circled)

Ascending Order of Spar/Axis

Draw Spar/Axis as Spiral

Enable Transition

Group Nodes by (circled) Degree

Knockdown Axes/Spars

Knockdown Range

Node Layout Direction

Node Size

Number of Axes/Spars

Order Nodes in Spar/Axis by

Presets... Reset

Graph x

G Dragging (Configure)

1. Under Layout choose Radial Axis Layout and the option Group Nodes by Degree. Run the Layout algorithm.

Context x

Nodes: 5951
Edges: 228042
Undirected Graph

Statistics x

Settings

Graph Density Run

HITS Run

Modularity 0.103 Run

PageRank Run

Filters x

Reset

Library

Attributes

Dynamic

Edges

Operator

Topology

Saved queries

Queries

Drag filter here

Output Radial Axis Layout ended at iteration 2

A A Dialog:bold, 32

Select Filter



Gephi 0.9.2 - Project 1 - Project 2 - Project 3 - Project 4

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges | A T

Unique Ranking

PageRank

Min size: 0.6 Max size: 2

Spline... I

Apply

Layout x

Radial Axis Layout

Ascending Order of Spar/Axis

Draw Spar/Axis as Spiral

Enable Transition

Group Nodes by

Knockdown Axes/Spars

Knockdown Range Middle Range

Node Layout Direction Counter Clockwise

Node Size 5

Number of Axes/Spars 3

Order Nodes in Spar/Axis by Degree

Resize Nodes

Scaling Width 1.2

Transition Steps 100000.0

Modularity Class (Attribute)

2. Choose Modularity Class and run again.

Graph x Dragging (Configure)

Context x

Nodes: 5951
Edges: 228042
Undirected Graph

Statistics x

Settings

Graph Density Run

HITS Run

Modularity 0.103 Run

PageRank Run

Filters x

Reset | A

Library

- Attributes
- Dynamic
- Edges
- Operator
- Topology
- Saved queries

Queries

Drag filter here

Output Radial Axis Layout ended at iteration 2

Select Filter



Ele Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges | A T

Unique Ranking

PageRank

Min size: 0.6 Max size: 2

Spline... | Apply

Layout x

Radial Axis Layout

Ascending Order of Spar/Axis Run the layout algorithm

Draw Spar/Axis as Spiral

Enable Transition

Group Nodes by Modularity Class (Attribute)

Knockdown Axes/Spars

Knockdown Range Middle Range

Node Layout Direction Counter Clockwise

Node Size 5

Number of Axes/Spars 3

Order Nodes in Spar/Axis by Degree

Resize Nodes

Scaling Width 1.2

Transition Steps 100000.0

Draw Spar/Axis as Spiral

Draw each spar or axis with a slight spiral to improve readability of edges between nodes on the spar.

Presets... Reset

Graph x

Dragging (Configure)

3. Select the option draw Spar/Axis as Spiral. Run the algorithm again.

Context x

Nodes: 5951
Edges: 228042
Undirected Graph

Statistics x

Settings

Graph Density Run

HITS Run

Modularity 0.103 Run

PageRank Run

Filters x

Reset | A

Library

- Attributes
- Dynamic
- Edges
- Operator
- Topology
- Saved queries

Queries

Drag filter here

Output Radial Axis Layout ended at iteration 2

Select Filter



File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1 x

Appearance x

Nodes Edges | A T

Unique Ranking

Size:

Layout x

Radial Axis Layout

Ascending Order of Spar/Axis Draw Spar/Axis as Spiral True

Enable Transition

Group Nodes by Modularity Class (Attribu...

Knockdown Axes/Spars

Knockdown Range Middle Range

Node Layout Direction Counter Clockwise

Node Size 5

Number of Axes/Spars 3

Order Nodes in Spar/Axis by Degree

Resize Nodes

Scaling Width 1.2

Transition Steps 100000.0

Radial Axis Layout

Presets... Reset

Output

4. Select the option Ascending Order of Spar/Axis. Run again.



Gephi 0.9.2 - Project 1 - Project 2 - Project 3 - Project 4

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1

Appearance x

Nodes Edges | A T

Unique Ranking

PageRank

Min size: 0.6 Max size: 2

Spline... I

Layout x

Label Adjust Label Adjust

Include Node size

Speed 1.0

Run the layout algorithm

Run

Label Adjust

Presets... Reset

Graph x

Dragging (Configure)

Context x

Nodes: 5951
Edges: 228042
Undirected Graph

Statistics x

Settings

Graph Density Run

HITS Run

Modularity 0.103 Run

PageRank Run

Filters x

Reset | A

Library Attributes Dynamic Edges Operator Topology Saved queries

Queries Drag filter here

Select Filter

The screenshot shows the Gephi software interface. On the left, there's a sidebar with various layout options like 'Spline...', 'Label Adjust' (which is circled in red), and 'PageRank'. The main workspace shows a network graph with many nodes and edges. A large red box highlights the text '5. Finally, choose Label Adjust layout and run the layout algorithm.' which is positioned above the 'Label Adjust' section in the sidebar. The graph itself has several clusters of nodes, with one prominent cluster at the top labeled '#pr...ice' and another at the bottom labeled 'pl...'. The right side of the interface contains panels for 'Context' (showing node and edge counts), 'Statistics' (with density, HITS, modularity, and PageRank settings), 'Filters' (with a library of saved queries), and 'Queries' (with a placeholder for dragging filters).



Questions?

