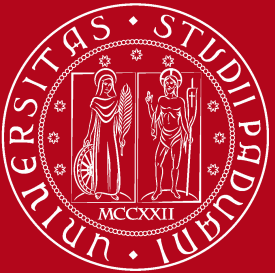


# Gephi: a network visualisation tool

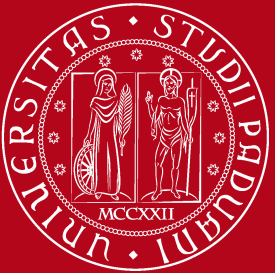


Lejla Džanko  
lejla.dzanko@studenti.unipd.it



# Overview

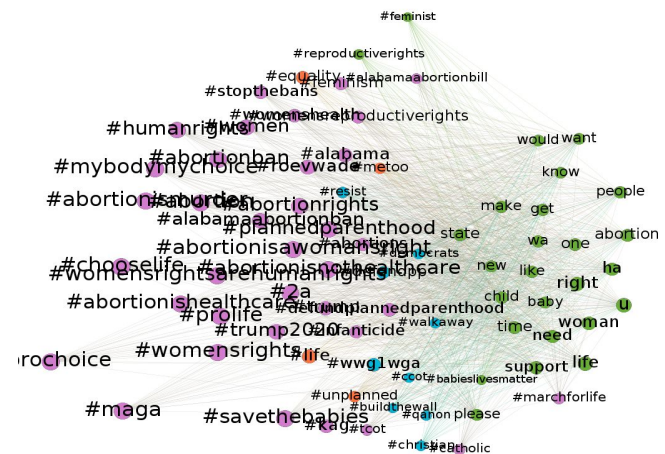
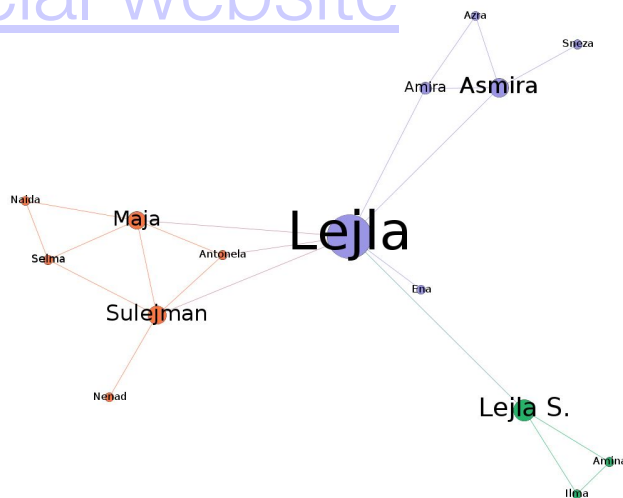
1. What is Gephi?
2. Gephi download and installation
3. Gephi network visualization demo
4. Dataset generation

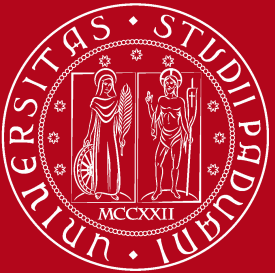


# What is Gephi?

- 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:

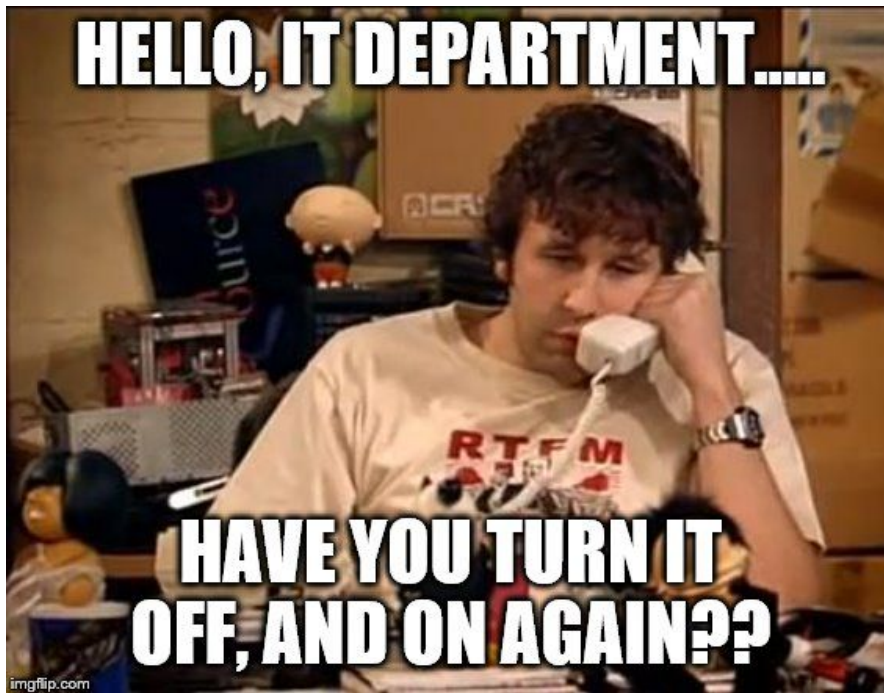
[official website](#)





# Gephi instalation

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

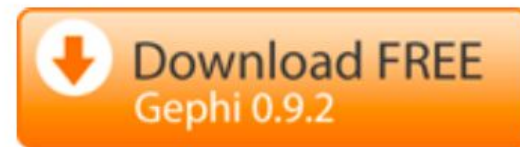


## The Open Graph Viz Platform

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.

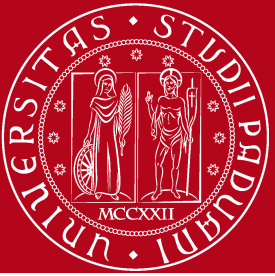
[Learn More on Gephi Platform »](#)



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

▶ [Features](#)  
▶ [Quick start](#)

▶ [Screenshots](#)  
▶ [Videos](#)



# Gephi nw visualization demo

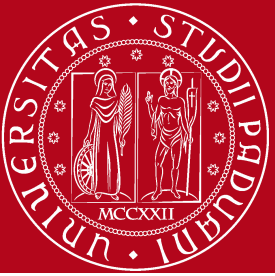
What we'll do:

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



# Gephi nw visualization demo

The screenshot displays the Gephi software interface. The 'File' menu is open, and the 'Import spreadsheet...' option is highlighted in orange. A red arrow points from a text box containing the text 'Go to Import spreadsheet...' to the 'Import spreadsheet...' menu item. The main workspace is currently empty, displaying '<No Properties>'. The bottom status bar shows 'Preview ratio: 100%' and 'Export: SVG/PDF/PNG'. The 'Background' checkbox is checked, and the 'Reset zoom' button is visible.



# 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.



# Gephi nw visualization demo

Activities Gephi 0.9.2 mer 19:33

File Workspace View Tools Window Help

Overview Data Laboratory Preview

PreviewSettings x Preview x

Presets

Settings Manage renderers

<No Properties>

Preview ratio: 100%

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:  
:olon 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





# 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 Preview 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



# 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 Preview x

Presets

Settings Manage renderers

<No Properties>

Preview ratio: 100%

Export: SVG/PDF/PNG

Background Reset zoom - +

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

Import report

Source: Stream ImporterSpreadsheetCSV

Issues Report

No issue found during import

Graph Type: Mixed

- Directed
- Undirected**
- Mixed

Auto-scale

Create missing nodes

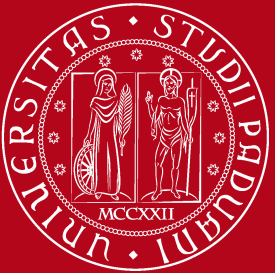
Self-loops

Edges merge strategy: Sum

New workspace

Append to existing workspace

OK Cancel



# Gephi nw visualization demo

The screenshot displays the Gephi software interface. The 'File' menu is open, and the 'Import spreadsheet...' option is highlighted with a red arrow. A red-bordered text box with the text 'Go to Import spreadsheet...' is positioned over the central graph area, with an arrow pointing to the highlighted menu item. The central graph area shows a network visualization with several nodes and edges. The right sidebar contains various panels, including 'Context', 'Filters', 'Statistics', 'Network Overview', 'Node Overview', 'Edge Overview', and 'Dynamic'. The bottom left panel shows the 'Layout' section with various settings for 'ForceAtlas 2'.

File Workspace View Tools Window Help

- New Project Ctrl+Shift+N
- Open... Ctrl+O
- Open Recent...
- Close Project
- Properties...
- Import spreadsheet...**
- Import Database
- Import...
- Generate
- Save Ctrl+S
- Save As...
- Export
- Exit

Graph x

Dragging (Configure)

Go to Import spreadsheet...

Layout x

---Choose a layout

Run

Performance

Tolerance (speed)	1.0
Approximate Repulsion	<input checked="" type="checkbox"/>
Approximation	1.2

Tuning

Scaling	100.0
Stronger Gravity	<input type="checkbox"/>
Gravity	1.0

Behavior Alternatives

Dissuade Hubs	<input type="checkbox"/>
LinLog mode	<input type="checkbox"/>
Prevent Overlap	<input checked="" type="checkbox"/>
Edge Weight Influence	1.0

ForceAtlas 2

Presets... Reset

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	●

Dialog, bold, 32



# Gephi nw visualization demo

The screenshot displays the Gephi software interface. The main window shows a graph visualization area with a toolbar on the left and a configuration panel on the right. An 'Open' dialog box is centered on the screen, showing the 'Documents' folder. The file list includes 'Projects', 'Zoom', 'edge...', 'edges.ods', 'nodes.csv', and 'nodes.ods'. The 'File Name' field is set to 'edges.csv' and is circled in red. Below the dialog box, a red-bordered text box contains the instruction: 'Select your edgelist Excel spreadsheet.'

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1 x

Appearance x

Nodes Edges

Unique Partition Ranking

#c0c0c0

Apply

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)

Open

Look In: Documents

Projects

Zoom

edge...

edges.ods

nodes.csv

nodes.ods

File Name: edges.csv

Files of Type: All Files

OK Cancel

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



# Gephi nw visualization demo

Activities Gephi 0.9.2 mer 19:34

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1 x

Appearance x

Nodes Edges

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

ForceAtlas 2

Presets... Reset

Graph x

Dragging (Configure)

Spreadsheet (CSV)...

Steps

1. General CSV options
2. Import settings

General CSV options (1 of 2)

CSV file to import:

/home/malidzanko/Documents/edges.csv

Separator: :olon Import as: Edges t... Charset: UTF-8

Preview:

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

< Back Next > Finish Cancel Help

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



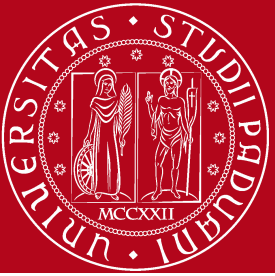
# Gephi nw visualization demo

The screenshot displays the Gephi 0.9.2 software interface. The central focus is the 'Import report' dialog box, which has the following content:

- Source: Stream ImporterSpreadsheetCSV
- Issues Report
- No issue found during import
- Graph Type: Undirected (dropdown menu)
- Auto-scale (checked)
- Create missing nodes (checked)
- Self-loops (unchecked)
- Edges merge strategy: Sum (dropdown menu)
- Dynamic Graph: no
- Dynamic Attributes: no
- Multi Graph: no
- Workspace options: New workspace (unchecked), Append to existing workspace (checked)
- Buttons: OK, Cancel

The background interface includes the following elements:

- Top menu: File, Workspace, View, Tools, Window, Help
- Overview panel: Nodes, Edges, Unique, Partition, Ranking, #c0c0c0
- Layout panel: ---Choose a layout, Run
- Performance panel: Tolerance (speed) 1.0, Approximate Repulsion (checked), Approximation 1.2
- Tuning panel: Scaling 100.0, Stronger Gravity (unchecked), Gravity 1.0
- Behavior Alternatives panel: Dissuade Hubs (unchecked), LinLog mode (unchecked), Prevent Overlap (checked)
- ForceAtlas 2 panel: Presets..., Reset
- Right sidebar: Context (Nodes: 15, Edges: 0, Directed Graph), Filters, Statistics, Settings, Network Overview (Average Degree, Avg. Weighted Degree, Network Diameter, Graph Density, HITS, Modularity, PageRank, Connected Components), Node Overview (Avg. Clustering Coefficient, Eigenvector Centrality), Edge Overview (Avg. Path Length), Dynamic (# Nodes, # Edges, Degree)



# Gephi nw visualization demo

The screenshot displays the Gephi software interface. The central workspace shows a network graph with 15 nodes and 22 edges, currently in a random layout. A red box highlights the text: "Currently we have a random node layout".

In the bottom-left pane, the "Layout" section is open, showing a list of layout algorithms. "ForceAtlas 2" is highlighted with a red oval, and a red arrow points to it from a red box containing the text: "Choose ForceAtlas2".

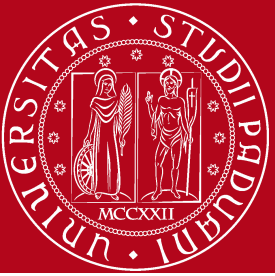
The right-hand pane shows the "Context" and "Statistics" sections. The "Context" section displays: Nodes: 15, Edges: 22, Undirected Graph. The "Statistics" section is expanded to show "Network Overview", "Node Overview", and "Edge Overview" sections, each with a "Run" button.

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

Node Overview	Run
Avg. Clustering Coefficient	Run
Eigenvector Centrality	Run

Edge Overview	Run
Avg. Path Length	Run

Dynamic	Run
# 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

Unique Partition Ranking

#c0c0c0

Apply

Layout x

ForceAtlas 2

Run

Run the layout algorithm

Threads

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

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

Dialog.bold, 32

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





# Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1 x

Appearance x

Nodes Edges | **Color** | tT

Unique Partition Random

#c0c0c0

Apply

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

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 ●

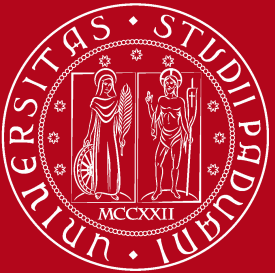
# Edges Run ●

Degree Run ●

Clustering Coefficient Run ●

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 x

Appearance x

Nodes Edges Ranking

Unique Partition Ranking

---Choose an attribute

---Choose an attribute

Degree

Apply

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

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



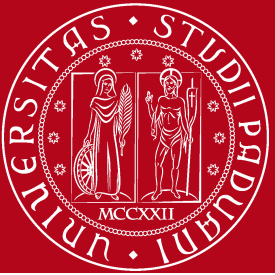
# Gephi nw visualization demo

The screenshot displays the Gephi software interface with a network graph in the center. The graph consists of 15 nodes and 22 edges, forming an undirected graph. The interface is divided into several panels:

- Appearance:** Contains settings for Nodes and Edges, including a Color picker. A red circle highlights the 'Default' palette in the color picker, with a red arrow pointing to a text box.
- Layout:** Shows the 'ForceAtlas 2' layout algorithm selected, with various performance and tuning parameters.
- Context:** Displays graph statistics: Nodes: 15, Edges: 22, Undirected Graph.
- Filters and Statistics:** Lists various network metrics such as Average Degree, Network Diameter, and PageRank, each with a 'Run' button.

A red text box with a white background and a red border contains the following text:

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



# Gephi nw visualization demo

The screenshot displays the Gephi software interface with a network graph in the center. The graph consists of 15 nodes and 22 edges, forming an undirected graph. The nodes are small and colored in shades of blue and purple. The edges are thin and light-colored. The interface includes several panels:

- Appearance:** Shows options for Nodes and Edges, with a dropdown menu for "Choose an attribute".
- Layout:** Shows the ForceAtlas 2 layout algorithm selected, with various performance and tuning parameters.
- Context:** Shows the graph statistics, including Nodes: 15, Edges: 22, and Undirected Graph.
- Filters:** Shows the Statistics filter selected, with a list of various network metrics and their corresponding "Run" buttons.

Two red boxes highlight specific areas:

- The top box contains the text: "Nice colors, but we can't really appreciate them because our nodes are too small. Let's adjust their size so it fits their (betweenness) centrality metric!"
- The bottom box contains the text: "Under Statistics - Edge Overview run the Avg. PathLength Algorithm." with a red arrow pointing to the "Run" button next to "Avg. Path Length" in the Edge Overview section.



# Gephi nw visualization demo

The screenshot displays the Gephi 0.9.2 interface. The main window shows a network graph with several nodes and edges. A dialog box titled "Graph Distance settings" is open, providing information about graph distance and centrality measures.

**Graph Distance settings**

**Distance**  
The average graph-distance between all pairs of nodes. Connected nodes have graph distance 1. The diameter is the longest graph distance between any two nodes in the network. (How far apart are the two most distant nodes).

Directed  Normalize Centralities in [0,1]

Undirected

**Betweenness Centrality:** Measures how often a node appears on shortest paths between nodes in the network.  
**Closeness Centrality:** The average distance from a given starting node to all other nodes in the network.  
**Eccentricity:** The distance from a given starting node to the farthest node from it in the network.

Buttons: OK, Cancel

The interface also shows the "Appearance" panel with "Nodes" and "Edges" tabs, the "Layout" panel with "ForceAtlas 2" selected, and the "Context" panel on the right showing network statistics: Nodes: 15, Edges: 22, Undirected Graph. The "Statistics" panel lists various metrics like Average Degree, Network Diameter, and PageRank, each with a "Run" button.



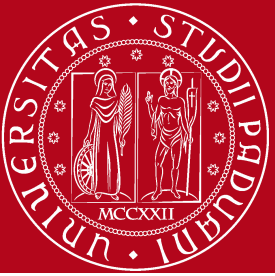
# Gephi nw visualization demo

The screenshot displays the Gephi software interface with the following components:

- Appearance Panel:** The 'Ranking' tab is selected. The 'Betweenness Centrality' attribute is chosen from the dropdown menu and highlighted with a red oval. The 'Apply' button is visible at the bottom of the panel.
- Layout Panel:** The 'ForceAtlas 2' layout is selected. The 'Run' button is visible.
- Graph Panel:** A network graph is visualized with nodes of varying sizes and colors, connected by edges. A red box highlights the graph area.
- Context Panel:** Shows network statistics: Nodes: 15, Edges: 22, Undirected Graph.
- Filters Panel:** Lists various network metrics such as Average Degree, Avg. Weighted Degree, Network Diameter, Graph Density, HITS, Modularity, PageRank, Connected Components, Node Overview, Edge Overview, and Dynamic.

A red box highlights the graph area, and a red arrow points to the 'Betweenness Centrality' attribute in the Appearance panel. A text box contains the following instruction:

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



# Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1 x

Appearance x

Nodes Edges | [Icons] A tT

Unique Partition Ranking

Degree [Dropdown]

Color: [Color Bar]

Spline... | [Apply]

Layout x

ForceAtlas 2 [Dropdown] [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

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	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	●

Lets display node labels.

Show Node Labels



# Gephi nw visualization demo

File Workspace View Tools Window Help

Overview Data Laboratory Preview

Workspace 1 x

Appearance x

Nodes Edges | A tT

Unique Partition Ranking

Degree

Color:

Spline... l

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

Log mode

**Prevent Overlap**

Edge Weight Influence 1.0

Prevent Overlap

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

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	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	●

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



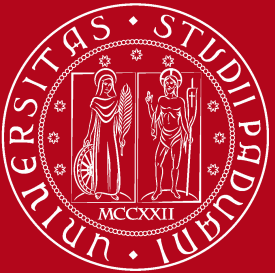


# Gephi nw visualization demo

The screenshot shows the Gephi 0.9.2 interface. The 'Preview' tab is selected and circled in red. In the 'Preview Settings' panel on the left, the 'Default Straight' preset is selected and circled in red. Under the 'Edge Labels' section, the 'Show Labels' checkbox is unchecked and circled in red. A red-bordered text box contains the following instructions:

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)

The interface also shows various settings for nodes and edges, a 'Refresh' button, and an 'Export' menu at the bottom left.



# Gephi nw visualization demo

The screenshot shows the Gephi 0.9.2 interface with a network graph and the Statistics - Network Overview - Modularity algorithm settings. A red box highlights the text: "To detect communities, we run the Statistics - Network Overview - Modularity algorithm". A red arrow points from this box to the "Modularity" entry in the "Network Overview" section of the Statistics panel, which has its "Run" button circled in red.

Graph Statistics - Network Overview - Modularity

Statistic	Value	Run
Average Degree		Run
Avg. Weighted Degree		Run
Network Diameter	4	Run
Graph Density		Run
HITS		Run
<b>Modularity</b>		<b>Run</b>
PageRank		Run
Connected Components		Run

Node Overview

Statistic	Value	Run
Avg. Clustering Coefficient		Run
Eigenvector Centrality		Run

Edge Overview

Statistic	Value	Run
Avg. Path Length	2.429	Run

Dynamic

Statistic	Value	Run
# Nodes		Run
# Edges		Run
Degree		Run



# Gephi nw visualization demo

The screenshot displays the Gephi 0.9.2 software interface. The main window shows a network graph with nodes and edges. A dialog box titled "Modularity settings" is open in the center, with the "OK" button circled in red. The dialog box contains the following information:

**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).)

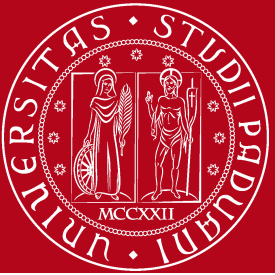
The interface also shows various panels on the left and right, including Appearance, Layout, and Context. The Context panel on the right displays network statistics:

**Context**  
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 ●

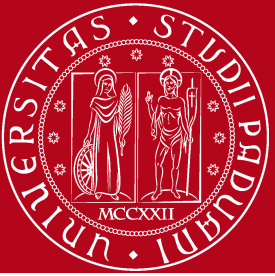


# Gephi nw visualization demo

The screenshot shows the Gephi 0.9.2 interface with the Data Laboratory tab active. The table displays node properties, and the 'Export table' button is highlighted. A text box explains the table's content and the 'Export table' function.

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).



# 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 x

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	Najda		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  
:intly Books] Music SocSci.csv  
d Semester] SecondSemester

File Name: SocSci.csv

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

OK Cancel

Save selected file.

Options...

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

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 a 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 x

Appearance x

Nodes Edges **Partition** Ranking

Unique Partition Ranking

---Choose an attribute

---Choose an attribute

Betweenness Centrality

Closeness Centrality

Eccentricity

Harmonic Closeness Centrality

**Modularity Class**

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)

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

Najwa Maja Sulejman Lejla Anjira Asmira Sinisa Ena Lejla S. Anjira Irena

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 0.439 Run ●

PageRank Run ●

Connected Components Run ●

Node Overview

Avg. Clustering Coefficient Run ●

Eigenvector Centrality Run ●

Edge Overview

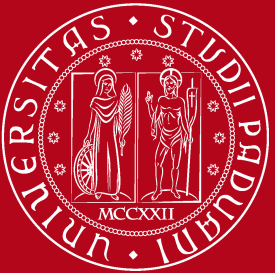
Avg. Path Length 2.429 Run ●

Dynamic

# Nodes Run ●

# Edges Run ●

Degree Run ●



# 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 x

Appearance x

Nodes Edges

Unique Partition Ranking

Modularity Class

- 0 (40%)
- 1 (40%)
- 2 (20%)

I Palette... 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)

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	0.439 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



# 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
- Open Recent...
- Close Project
- Properties...
- Import spreadsheet...
- Import Database
- Import...
- Generate
- Save Ctrl+S
- 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%

Export: SVG/PDF/PNG

Refresh

Background Reset zoom - +

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)

```
graph LR; Lejla --- Maja; Lejla --- Sulejman; Lejla --- Antonela; Lejla --- Ena; Lejla --- Azra; Lejla --- Sneza; Lejla --- Amira; Lejla --- Asmira; Maja --- Selma; Maja --- Naida; Sulejman --- Naida; Sulejman --- Nejad; Lejla S. --- Amina; Lejla S. --- Ilma;
```





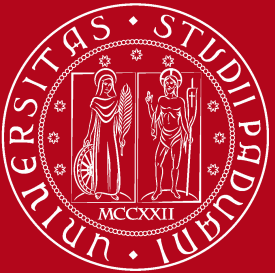
# Gephi nw visualization demo

The screenshot displays the Gephi 0.9.2 software interface. The main window shows a network graph with nodes labeled: Azra, Sneza, Amira, Asmira, Naia, Ena, Lejla S., Amina, and Ilma. An 'Export' dialog box is open, showing the following details:

- Save In: Desktop
- File Name: SocSci
- Files of Type: PNG Files (\*.png)
- Buttons: OK, Cancel, Options...

The left sidebar contains the 'Preview Settings' panel with the following settings:

- Presets: Default Straight
- Settings: Manage renderers
- Proportional size:
- Color: custom [0,0,0]
- Shorten label:
- Max characters: 30
- Outline size: 0.0
- Outline color: custom [255,255,255]
- Outline opacity: 80.0
- Box:
- Box color: parent
- Box opacity: 100.0
- 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
- Buttons: Refresh



# Dataset generation

- edge and/or node lists in Excel
- for node list, column names: Id, Label
- for edge list, column names: Source, Target, Label (optional)
- save as .csv files and choose “;” as delimiter

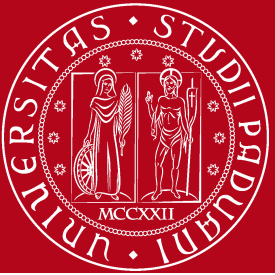


# Dataset generation

The image displays two LibreOffice Calc spreadsheets side-by-side, illustrating the generation of a dataset. The left spreadsheet, titled 'nodes.ods', contains a list of nodes with IDs and labels. The right spreadsheet, titled 'edges.csv', contains a list of edges with source and target nodes.

Id	Label
1	Lejla
2	Antonela
3	Sulejman
4	Maja
5	Lejla S.
6	Amira
7	Ilma
8	Nenad
9	Selma
10	Naida
11	Asmira
12	Amira
13	Azra
14	Sneza
15	Ena

Source	Target	Label
1	2	Lejla - Antonela
1	3	Lejla - Sulejman
1	4	Lejla - Maja
1	5	Lejla - Lejla S.
1	6	Lejla - Asmira
1	12	Lejla - Amira
1	15	Lejla - Ena
2	3	Antonela - Sulejman
2	4	Antonela - Maja
3	4	Sulejman - Maja
5	6	Lejla S. - Amira
5	7	Lejla S. - Ilma
3	8	Sulejman - Nenad
4	9	Maja - Selma
4	10	Maja - Naida
9	10	Naida - Selma
3	9	Sulejman - Selma
11	12	Asmira - Amira
6	7	Amira - Ilma
11	13	Asmira - Azra
12	13	Amira - Azra
11	14	Asmira - Sneza



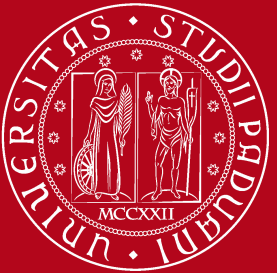
# Dataset generation

The image displays two LibreOffice Calc spreadsheets side-by-side, illustrating the generation of a dataset. The left spreadsheet, titled 'nodes.ods', contains a list of 15 nodes. The right spreadsheet, titled 'edges.csv', contains a list of 23 edges connecting these nodes.

Id	Label
1	Lejla
2	Antonela
3	Sulejman
4	Maja
5	Lejla S.
6	Amira
7	Ilma
8	Nenad
9	Selma
10	Naida
11	Asmira
12	Amira
13	Azra
14	Sneza
15	Ena

Source	Target	Label
1	2	Lejla - Antonela
1	3	Lejla - Sulejman
1	4	Lejla - Maja
1	5	Lejla - Lejla S.
1	6	Lejla - Asmira
1	12	Lejla - Amira
1	15	Lejla - Ena
2	3	Antonela - Sulejman
2	4	Antonela - Maja
3	5	Sulejman - Maja
5	6	Lejla S. - Amira
5	7	Lejla S. - Ilma
3	8	Sulejman - Nenad
4	9	Maja - Selma
4	10	Maja - Naida
9	10	Naida - Selma
3	9	Sulejman - Selma
11	12	Asmira - Amira
6	7	Amira - Ilma
11	13	Asmira - Azra
12	13	Amira - Azra
11	14	Asmira - Sneza



# Questions?

