

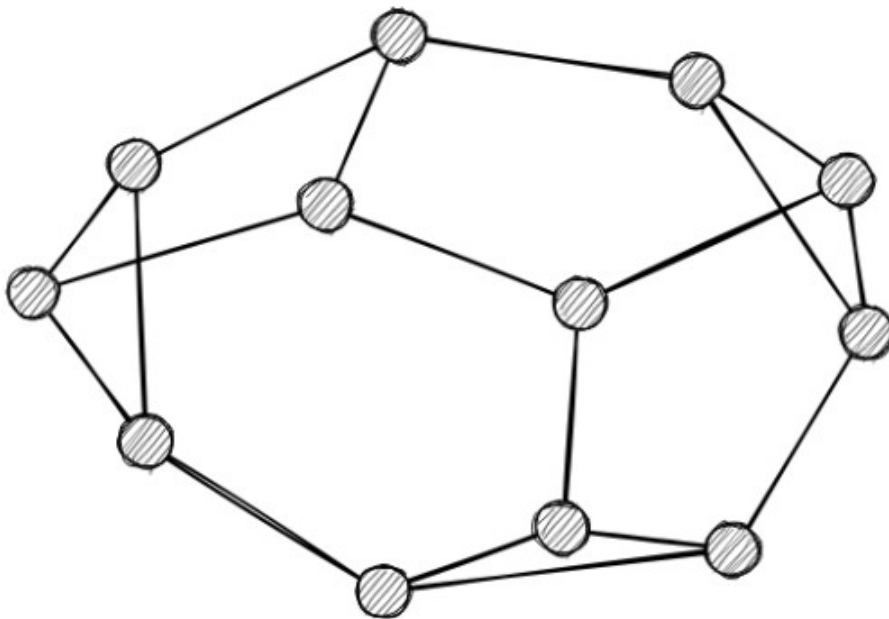
```
#install.packages("remotes")
remotes::install_github("schochastics/roughnet")
```

The package only works with `igraph` objects.

```
library(igraph)
library(roughnet)
```

The only real function of the package is `roughnet()` which draws an `igraph` object as a sketchy network. Without specifying any aesthetics, the function uses default shapes and colours.

```
g <- make_graph("Frucht")
roughnet(g,width = 600,height = 400)
```

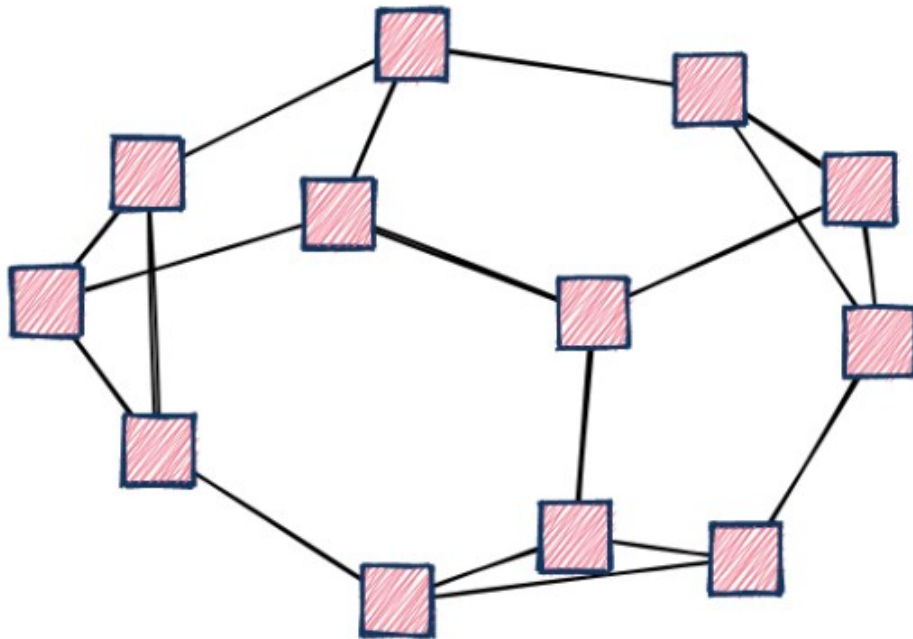


The function recognizes the following vertex attributes to customize the visualization:

- **x** x-coordinate of vertex
- **y** y-coordinate of vertex
- **shape** one of "circle", "rectangle", (novelty shapes: "heart", "air", "earth", "fire", "water")
- **fill** vertex fill color
- **color** vertex stroke color
- **stroke** stroke size
- **fillstyle** one of "hachure", "solid", "zigzag", "cross-hatch", "dots", "dashed", "zigzag-line"
- **size** vertex size
- **label** vertex label
- **pos** position of vertex label (c)enter, (n)orth, (e)ast, (s)outh, (w)est

```
V(g)$shape <- "rectangle"
V(g)$fill <- "#e94560"
V(g)$color <- "#0f3460"
V(g)$stroke <- 2
V(g)$fillstyle <- "zigzag"
V(g)$size <- 40
```

```
roughnet(g,width = 600,height = 400)
```



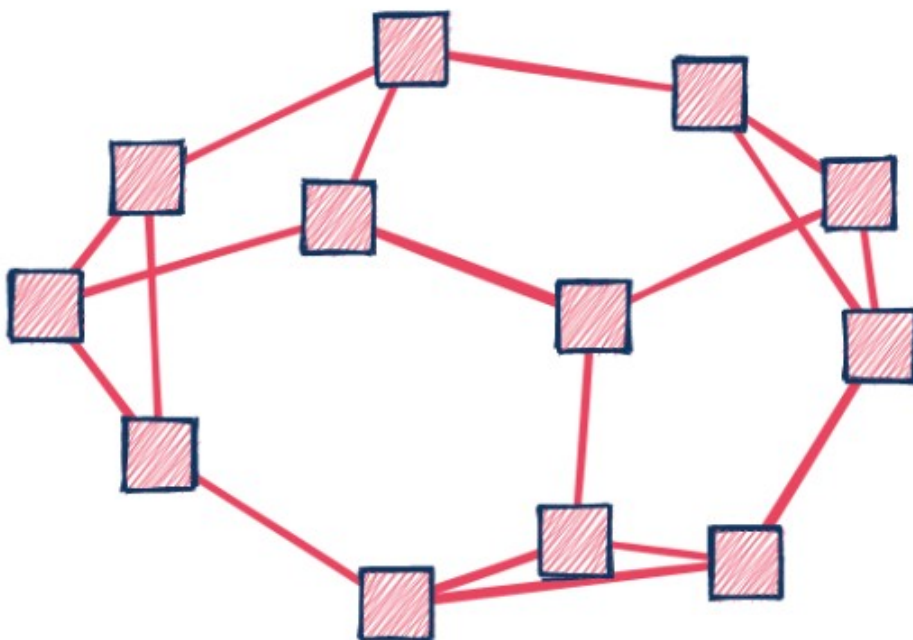
For edges there are only two supported attributes:

- **color** color of edge
- **width** width of edge

```
E(g)$color <- "#e94560"
```

```
E(g)$width <- 2
```

```
roughnet(g,width = 600,height = 400)
```



Below is a more “realistic” example using the infamous karate network.

```
g <- make_graph("Zachary")
```

```
clu <- membership(cluster_louvain(g))
```

```
V(g)$shape <- "circle"
```

```
V(g)$shape[c(1,34)] <- "rectangle"
```

```
V(g)$fill <- c("#E41A1C", "#377EB8", "#4DAF4A", "#984EA3")[clu]
```

```
V(g)$fillstyle <- c("hachure", "zigzag", "cross-hatch", "dots")[clu]
V(g)$color <- "black"
V(g)$size <- 30
V(g)$stroke <- 2
E(g)$color <- "#AEAEAE"
roughnet(g,width = 960,height = 600)
```



Node labels and fonts

Node labels can also be placed, but unfortunately it is a bit more tedious if you do not simply want to put them in the center (when, say using some novelty node shapes.)

In the example below, we use the Allies/Enemies relations in “Avatar: The Last Airbender”, available in the [signnet](#) package to illustrate all features of roughnet, including node labels.

By default, node labels are placed in the center of the node, but can be placed (n)orth, (e)ast, (s)outh, or (w)est of the node.

```
# install.packages(c("signnet", "graphlayouts"))
library(signnet)
library(graphlayouts)
library(dplyr)

data("avatar") # Allies/Enemies relations in Avatar: The Last Airbender

main <- induced_subgraph(avatar, which(V(avatar)$main)) #only use the main
characters

#calculate layout
w <- ifelse(E(main)$sign==1,3,1)
xy <- layout_with_stress(main,weights = 1/w)

V(main)$x <- xy[,1]
V(main)$y <- xy[,2]

V(main)$fill <- case_when(V(main)$affiliation=="earth kingdom"~"#8B6914",
                          V(main)$affiliation=="fire nation"~"#CD2626",
                          V(main)$affiliation=="water tribe"~"white",
                          V(main)$affiliation=="air nomad"~"#98F5FF",
```

```

TRUE~"grey"

)

V(main)$color <- case_when(V(main)$affiliation=="earth kingdom"~"#8B6914",
                           V(main)$affiliation=="fire nation"~"#CD2626",
                           V(main)$affiliation=="water tribe"~"#1874CD",
                           V(main)$affiliation=="air nomad"~"#98F5FF",
                           TRUE~"grey"

)

V(main)$shape <- case_when(V(main)$affiliation=="earth kingdom"~"earth",
                           V(main)$affiliation=="fire nation"~"fire",
                           V(main)$affiliation=="water tribe"~"water",
                           V(main)$affiliation=="air nomad"~"air",
                           TRUE~"circle"

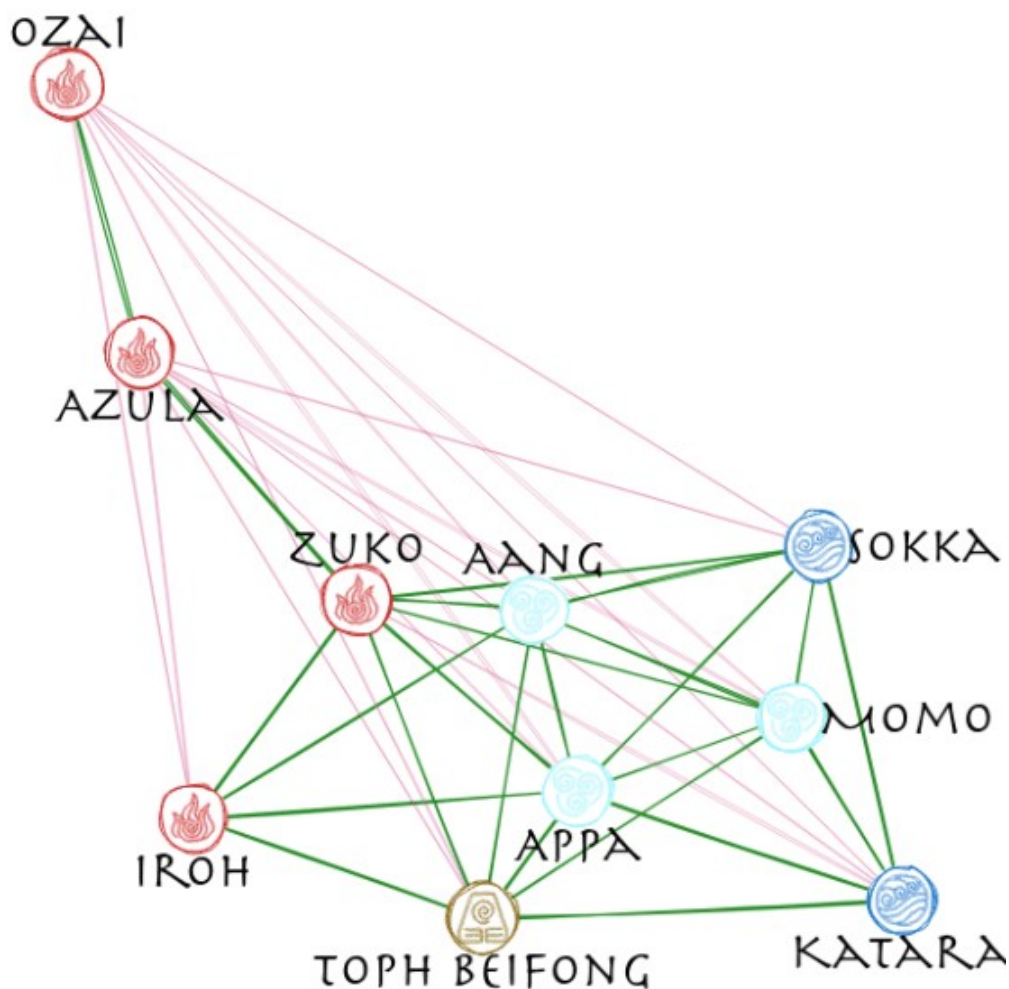
)

E(main)$width <- ifelse(E(main)$sign==1,1.2,0.3)
E(main)$color <- ifelse(E(main)$sign==1,"#228B22","#CD3278")
V(main)$label <- V(main)$name

# position labels in the (c)enter of the vertex
# or (n)orth, (e)ast, (s)outh, or (w)est of it
V(main)$pos <- c("n","s","s","s","s","e","n","e","s","n")

roughnet(main, width = 600, height = 600, font = "30px Herculenum")

```



Save plots

Plots can be saved with the function `save_roughnet()` , which needs `{{pagedown}}` to be installed.