

Intro to DataViz w/ R

September 17, 2024

Intro to DataViz w/ R

Today's Co-organizer:

Kewalin Smart

kewalin.smart@cuanschultz.edu

Event Co-leaders:

Caroline Reges and Shelby Anderson

Volunteer signup:

<https://bit.ly/RLA-fall24volunteer>

Adapted materials from:



Today's sponsor:

JRavi Lab, DBMI



Who We R!?



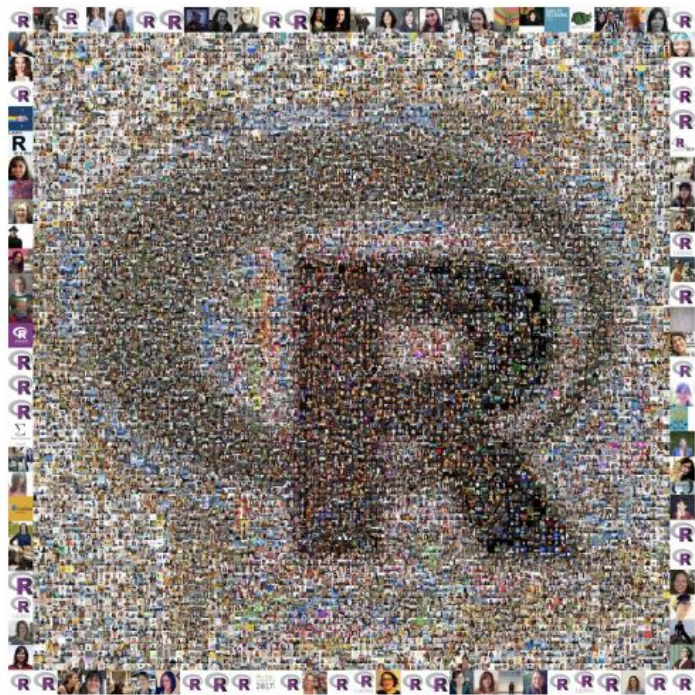
R-Ladies Kick-off Event on Jul 25, 2024




RLA Co-organizer team: Jade, Keenan, Janani, Kewalin, Stacey (left to right)




Worldwide organization that promotes **gender diversity** in the **#rstats** community via meetups and mentorship in a **friendly** and **safe** environment







Part of **R-Ladies - 240 groups**

R-Ladies Aurora

 Aurora, CO, USA

 69 members · Public group

 Organized by **R-Ladies Global** and **4 others**

New Members?

1. Join us, RSVP for events on **Meetup**

<https://www.meetup.com/rladies-aurora/>

2. Join our discussion forum on **Discord**

<https://discord.gg/EXKYNCsFBk>



Part of **R-Ladies - 240 groups**

R-Ladies Aurora

★★★★★ (2)

Aurora, CO, USA

67 members - Public group

Organized by **R-Ladies Global** and 4 others

Share:

[About](#) [Events](#) [Members](#) [Photos](#) [Discussions](#) [More](#)

[Create event](#) [Manage group](#)

What we're about

Mission
R-Ladies is a worldwide organization that promotes gender diversity in the open-source R community.

Who we are/What we do
R-Ladies Aurora is a local chapter of R-Ladies Global (<https://www.rladies.org>). We meet to discuss, learn, teach, present, and work on all things R! Our priority is to provide a safe community space for anyone identifying as a minority gender interested in and working with R. The group exists to promote gender diversity in the R community worldwide. We are pro-actively inclusive of queer, trans, and all minority identities, with additional sensitivity to intersectional identities. We meet in person or virtually to learn about the R programming language, algorithms, and advanced tools. Our events are open for everyone to attend.

Who could join?
R-Ladies Aurora welcomes members of all R proficiency levels, whether you are a new or aspiring R user or an experienced R programmer interested in mentoring, networking & expert upskilling. Our non-profit, civil society community is designed to develop our members' R skills & knowledge through social, collaborative learning & sharing. Supporting minority identity access to STEM skills & careers, the Free Software Movement, and contributing to the global R community! Anyone and everyone interested in R/Data Science should join our group and participate/contribute in any way you can, be they learners, teachers, developers, or innovators! We encourage women and minority genders to present/lead most sessions and conversations, *but* we have no restrictions regarding membership, participation, and discussions. So, please join us and bring your R-family & R-friends!

How to be in touch
You can access our presentations, R scripts, and more on our Github account and follow us on Twitter to stay apprised of R-Ladies news! Here are some helpful links:

Organizers

R-Ladies Global and 4 others
[Message](#)

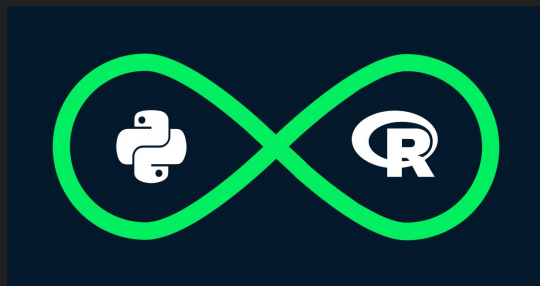
Members (67)

[See all](#)

Upcoming Workshops

Fall' 24 R-Ladies Aurora Series:

- Intro to R Functions
- DataViz 2.0
- R Package Development
- Presenting to Non-Scientific Audiences
- Python in R



Today! Sept 17, 2024

TOPICS

- Intro to DataViz
- ggplot

Ping us on Discord with any Questions



from Data to Viz

MENU

What kind of data do you have? Pick the main type using the buttons below. Then let the decision tree guide you toward your graphic possibilities.

Numeric

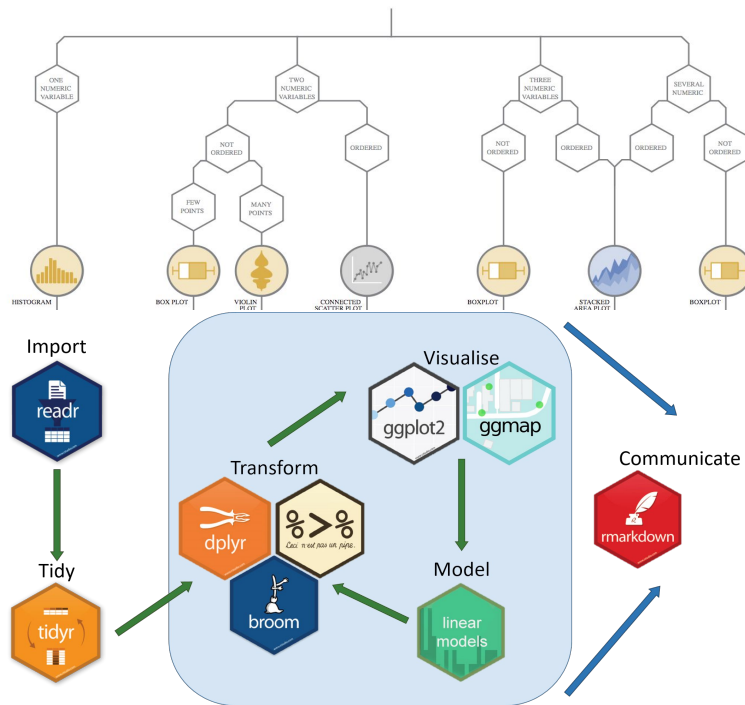
Categoric

Num & Cat

Maps

Network


Time series



DENDROGRAM


Presentation Materials

<https://github.com/rladies-aurora>


 rladies-aurora

Search Type to search

[Overview](#) [Repositories 5](#) [Discussions](#) [Projects](#) [Packages](#) [Teams](#) [People 4](#) [Settings](#)

 **R-Ladies Aurora**

[12 followers](#) <https://github.com/rladies-aurora> <https://meetup.com/rladies-aurora> <https://bit.ly/rladies-aurora-discord>

 **Repositories**

Find a repository... Type Language Sort New

202409-dataviz_intro Public

Forked from [rladies-eastlansing/2019-workshop-dataviz](#)

Intro to Data Visualization w/ R | Sep 17, 2024 @RLadiesAurora

R 0 0 MIT 2 0 0 Updated now

202410-dataviz2.0 Public

Forked from [rladies-eastlansing/2020-dataviz2.0](#)


DataViz 2.0 | Fall 2024 workshop | @RLadiesAurora

HTML 0 0 MIT 1 0 0 Updated 18 hours ago

20240725-kickoff Public

HTML 0 0 MIT 0 0 0 Updated on Jul 25

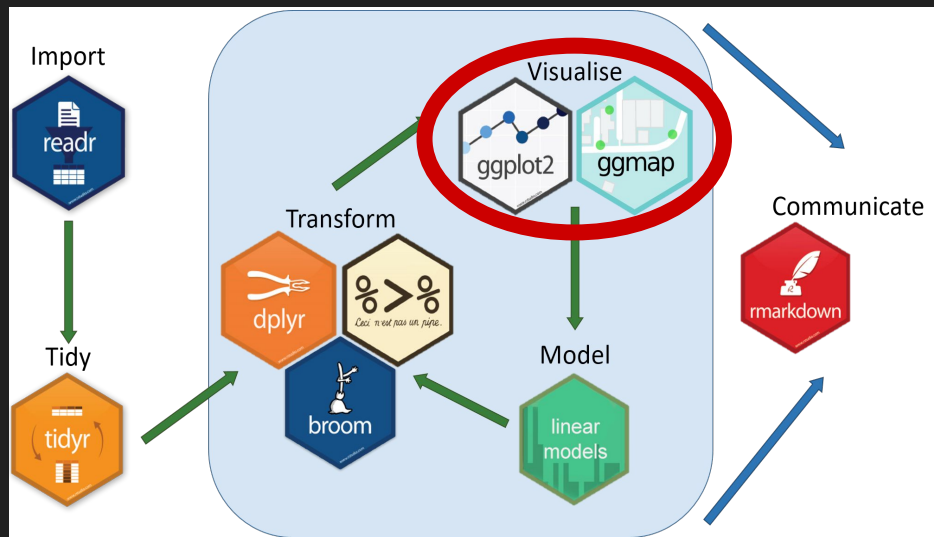
Intro | Meet & Greet

- Pizza + Sign-up 
- Familiar w/ R and ggplot? → *Shuffle*
- Introduce yourself to your neighbor
- Who you are | Name, affiliation
- Do you have the same version of R (4.0+), RStudio & Tidyverse?
 - NO? Installation time!
 - <https://rstudio-education.github.io/hopr/starting.html>
- Need help? **Red sticky up!** **All set: Green!**



Tidy Data → Data Viz

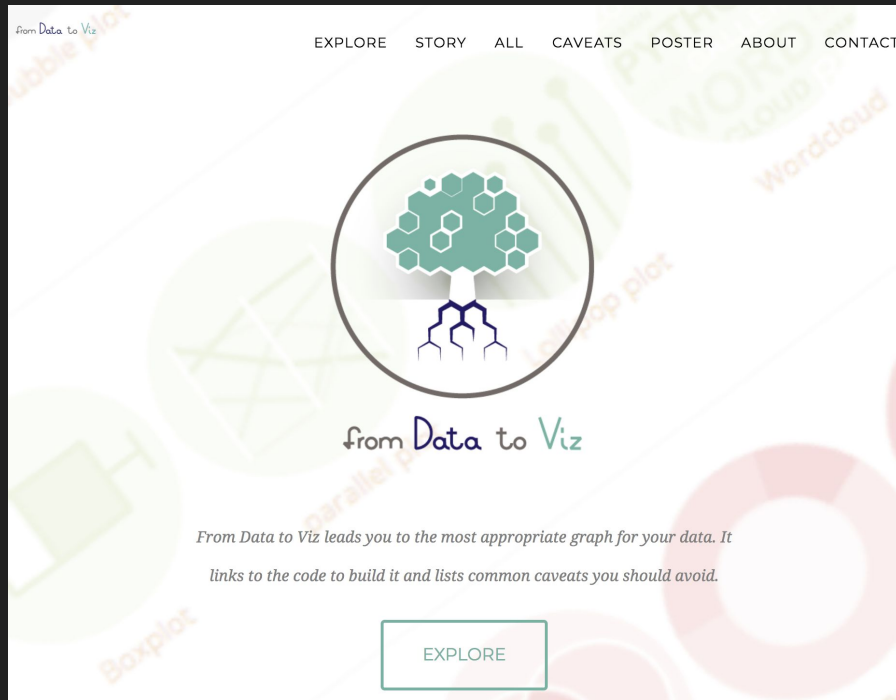
- Install Tidyverse
 - Book by Wickham & Grolemund, R4DS
 - Chapter 3 on DataViz
- <https://r4ds.had.co.nz/>



#1: Data to Viz

data-to-viz.com

Identify the most appropriate graph for your data!



#1: Data to Viz | Pick your data type

data-to-viz.com

What kind of data do you have? Pick the main type using the buttons below.

Then let the decision tree guide you toward your graphic possibilities.

Numeric

Categoric

Num & Cat

Maps

Network

Time series

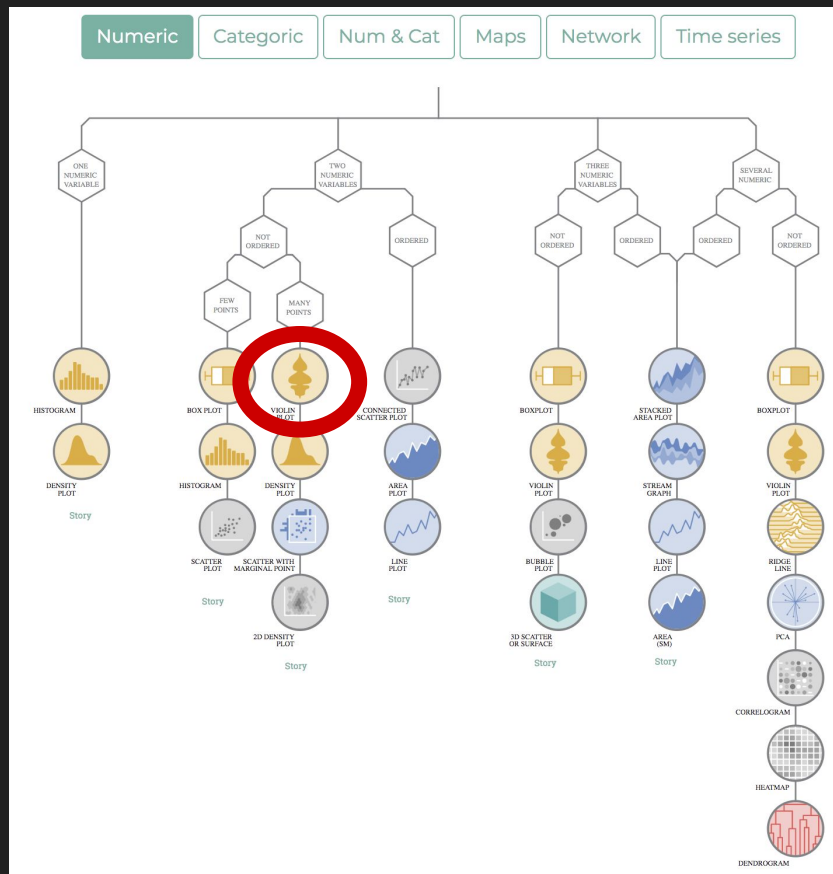


#1: Data to Viz | Identify your plot

data-to-viz.com

e.g. Numeric


- Variables?
- Ordered?
- Number of data points?



#1: Data to Viz

data-to-viz.com

- Description
- Appropriateness
- Common mistakes
- Sample code



VIOLIN

An alternative to boxplot to compare the distribution of several groups.

About

Violinplots allow to visualize the distribution of a numeric variable for one or several groups. It is really close from a [boxplot](#), but allows a deeper understanding of the distribution.

Violins are particularly adapted when the amount of data is huge and showing individual observations gets impossible.

Common Mistakes

- If you have just a few groups, you are probably interested by [ridgeline charts](#).
- If you compare groups with very different sample size, [show it](#).
- [Ordering groups](#) by median value makes the chart more insightful.

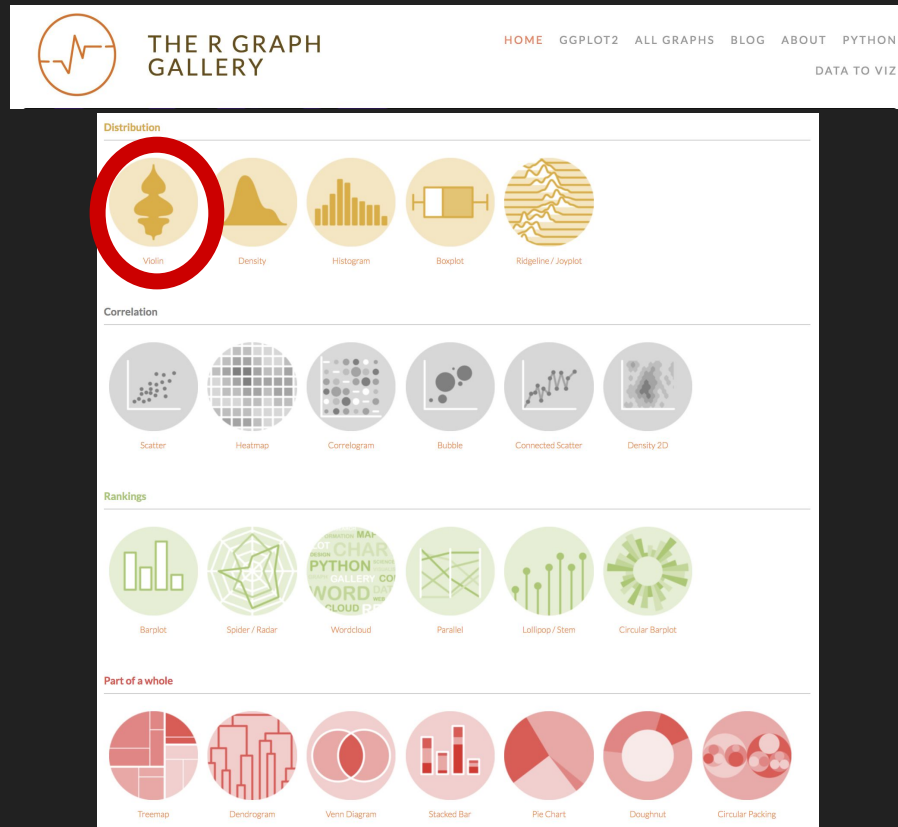
Code

[R graph gallery](#) [Python gallery](#)

#2: R Graph Gallery

r-graph-gallery.com

- Sample codes, plots w/ customizations
- Caveats & pointers



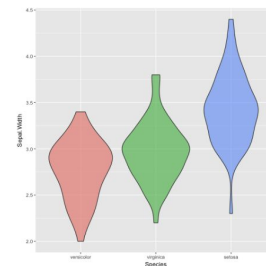
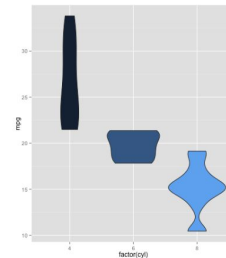
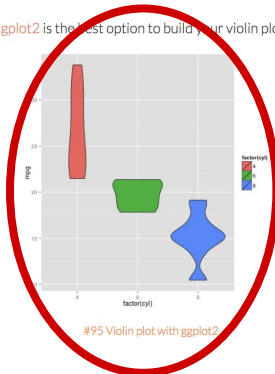
#2: R Graph Gallery

r-graph-gallery.com

- Sample codes, plots w/ customizations
- Caveats & pointers

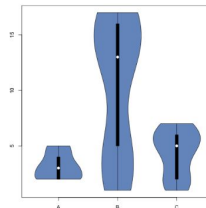
Ggplot2

Ggplot2 is the best option to build your violin plot. It provides the `geom_violin()` utility that automatically builds it.



BaseR

If you want to stick to baseR, the `vioplot` library will allow you to build your violin plot.

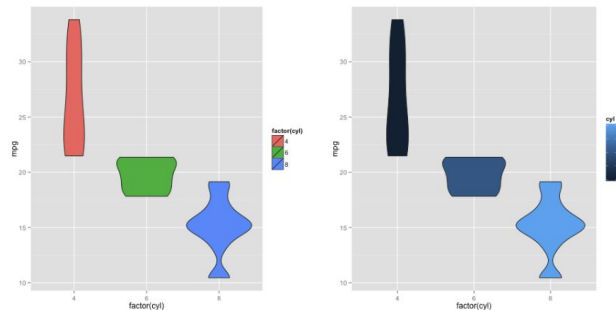


#2: R Graph Gallery

r-graph-gallery.com

- Sample codes, plots w/ customizations
- Caveats & pointers

#95 VIOLIN PLOT WITH GGPLOT2



A [violin plot](#) is a method of plotting numeric data. It is a [boxplot](#) with a rotated [kernel density plot](#) on each side.

It is also possible to draw this kind of plot without ggplot2: see the [graph #94](#) !

```
# Library
library(ggplot2)

# mtcars data
head(mtcars)

# First type of color
ggplot(mtcars, aes(factor(cyl), mpg)) +
  geom_violin(aes(fill = cyl))

# Second type
ggplot(mtcars, aes(factor(cyl), mpg)) +
  geom_violin(aes(fill = factor(cyl)))
```



More of a Pythonista?

python-graph-gallery.com



THE PYTHON
GRAPH GALLERY



Demo time!

