# Code-centric Websites with Blogdown & R

## Best of both Worlds

Ilja / @fubits

Berlin R Users Group MeetUp, 2018/11/29

# Outline

1. Why Blog?
2. (R) Markdown & Blogdown
3. Demo / Hands-On
    - Setup
    - Write / Code / Publish
    - Customize
4. Why Hugo/Static?

# Why? Portfolio!

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> *“if you don’t have a website nowadays, you don’t exist” (Scheidegger 2012 via Xie 2018)*

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> *"While a resume matters, having a portfolio of **public evidence of your data science skills** can do wonders for your job prospects. Even if you have a referral, the ability to show potential employers what you can do instead of just telling them you can do something is important." (Galarnyk 2018)*

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(Galarnyk 2018: How to Build a Data Science Portfolio)

# Why? Visibility!

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> *"A well-designed and maintained website can be extremely helpful for other people **to know you**, and you do not need to wait for suitable chances at conferences or other occasions to introduce yourself in person to other people." (Xie 2018)*

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> *"On the other hand, a website is also highly useful for yourself to **keep track** of what you have done and thought. Sometimes you may go back to a certain old post of yours to **relearn the tricks or methods** you once mastered in the past but have forgotten." (Xie 2018)*

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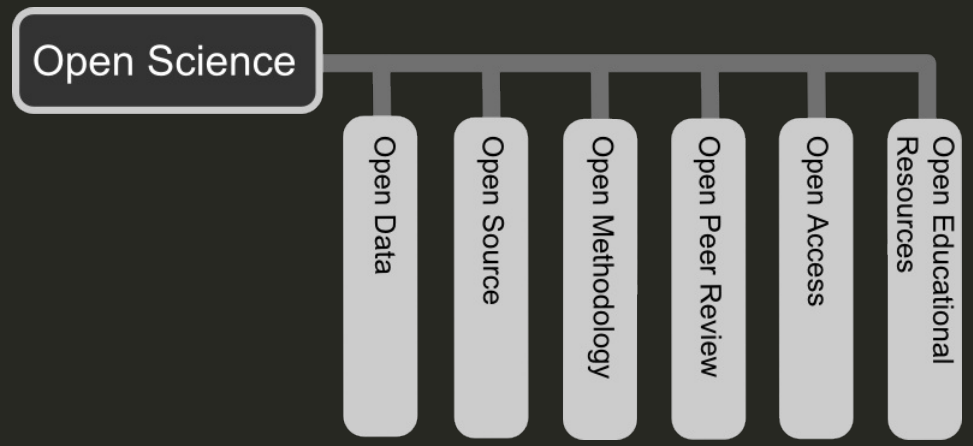


(Source: Andreas E. Neuhold, CC BY 3.0, Link)

# The seImpl(path.expand(input), verbose, fromFile) issue has been fixed #1

**Closed** **yihui** opened this issue on 7 Jul · 1 comment

**yihui** commented on 7 Jul

FYI the `blogdown::serve_site()` problem you mentioned in your excellent blog post https://ellocke.github.io/post/r-troubleshooting-blogdown-hugo-for-windows-dummies/ should be fixed in blogdown v0.7 (which I just published to CRAN): https://github.com/rstudio/blogdown/releases/tag/v0.7 Thanks!

**ellocke** commented on 28 Sep **Owner**

Thanks for the shout-out! I finally edited the post.

**ellocke** closed this on 28 Sep

**ellocke** added a commit that referenced this issue on 28 Sep

`resolved Issue #1` `6fdb55a`

# The Formula

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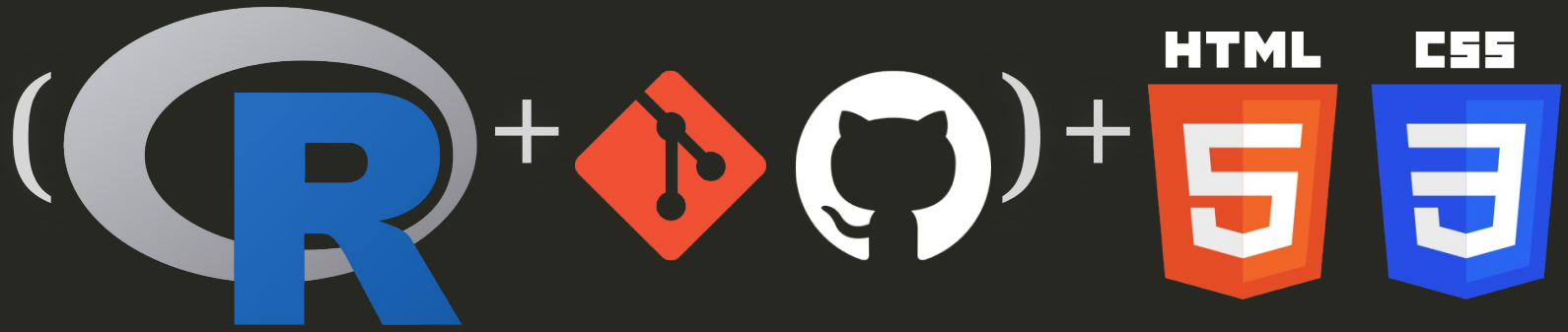


= ?

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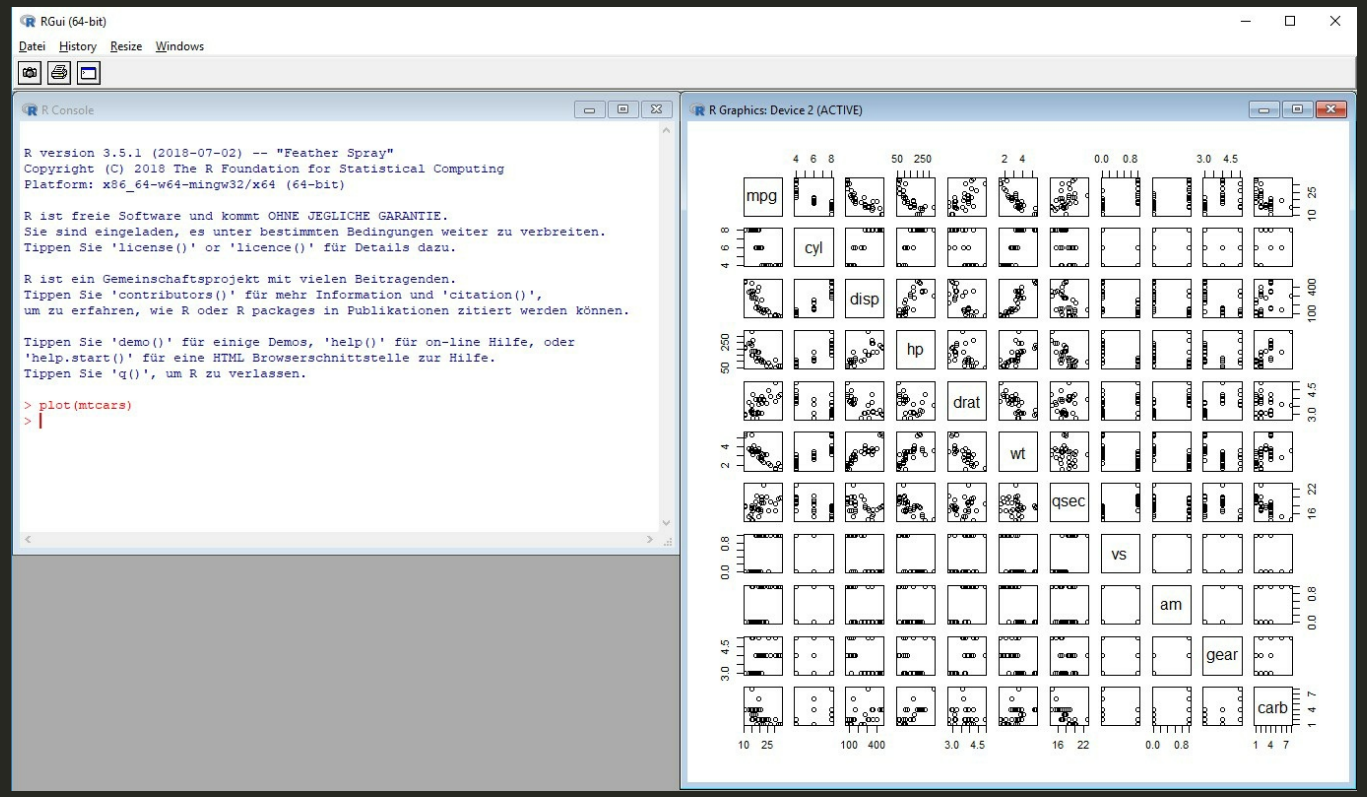
LaTex-like formulas:

$$\bar{X} = \frac{1}{n}\sum_{i=1}^{n} X_i$$

# Then there was Base R / R GUI



# And then came ~~RStudio~~ Yihui Xie

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- software engineer at RStudio (since 2013)
- PhD from the Dept. of Statistics, Iowa State University
- Twitter: @xieyihui
- Initiator of Chinese R Conference (in 2008!)

# ~~"YihuiVerse"~~

# R Rmarkdown Ecosystem

yihui.name/en/

github.com/yihui/

# R + Markdown = RMarkdown

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*"With R Markdown, you only need to maintain the **source** documents; all output pages can be automatically generated from source documents. This makes it much easier to maintain a website, especially when the website is related to **data analysis or statistical computing and graphics**.*

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*When the source code is updated (e.g., the model or data is changed), your web pages can be **updated** accordingly and **automatically**. There is no need to run the code separately and cut-and-paste again. Besides the convenience, you gain **reproducibility** at the same time." (Xie 2018)*

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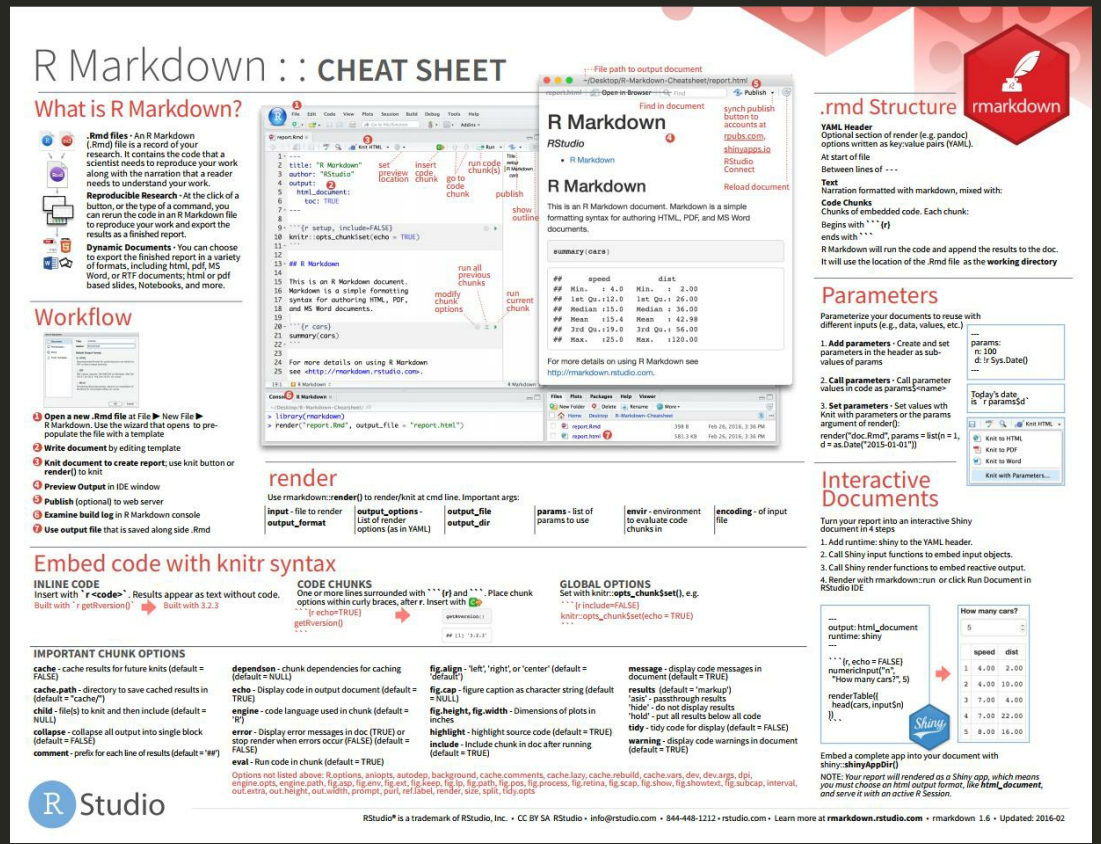
- Markdown+ Text
- `Code/Syntax` + Output
- shareable `.Rmd`
- Code + Layout are completly separated
- One Workflow / a single source / a single IDE
- Portability
- Version control




RStudio: R Markdown Cheat Sheet

# Documention

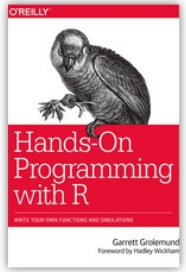

- https://bookdown.org/yihui/rmarkdown/
- https://bookdown.org/yihui/bookdown/
- https://bookdown.org/yihui/blogdown/

# Bookdown

## Hands-On Programming with R

**by Garrett Grolemund**

2018-11-21* Star 75




This book will teach you how to program in R, with hands-on examples. I wrote it for non-programmers to provide a friendly introduction to the R language. You'll learn how to load data, assemble and disassemble data objects, navigate R's environment system, write your own functions, and use all of R's programming tools. Throughout the book, you'll use your newfound skills to solve practical data science problems. *Read more →*

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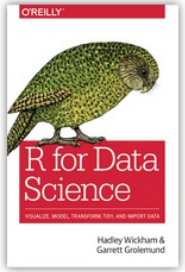
## R for Data Science

**by Garrett Grolemund, Hadley Wickham**

2018-11-21* Star 1,629




This book will teach you how to do data science with R: You'll learn how to get your data into R, get it into the most useful structure, transform it, visualise it and model it. In this book, you will find a practicum of skills for data science. Just as a chemist learns how to clean test tubes and stock a lab, you'll learn how to clean data and draw plots—and many other things besides. These are the skills that allow data science to happen, and here you will find the best practices for doing each of these things with R. You'll learn how to use the grammar of graphics, literate programming, and reproducible research to save time. You'll also learn how to manage cognitive resources to facilitate discoveries when wrangling, visualising, and exploring data. *Read more →*

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https://r4ds.had.co.nz/

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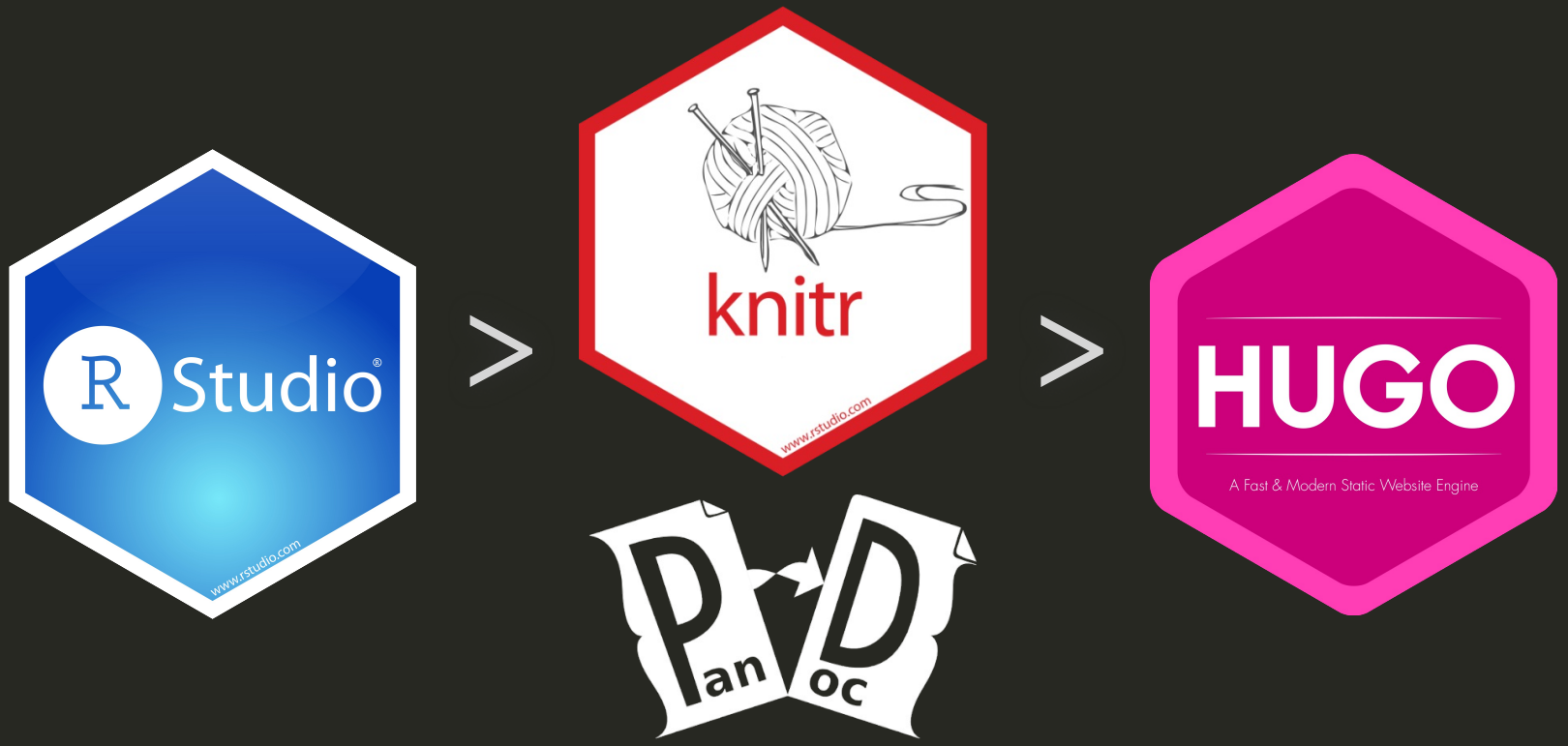
RStudio
www.rstudio.com
knitr
www.rstudio.com
Pan
Doc
HUGO
A Fast & Modern Static Website Engine

= Blogdown

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## III. RStudio: New Site

`File -> New Project -> Website using Blogdown`

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- There are tons of excellent how-to's, i.e. by Tyler Clavelle

# 2+1 Commands To Rule Them All

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## I. Preview locally with/out visibility in local network

`blogdown::serve_site(host = '0.0.0.0')` / `blogdown::serve_site()`

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II. Build to /public

`blogdown::hugo_build()`

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## II. Build to /public

`blogdown::hugo_build()`

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## III. (Publish)

`git commit -m "updated Twitter Post"` / `git push`

# Demo

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I. Markdown Post

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II. Blogdown Post

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II. Blogdown Post

III. Theme + CSS

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## II. Blogdown Post

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*"If you do not understand HTML, CSS, or JavaScript, and have no experience with Hugo themes or templates, it may take you about **10 minutes to get started** with your new website, since you have to accept everything you are given (such as the default theme); if you do have the knowledge and experience (and desire to highly customize your site), it may take you **several days** to get started. Hugo is really powerful. Be cautious with power." (Xie et al. 2018, Ch. 1.6)*

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(cf. modded theme with source)

# More Features

- Shortcodes (i.e. `{{< tweet 989470885475008512 >}}`)
- CSS + JS
- RSS
- Source File
- `static/other`
  - i.e. slides for this talk
  - `R/build.R` from `/static/talks/index.Rmd`

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- **Widgets**

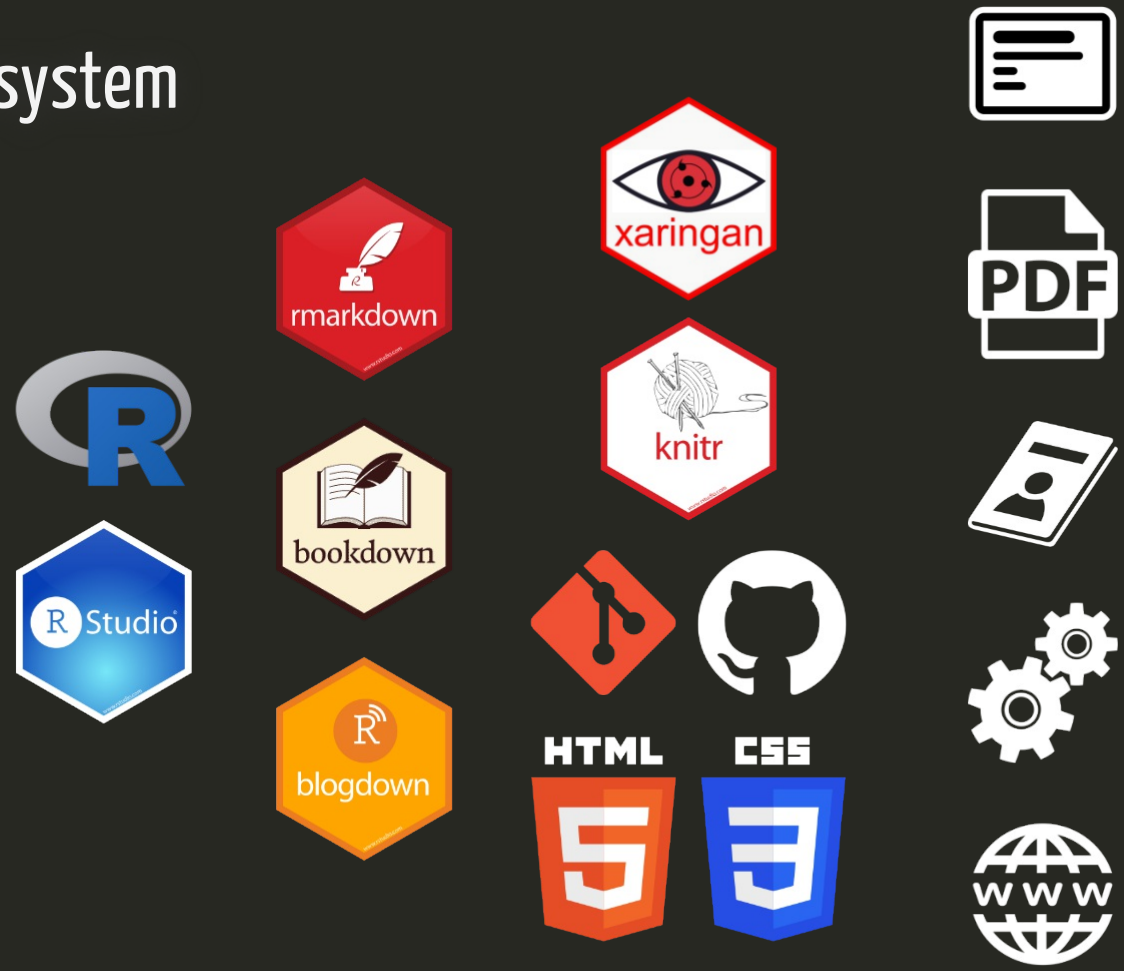
# Tips & Tweaks

- set up Hugo properly -> `hugo -v`
- change `/public` folder (cf. Blogdown Book)
- use `here::here("static","data")`
- Windows: Dual boot Linux OR put the Project Folder in root (255 path length limit!)
- use Git
- save objects with dynamic data (i.e. from API) locally
- DO NOT SAVE LARGE OBJECTS TO `/static/data`

# Why Static?

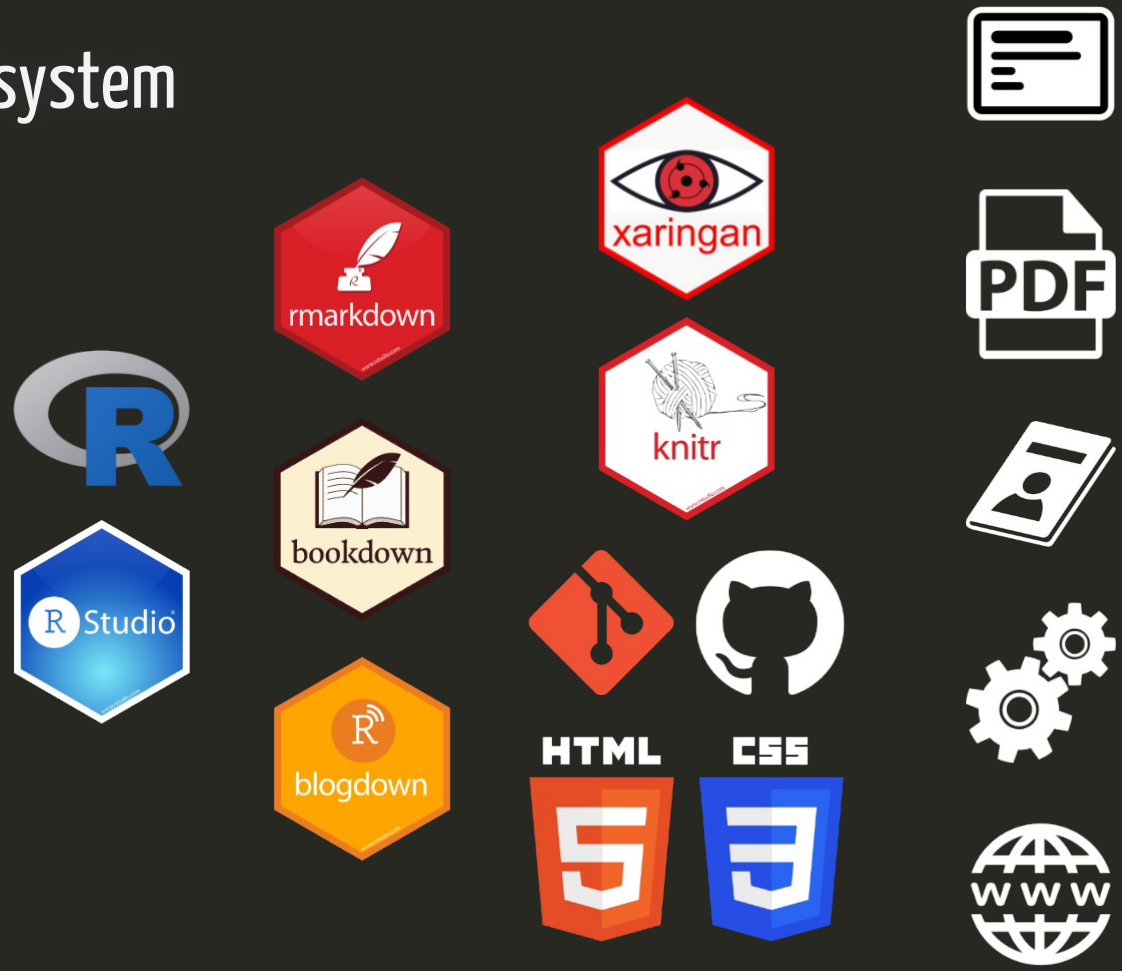
- Benefits of Static Site Generators
- Ownership + Portability
- no DB & no Services (PHP et al.)
- no CMS + local building & testing
- Security (+2FA GitHub)
- GDPR compliance (i.e. DB, external CDN) (see Hugo-specific discussion & implementation)

# The R Rmarkdown Ecosystem



# The R Rmarkdown Ecosystem

- A single Workflow
- A single IDE
- A Single Source
- {.Rmd, Notebook, Slides, PDF, Book}
- Version Control
- Open Science!



# Thanks!

dadascience.design/talks

@fubits

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Slides created via the R package **xaringan**.