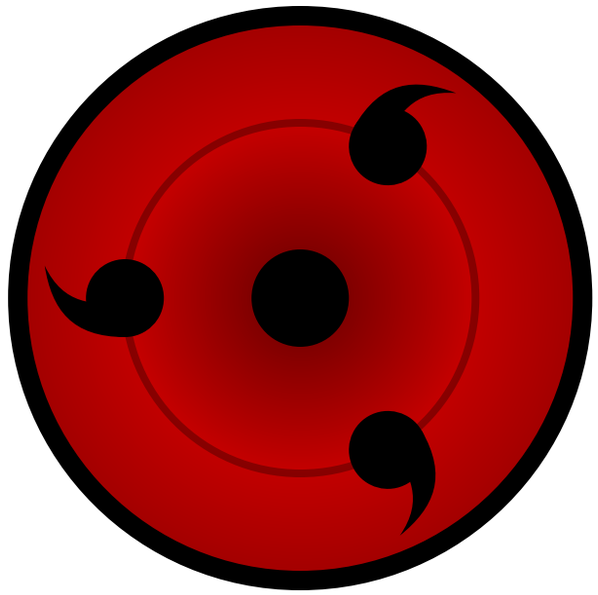
Presentation Ninja

with xaringan

Yihui Xie

2016/12/12



xaringan

/ʃæ.'riŋ.gæn/

Get Started

Hello World

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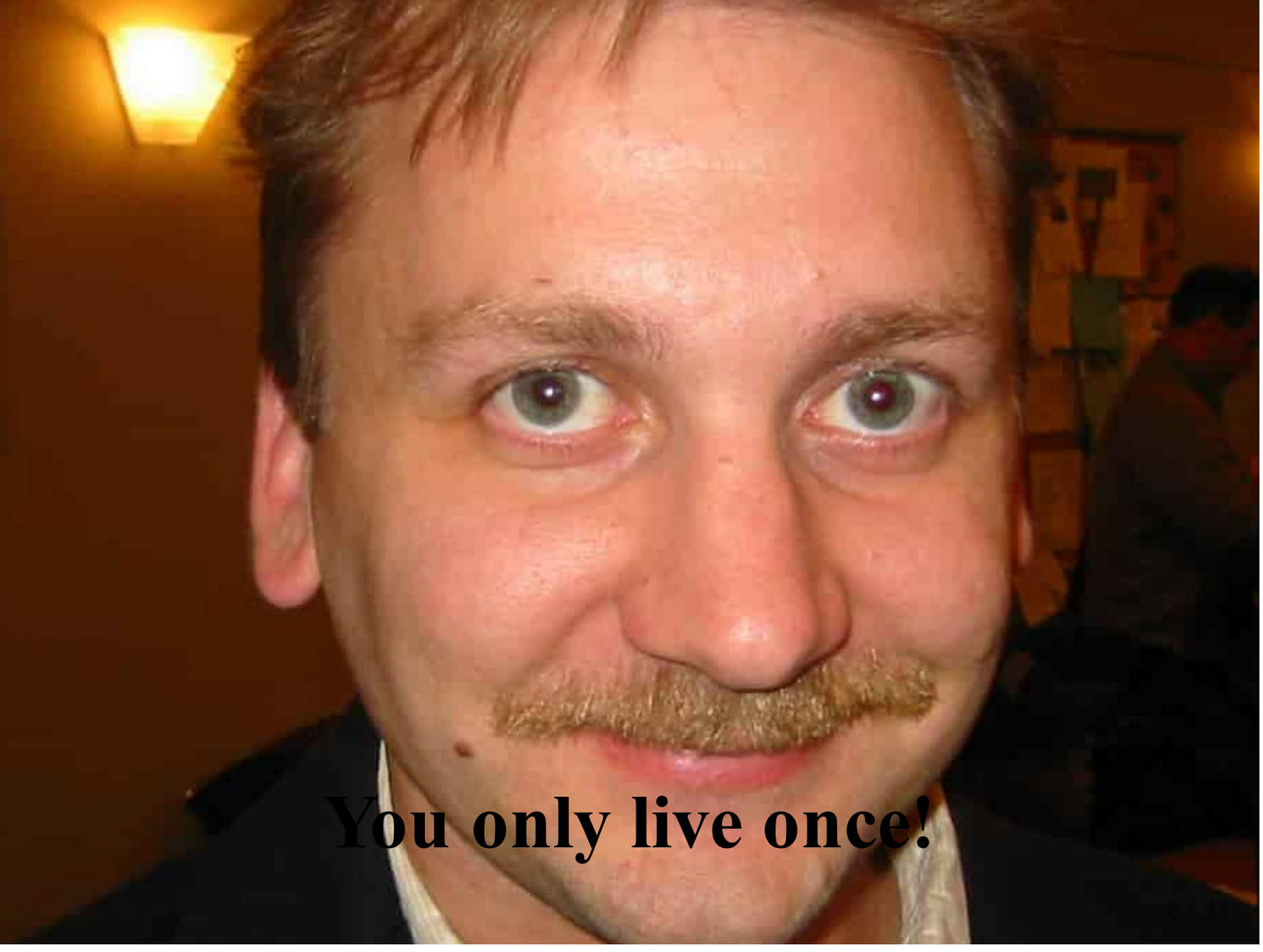
- Create a new R Markdown document from the menu `File -> New File -> R Markdown -> From Template -> Ninja Presentation`;[1]
- Click the `Knit` button to compile it;
- or use the RStudio Addin[2] "Infinite Moon Reader" to live preview the slides (every time you update and save the Rmd document, the slides will be automatically reloaded in RStudio Viewer.

[1] 中文用户请看这份教程

[2] See #2 if you do not see the template or addin in RStudio.


You only live once!

Hello Ninja

As a presentation ninja, you certainly should not be satisfied by the "Hello World" example. You need to understand more about two things:

1. The remark.js library;

2. The **xaringan** package;

Basically **xaringan** injected the chakra of R Markdown (minus Pandoc) into **remark.js**. The slides are rendered by remark.js in the web browser, and the Markdown source needed by remark.js is generated from R Markdown (**knitr**).

remark.js

You can see an introduction of remark.js from its homepage. You should read the remark.js Wiki at least once to know how to

- create a new slide (Markdown syntax* and slide properties);
- format a slide (e.g. text alignment);
- configure the slideshow;
- and use the presentation (keyboard shortcuts).

It is important to be familiar with remark.js before you can understand the options in **xaringan**.

[*] It is different with Pandoc's Markdown! It is limited but should be enough for presentation purporses. Come on... You do not need a slide for the Table of Contents! Well, the Markdown support in remark.js may be improved in the future.


I was so happy to have
discovered remark.js!

Using xaringan

xaringan

Provides an R Markdown output format `xaringan::moon_reader` as a wrapper for remark.js, and you can use it in the YAML metadata, e.g.

```
---
title: "A Cool Presentation"
output:
  xaringan::moon_reader
    yolo: true
    nature:
      autoplay: 30000
---
```

See the help page `?xaringan::moon_reader` for all possible options that you can use.

remark.js vs xaringan

Some differences between using remark.js (left) and using **xaringan** (right):

1. Start with a boilerplate HTML file;
2. Plain Markdown;
3. Write JavaScript to autoplay slides;
4. Manually configure MathJax;
5. Highlight code with `*`;
6. Edit Markdown source and refresh browser to see updated slides;

[*] Not really. See next page.

1. Start with an R Markdown document;
2. R Markdown (can embed R/other code chunks);
3. Provide an option `autoplay`;
4. MathJax just works;*

Math Expressions

You can write LaTeX math expressions inside a pair of dollar signs, e.g. $\alpha+\beta$ renders `\(\alpha+\beta\)`. You can use the display style with double dollar signs:

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

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

Limitations:

1. The source code of a LaTeX math expression must be in one line, unless it is inside a pair of double dollar signs, in which case the starting `$$` must appear in the very beginning of a line, followed immediately by a non-space character, and the ending `$$` must be at the end of a line, led by a non-space character;

2. There should not be spaces after the opening `$` or before the closing `$`.

3. Math does not work on the title slide (see #61 for a workaround).

R Code

```
# a boring regression
fit = lm(dist ~ 1 + speed, data = cars)
coef(summary(fit))
```

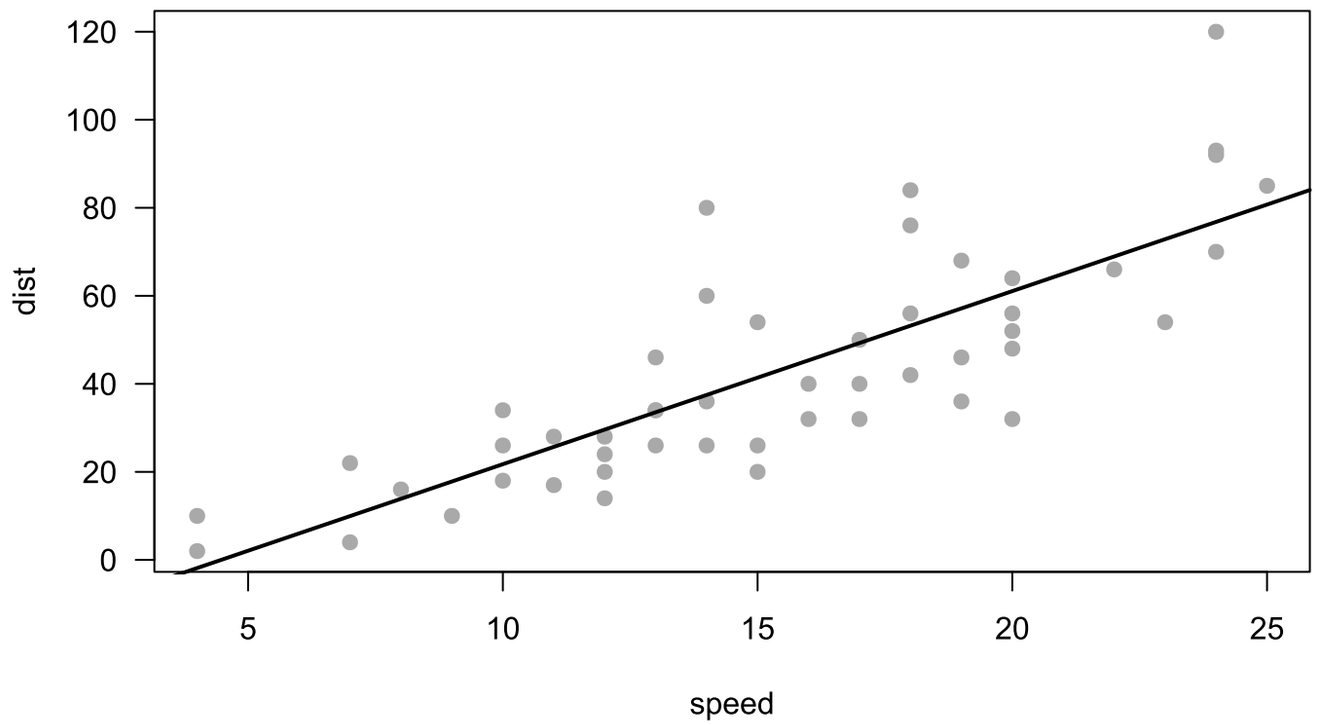
```
#               Estimate Std. Error   t value     Pr(>|t|)
# (Intercept) -17.579095  6.7584402 -2.601058 1.231882e-02
# speed         3.932409  0.4155128  9.463990 1.489836e-12
```

```
dojutsu = c('地爆天星', '天照', '加具土命', '神威', '須佐能乎', '無限月読')
grep('天', dojutsu, value = TRUE)
```

```
# character(0)
```

R Plots

```
par(mar = c(4, 4, 1, .1))
plot(cars, pch = 19, col = 'darkgray', las = 1)
abline(fit, lwd = 2)
```



Tables

If you want to generate a table, make sure it is in the HTML format (instead of Markdown or other formats), e.g.,

```
knitr::kable(head(iris), format = 'html')
```

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa

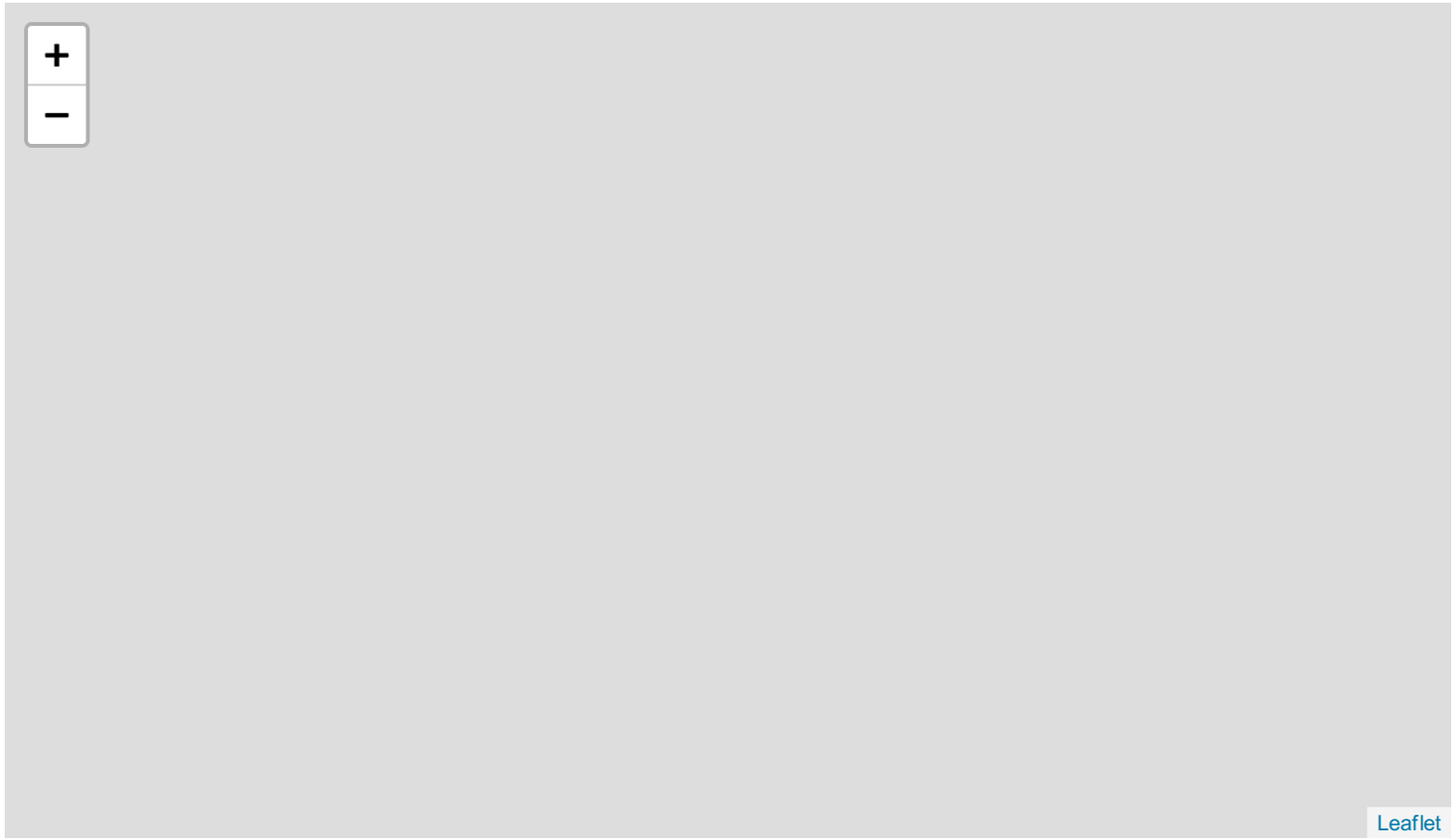
HTML Widgets

I have not thoroughly tested HTML widgets against **xaringan**. Some may work well, and some may not. It is a little tricky.

Similarly, the Shiny mode (`runtime: shiny`) does not work. I might get these issues fixed in the future, but these are not of high priority to me. I never turn my presentation into a Shiny app. When I need to demonstrate more complicated examples, I just launch them separately. It is convenient to share slides with other people when they are plain HTML/JS applications.

See the next page for two HTML widgets.

UN sede Bogotá



Pantalla Completa

```
DT::datatable(
  head(iris, 10),
  fillContainer = FALSE, options = list(pageLength = 8)
)
```

Pantalla Completa

Some Tips

- When you use the "Infinite Moon Reader" addin in RStudio, your R session will be blocked by default. You can click the red button on the right of the console to stop serving the slides, or use the *daemonized* mode so that it does not block your R session. To do the latter, you can set the option

  ```
  options(servr.daemon = TRUE)
  ```

  in your current R session, or in `~/.Rprofile` so that it is applied to all future R sessions. I do the latter by myself.

  To know more about the web server, see the **servr** package.

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  To know more about the web server, see the **servr** package.

- Do not forget to try the `yolo` option of `xaringan::moon_reader`.

  ```
  output:
    xaringan::moon_reader:
      yolo: true
  ```

Some Tips

- Slides can be automatically played if you set the `autoplay` option under `nature`, e.g. go to the next slide every 30 seconds in a lightning talk:

```
output:
  xaringan::moon_reader:
    nature:
      autoplay: 30000
```

Some Tips

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```
output:
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      autoplay: 30000
```

- A countdown timer can be added to every page of the slides using the `countdown` option under `nature`, e.g. if you want to spend one minute on every page when you give the talk, you can set:

```
output:
  xaringan::moon_reader:
    nature:
      countdown: 60000
```

Then you will see a timer counting down from `01:00`, to `00:59`, `00:58`, ... When the time is out, the timer will continue but the time turns red.

Some Tips

- The option `highlightLines: true` of `nature` will highlight code lines that start with `*` or are wrapped in `{{ }}`;

```
output:
  xaringan::moon_reader:
    nature:
      highlightLines: true
```

  See examples on the next page.

Some Tips

An example using a leading `*`:

````
```r
if (TRUE) {
* message("Very important!")
}
```
````

Output:

```r
if (TRUE) {
  message("Very important!")
}
```

This is invalid R code, so it is a plain fenced code block that is not executed.

An example using `{{}}`:

````
```{r tidy=FALSE}
if (TRUE) {
{{ message("Very important!") }}
}
```
````

Some Tips

- To make slides work offline, you need to download a copy of remark.js in advance, because **xaringan** uses the online version by default (see the help page `?xaringan::moon_reader`).

- You can use `xaringan::summon_remark()` to download the latest or a specified version of remark.js. By default, it is downloaded to `libs/remark-latest.min.js`.

- Then change the `chakra` option in YAML to point to this file, e.g.

```
output:
  xaringan::moon_reader:
    chakra: libs/remark-latest.min.js
```

- If you used Google fonts in slides (the default theme uses *Yanone Kaffeesatz*, *Droid Serif*, and *Source Code Pro*), they won't work offline unless you download or install them locally. The Heroku app google-webfonts-helper can help you download fonts and generate the necessary CSS.

CSS

Among all options in `xaringan::moon_reader`, the most challenging but perhaps also the most rewarding one is `css`, because it allows you to customize the appearance of your slides using any CSS rules or hacks you know.

You can see the default CSS file here. You can completely replace it with your own CSS files, or define new rules to override the default.

CSS

For example, suppose you want to change the font for code from the default "Source Code Pro" to "Ubuntu Mono". You can create a CSS file named, say, `ubuntu-mono.css`:

```
@import url(https://fonts.googleapis.com/css?family=Ubuntu+Mono:400

.remark-code, .remark-inline-code { font-family: 'Ubuntu Mono'; }
```

Then set the `css` option in the YAML metadata:

```
output:
  xaringan::moon_reader:
    css: ["default", "ubuntu-mono.css"]
```

Here I assume `ubuntu-mono.css` is under the same directory as your Rmd.


Naruto

Sharingan

The R package name **xaringan** was derived[1] from **Sharingan**, a dōjutsu in the Japanese anime *Naruto* with two abilities:

- the "Eye of Insight"
- the "Eye of Hypnotism"

I think a presentation is basically a way to communicate insights to the audience, and a great presentation may even "hypnotize" the audience.[2,3]

[1] In Chinese, the pronounciation of *X* is *Sh* /ʃ/ (as in *shrimp*). Now you should have a better idea of how to pronounce my last name *Xie*.

[2] By comparison, bad presentations only put the audience to sleep.

[3] Personally I find that setting background images for slides is a killer feature of remark.js. It is an effective way to bring visual impact into your presentations.

Naruto terminology

The **xaringan** package borrowed a few terms from Naruto, such as

- Sharingan (写輪眼; the package name)
- The moon reader (月読; an attractive R Markdown output format)
- Chakra (查克拉; the path to the remark.js library, which is the power to drive the presentation)
- Nature transformation (性質変化; transform the chakra by setting different options)
- The infinite moon reader (無限月読; start a local web server to continuously serve your slides)
- The summoning technique (download remark.js from the web)

You can click the links to know more about them if you want. The jutsu "Moon Reader" may seem a little evil, but that does not mean your slides are evil.

Hand seals (印)

Press `h` or `?` to see the possible ninjutsu you can use in remark.js.

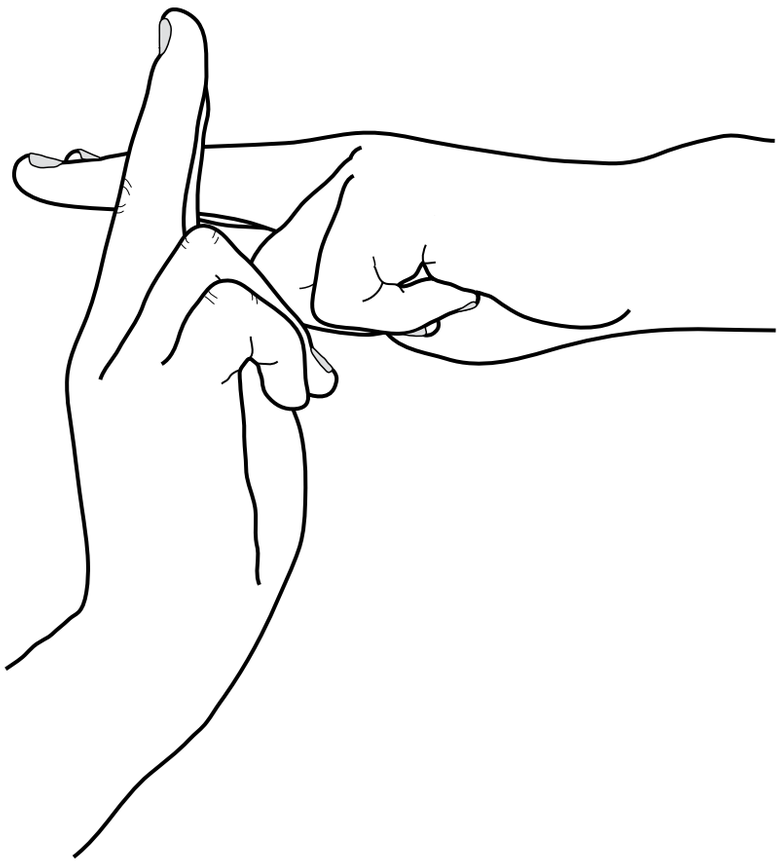


Figura Final

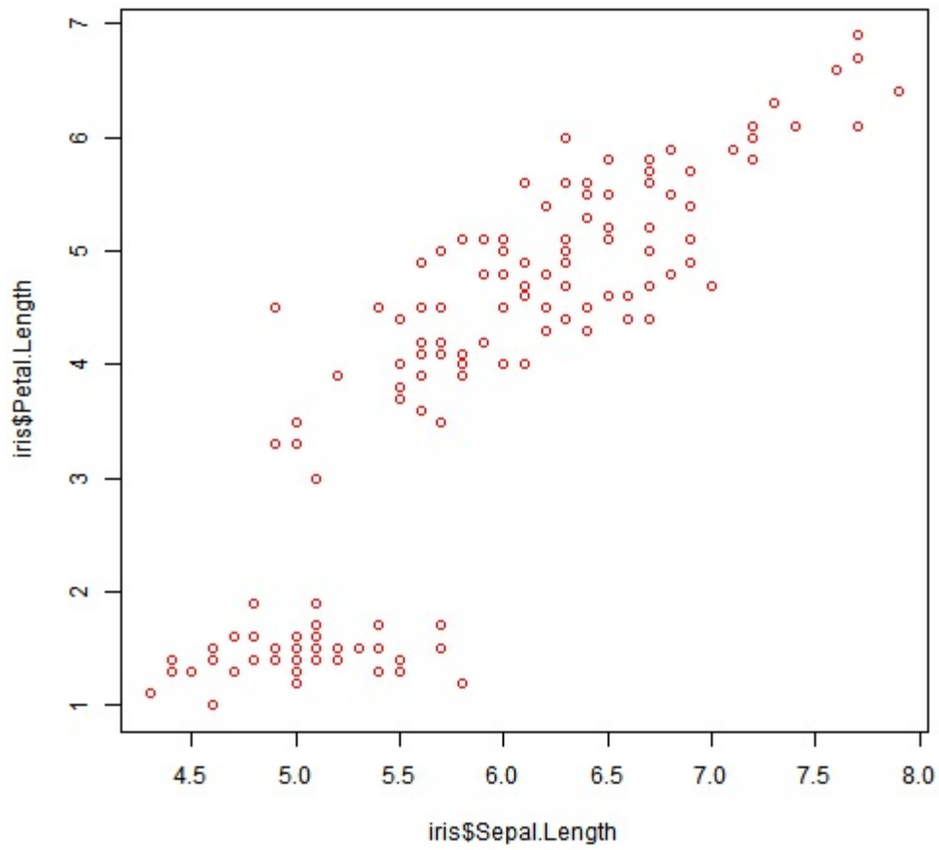
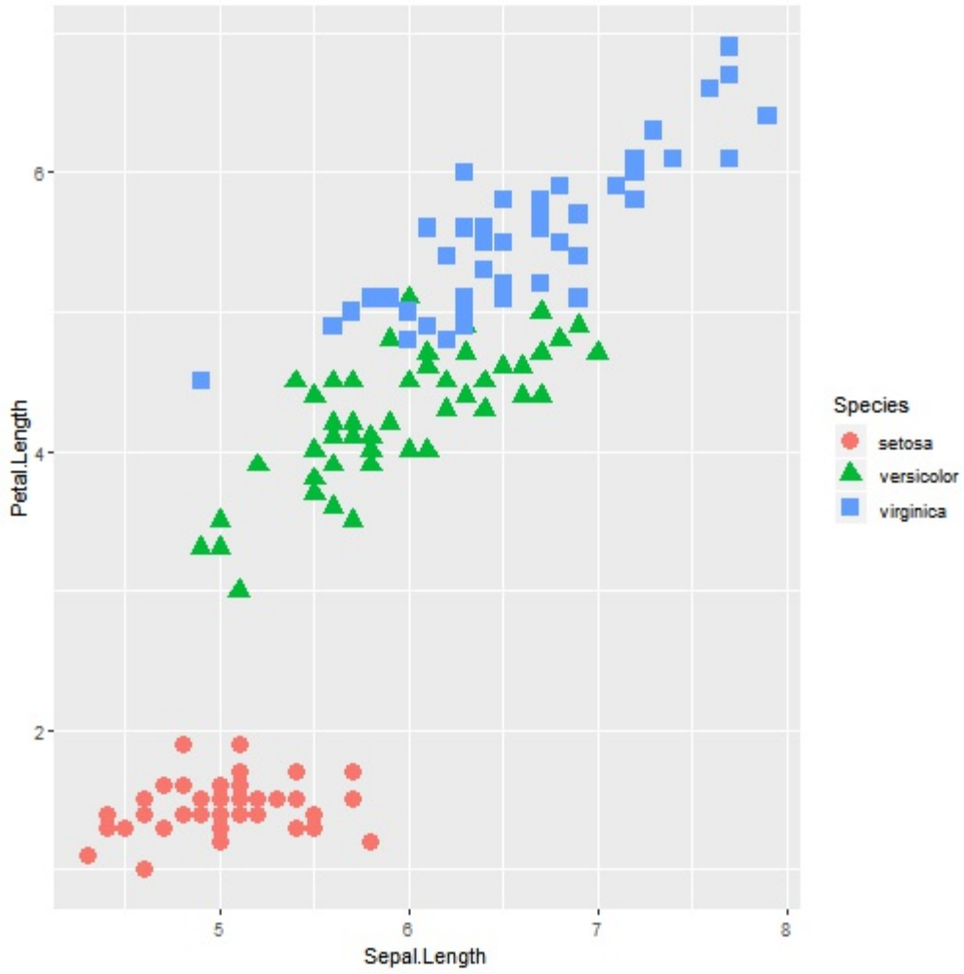


Gráfico con Ggplot2



Gracias!

Diapositivas creadas con el paquete **xaringan**.

The chakra comes from remark.js, **knitr**, and R Markdown.