A TEMPLATE FOR THE *ARXIV* STYLE

A PREPRINT

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Abstract

Enter the text of your abstract here. Resumen del documento

***K*eywords** blah · blee · bloo · these are optional and can be removed

1 Introduction

Here goes an introduction text

2 Headings: first level

You can use directly LaTeX command or Markdown text.

LaTeX command can be used to reference other section. See Section 2. However, you can also use **bookdown** extensions mechanism for this.

2.1 Vectores

un vector es una estructura de datos quealmacena numeros de doble presicion?

```
mi_vector_a <- c(12,34,12,54,23,12,65,34,12,56,66,24)
mi_vector_b<- seq(1:16)

mi_vector_a
```

```
##  [1] 12 34 12 54 23 12 65 34 12 56 66 24
```

```
mi_vector_b
```

```
##  [1]  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
```

2.2 Matrices

Las matrices se parecen a los vectores, pero tienes filas y columnas. Se alimentas de vectores.

*Use footnote for providing further information about author (webpage, alternative address)—*not* for acknowledging funding agencies. Optional.

```
mi_matriz_c<-matrix(mi_vector_b, nrow=4,byrow=FALSE)
mi_matriz_c
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    1    5    9   13
## [2,]    2    6   10   14
## [3,]    3    7   11   15
## [4,]    4    8   12   16
```

Para acceder a un elemento de la matriz uso las filas y las columnas entre corchetes

```
mi_matriz_c[2,3]
```

```
## [1] 10
```

Como traer la fila 4 completa ?

```
 mi_matriz_c[4,]
```

```
## [1]  4  8 12 16
```

Como traer una columna ?

```
 mi_matriz_c[,1]
```

```
## [1] 1 2 3 4
```

Que hara este comando ?

```
mi_matriz_c[-2,]
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    1    5    9   13
## [2,]    3    7   11   15
## [3,]    4    8   12   16
```

##Matriz de 100 por 100

```
mi_vector_e<-seq(1:10000)
start_time <- Sys.time()
mi_matriz_f<-matrix(mi_vector_e, nrow=100, byrow=TRUE) #Comentario
end_time <- Sys.time()
end_time - start_time
```

```
## Time difference of 0.001318216 secs
```

##Matriz de 100 por 100 2

```
library(tictoc)
mi_vector_g<-seq(1:10000)
tic("Tiempo :")
mi_matriz_h<-matrix(mi_vector_g, nrow=100, byrow=TRUE)
toc()
```

```
## Tiempo :: 0.002 sec elapsed
```

2.3 Headings: second level

You can use equation in blocks

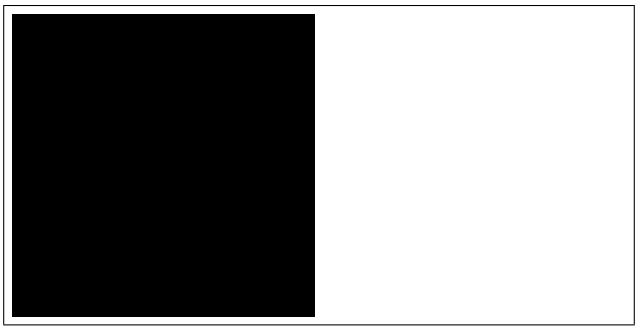

Figure 1: Sample figure caption.

$$\xi_{ij}(t) = P(x_t = i, x_{t+1} = j|y, v, w; \theta) = \frac{\alpha_i(t) a_{ij}^{w_t} \beta_j(t+1) b_j^{v_{t+1}}(y_{t+1})}{\sum_{i=1}^{N} \sum_{j=1}^{N} \alpha_i(t) a_{ij}^{w_t} \beta_j(t+1) b_j^{v_{t+1}}(y_{t+1})}$$

But also inline i.e $z = x + y$

2.3.1 Headings: third level

Another paragraph.

3 Examples of citations, figures, tables, references

You can insert references. Here is some text (Kour and Saabne 2014b, 2014a) and see Hadash et al. (2018).
The documentation for `natbib` may be found at
You can use custom blocks with LaTeX support from **rmarkdown** to create environment.

`http://mirrors.ctan.org/macros/latex/contrib/natbib/natnotes.pdf%7D`

Of note is the command `\citet`, which produces citations appropriate for use in inline text.
You can insert LaTeX environment directly too.

```
\citet{hasselmo} investigated\dots
```

produces

> Hasselmo, et al. (1995) investigated...

`https://www.ctan.org/pkg/booktabs`

3.1 Figures

You can insert figure using LaTeX directly.
See Figure 1. Here is how you add footnotes. [^Sample of the first footnote.]
But you can also do that using R.

```r
plot(mtcars$mpg)
```

You can use **bookdown** to allow references for Tables and Figures.

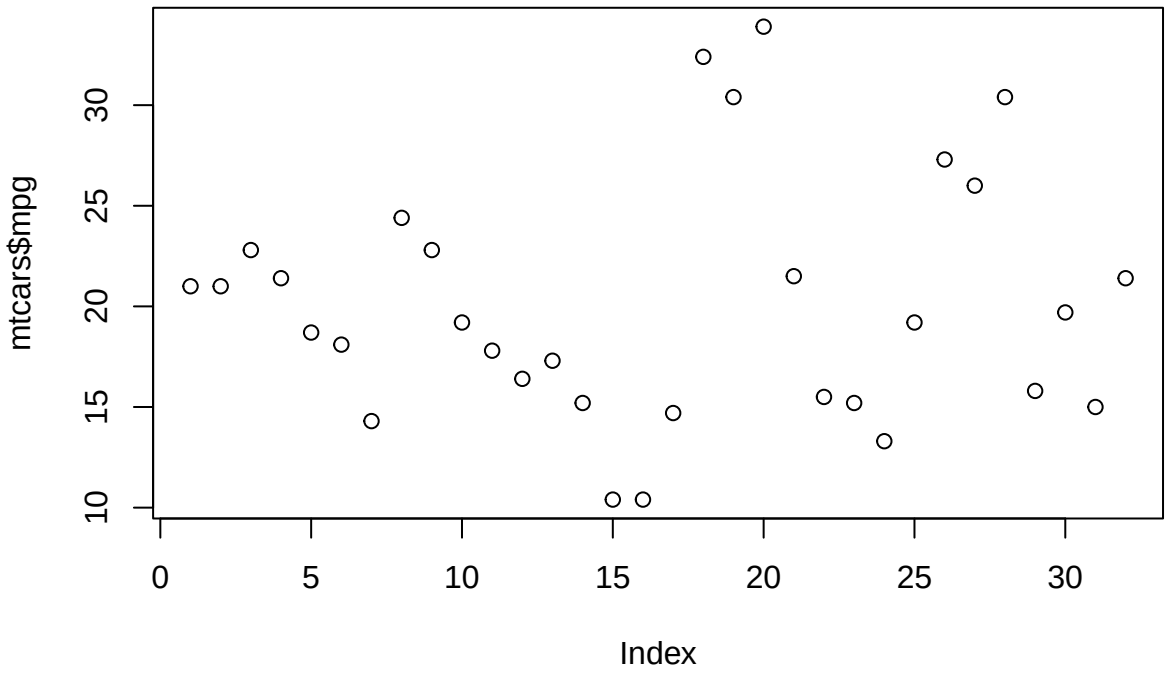

Figure 2: Another sample figure

Table 1: Sample table title

Part		
Name	Description	Size (μm)
Dendrite	Input terminal	~100
Axon	Output terminal	~10
Soma	Cell body	up to 10^6

3.2 Tables

Below we can see how to use tables.

See awesome Table~1 which is written directly in LaTeX in source Rmd file.

You can also use R code for that.

```
knitr::kable(head(mtcars), caption = "Head of mtcars table")
```

Table 2: Head of mtcars table

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.0	6	160	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360	175	3.15	3.440	17.02	0	0	3	2
Valiant	18.1	6	225	105	2.76	3.460	20.22	1	0	3	1

3.3 Lists

- Item 1
- Item 2
- Item 3

Hadash, Guy, Einat Kermany, Boaz Carmeli, Ofer Lavi, George Kour, and Alon Jacovi. 2018. "Estimate and Replace: A Novel Approach to Integrating Deep Neural Networks with Existing Applications." *arXiv Preprint arXiv:1804.09028*.

Kour, George, and Raid Saabne. 2014a. "Fast Classification of Handwritten on-Line Arabic Characters." In *Soft Computing and Pattern Recognition (SoCPaR), 2014 6th International Conference of*, 312–18. IEEE.