A TEMPLATE FOR THE *ARXIV* STYLE

A PREPRINT

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Abstract

Resumen del documento

1 Introduction

Clase de Técnicas y Herramientas Modernas

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 que almacena números de doble presición.

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

mi_vector_a
```

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

```
mi_vector_b
```

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

2.1.1 Matrices

Las matrices se parecen a los vectores, pero tienen filas y columnas. Se alimentan de vectores

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

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

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

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

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

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

Para traer una fila completa coloco entre corchetes el numero de fila, y nada en la columna

```
mi_matriz_c[4, ]
```

```
## [1] 13 14 15 16
```

Para traer una columna coloco el numero de la columna entre corchetes, y nada en la fila

```
mi_matriz_c[2, ]
```

```
## [1] 5 6 7 8
```

Si coloco entre corchetes un numero negativo me va a traer toda la matriz menos dicha fila o columna

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

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

tadaaa

2.1.2 Tiempo en ejecutar un algoritmo

```
mi_vector_d <-seq(1:10000)
start_time <- Sys.time() #hora del sistema
mi_matriz_e <- matrix(mi_vector_d,nrow=100,  , byrow=TRUE)
end_time <- Sys.time()
end_time - start_time
```

```
## Time difference of 0.001377106 secs
```

2.1.3 Tictoc

```
library(tictoc)
mi_vector_h<-seq(1:10000)
tic("tiempo de demora en hacer la matriz")
mi_matriz_i<-matrix(mi_vector_h, nrow=100, byrow=TRUE)

toc()
```

```
## tiempo de demora en hacer la matriz: 0.002 sec elapsed
```

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.

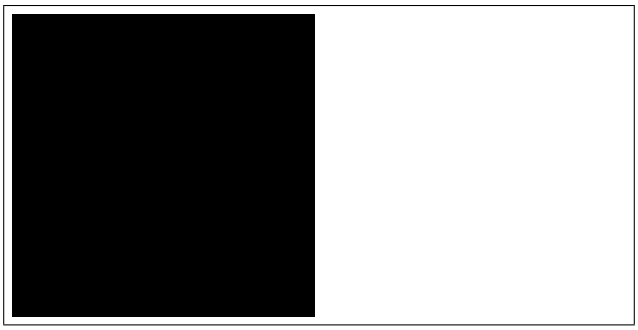

Figure 1: Sample figure caption.

Table 1: Sample table title

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

`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.

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

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

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")
```

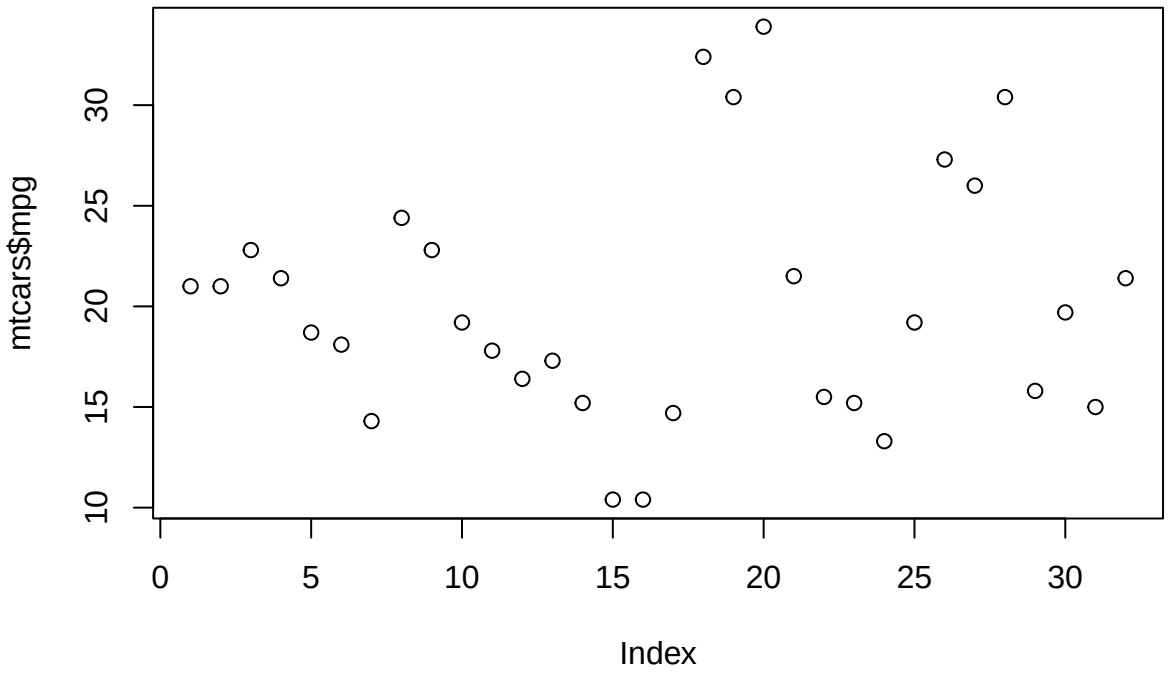

Figure 2: Another sample figure

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.

———. 2014b. "Real-Time Segmentation of on-Line Handwritten Arabic Script." In *Frontiers in Handwriting Recognition (ICFHR), 2014 14th International Conference on*, 417–22. IEEE.