

Reproducible Corporate Publications

WITH PAGEDOWN

Romain Lesur



Deputy Head of the
Statistical Service



Retrouvez-nous sur
justice.gouv.fr

pagedown package

pagedown.rbind.io

- New and experimental package on top of {bookdown}/{rmarkdown} developed with **Yihui Xie** (RStudio)
1st release: January 2019
- Aim of {pagedown}
Paginate HTML documents from R Markdown using CSS
- Dedicated to R users who
 - are more comfortable with HTML/CSS than *L^AT_EX* or Word
 - need to customise their R Markdown documents
- For now, a few builtin templates

You also can make posters with {pagedown}, *outside the scope of this talk.*

Default template

`pagedown::html_paged()`

**pagedown: Create Paged
HTML Documents for
Printing from R Markdown**

**A Less Traveled Road to PDF
and Printing**

Yihui Xie and Romain Lesur

2019-05-14

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2 Paged HTML documents

To create a paged HTML document, you can use the output format `pagedown::html_paged`, e.g.,

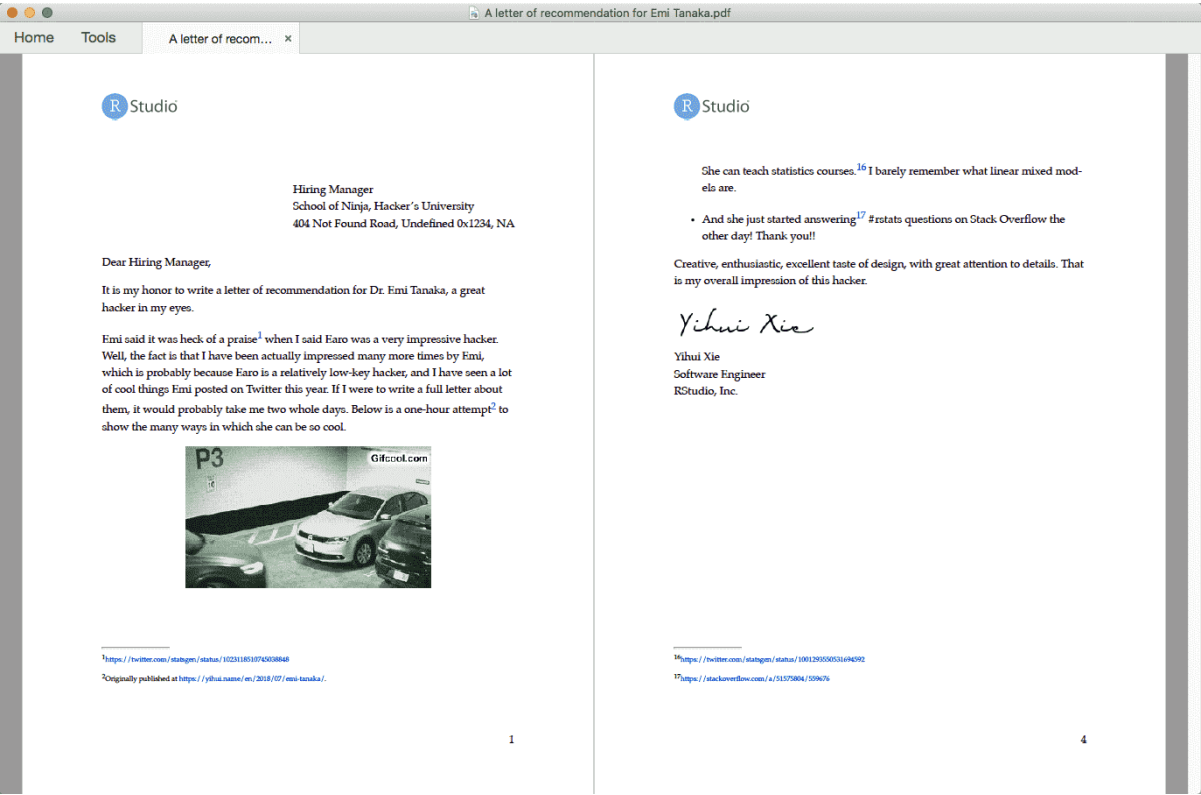
```
output:
  pagedown::html_paged:
    toc: true
    number_sections: false
```

2.1 Preview paged HTML documents

This format is based on `paged.js`. Some other formats in this package are extensions of `html_paged`, such as `html_letter` and `html_resume`. Please note that you need a web server to view the output pages of these formats, because `paged.js` requires a web server. The web server could be either a local server or a remote one. When you compile an R Markdown document to HTML in RStudio, RStudio will display the HTML page through a local web server, so `paged.js` will work in RStudio Viewer. However, when you view such pages in a real web browser, you will need a separate web server. The easiest way to preview these HTML pages in a web browser may be through the RStudio addin “Infinite Moon Reader”, which requires the `xaringan` package (Xie 2019b). Or equivalently, you can call the function `xaringan::inf_mr()`. This will launch a local web server via the `servr` package (Xie 2019a).

Letters

`pagedown::html_letter()`



Resume

`pagedown::html_resume()`

LIJIA YU

Currently searching for a PhD student position

Please note that this is a *real* resume, and I'm really looking for a PhD student position at the moment. I made this resume because Vinod asked me if I'd like to test the **pagdown** package with my resume. If you are interested in my background and skills, please feel free to contact me.

EDUCATION

2010

● Beijing University of Chemical Technology
B.S. in Information and Computing Sciences

Beijing, China

Thisis Dyadic wavelet and its application in edge detection

2014

● University of Chinese Academy of Sciences
M.S. in Bioinformatics

Beijing, China

Thisis A multi-omics study for intra-individual divergence of the distributions between mRNA isoforms in mammals

RESEARCH EXPERIENCE

2011 | 2014

● Graduate Research Assistant
Beijing Institute of Genomics, Chinese Academy of Sciences

Beijing, China

• Performed computational biology research towards understanding regulation of alternative splicing in human and mouse transcriptome.

• Found EGFR pathway related mutations, aimed to understand the impacts of cancer mutations on EGFR signaling pathway.

2015 | 2016

● Bioinformatics
My Health Gene Technology Co., Ltd.

Beijing, China

• Investigated how cancer cells spread to other parts of the body at the single cell level.

2016 | 2018

● Visiting Scientist
University of Alabama at Birmingham

AL USA

• Investigated the role of mitochondria in development of cancer.

• Investigated the evolution of genome architecture and its role in important evolutionary events.

• Detected thrombotic thrombocytopenic purpura related mutations in multiple patients' blood genome.

PROFESSIONAL EXPERIENCE

2014

● Data Scientist, intern
SupStat Inc.

Beijing, China

• Taught R language to beginners.

• Converted statistical tutorials from SPSS to R language.

CONTACT INFO

✉ lijia.yu@outlook.com

🔗 github.com/yulijia

☎ +1 000-000-0000

For more information, please contact me via email.

SKILLS

Experienced in statistical analysis, statistical learning models, and optimization methods.


Full experience with next generation sequencing data analysis.

Highly skilled in R, Bash, Perl, Python, LaTeX

This resume was made with the R package **pagdown**

Last updated on 2019-05-14.

- 2015 • **Bioinformatician**
My Health Gene Technology Co., Ltd. 📍 Beijing, China
 - Analyzed whole-exome sequencing data.
 - Studied tumor metastasis and wrote research reports.
- 2016 • Wrote analysis pipelines of ChIP-seq, single cell DNA-seq and single cell RNA-seq.
 - Also did case studies to identify the genetic defect causing rare disease.

 **TEACHING EXPERIENCE**

- 2014 • **Introduction to R Language for Beginners.**
Instructor of R and Data Mining Training Courses at SupStat Inc. 📍 Beijing, China
- 2016 • **Computational Biology and Bioinformatics.**
Teaching assistant of GBS CB2-201 courses at UAB 📍 AL, USA
- 2017

 **SELECTED PUBLICATIONS AND POSTERS**

- 2014 • **Genetic and epigenetic signals are found predictive to the distribution of intra-individual divergence of alternative splicing.**
Poster for 2013 International Conference of Genomics 📍 Qingdao, China
Yu L, Chen B, Zhang Z.
- 2016 • **ESCR1-0 complex modulates Rbf mutant cell survival by regulating Rhomboid endosomal trafficking and EGFR signaling.**
J. Cell Sci. 2016 May 15;129(10):2075-84.
Sheng Z, Yu L, Zhang T, Pei X, Li X, Zhang Z and Du W.

Scientific article

```
pagedown::jss_paged()
```

The screenshot displays the RStudio interface. On the left, the R script editor shows the `jss_paged()` function call and its configuration options. The right pane shows the rendered HTML output, which is a scientific article template for the *Journal of Statistical Software*.

R Script Editor (Left):

```
1 ---
2 author:
3   - name: Yihui Xie
4     affiliation: RStudio
5     address: |
6       First line
7       Second line
8     email: <name@company.com>
9     url: <http://rstudio.com>
10  - name: Romain Lesur
11 title: |
12 [HTML]{.proglang} and [CSS Paged Media]{.proglang} for
13 Scientific Publications with the [pagedown]{.pkg}
14 [R]{.proglang} Package
15 shorttitle: "[pagedown]{.pkg}: Paginate the [HTML]{.proglang}
16 Output of [R Markdown]{.pkg} with [CSS]{.proglang} for Print"
17 abstract: |
18 Use the paged media properties in [CSS]{.proglang} and the
19 [JavaScript]{.proglang} library [Paged.js]{.pkg} to split the
20 content of an [HTML]{.proglang} document into discrete pages.
21 Each page can have its page size, page numbers, margin boxes,
22 and running headers, etc. Applications of this package
23 include books, letters, reports, papers, business cards,
24 resumes, and posters.
25 # at least one keyword must be supplied
26 keywords:
27   - "[HTML]{.proglang}"
28   - "[CSS]{.proglang}"
29   - "[markdown]{.proglang}"
30   - scientific publication
31   - literate programming
32 links-to-footnotes: true
33 paged-footnotes: true
34 link-citations: true
35 bibliography: index.bib
36 output:
37   pagedown::jss_paged:
38     self_contained: false
39 ---
40 # Introduction
41
42 When talking about PDF and printing, we often think of tools
43 like  $\LaTeX$  and Microsoft Word. When talking about
44 [HTML]{.proglang} and [CSS]{.proglang}, we may have never
45 imagined their possible off-screen use such as printing to
46 PDF.
47
48 Can we print a book with [HTML]{.proglang} and
49 [CSS]{.proglang}? W3C published [the first working
50 draft](https://www.w3.org/1999/06/WD-css3-page-19990623) on
51 "Paged Media Properties for [CSS]{.proglang}(3)". which was
52
53 12:130 [HTML]{.proglang} and [CSS Paged Media]{.proglang} for Scientific Publications with the [pagedo
```

HTML Output (Right):

The rendered HTML output shows a scientific article template for the *Journal of Statistical Software*. The title is "HTML and CSS Paged Media for Scientific Publications with the pagedown R Package". The authors are Yihui Xie (RStudio) and Romain Lesur. The abstract states: "Use the paged media properties in CSS and the JavaScript library Paged.js to split the content of an HTML document into discrete pages. Each page can have its page size, page numbers, margin boxes, and running headers, etc. Applications of this package include books, letters, reports, papers, business cards, resumes, and posters." The keywords are: HTML, CSS, markdown, scientific publication, literate programming. The introduction section begins with: "When talking about PDF and printing, we often think of tools like \LaTeX and Microsoft Word. When talking about HTML and CSS, we may have never imagined their possible off-screen use such as printing to PDF."

Chapman & Hall/CRC

`pagedown::book_crc()`

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Users' templates — Another resume

by [Ulrik Lyngs](#)

Ulrik Lyngs

Curriculum vitae

Personal summary

I am a computer scientist and cognitive psychologist. I am passionate about applying insights from the behavioural neurosciences to design digital technology that is sensitive to human limitations and biases, particularly in relation to attention and self-regulation.

Department of Computer Science
University of Oxford, Oxford, UK

ulrik.lyngs@ox.ac.uk
ulriklyngs.com
[ulyngs](#)

Education

2016 – 2020	DPH in Computer Science, University of Oxford
2012 – 2015	MSc in Cognitive and Evolutionary Anthropology, University of Oxford
2011 – 2016	MA in the Study of Religion & Cognitive Psychology, Aarhus University
2007 – 2011	BA in the Study of Religion & Psychology, Aarhus University

Grants and Awards

2018	Best Paper Award (€500), 10th ACM Conference on Web Science, Amsterdam
2018	Student Research Competition Grant (€500), ACM CHI 16
2017	DOMUS Prize for Outstanding Research Communication (€500), Linacre College, University of Oxford
2017	Designing for Curiosity Workshop Grant (€400), ACM CHI 17
2017	Student Research Competition Grant (€500), ACM CHI 17
2015	Lienhard & Bagby Research Grant (€1,000), Institute of Social & Cultural Anthropology, Uio, of Oxford

Publications

conference proceedings	Lyngs, U., Lukoff, K., Stevák, P., Birns, R., Stack, A., Iszlicht, M., Kleek, M. V., Shadbolt, N. (2019). Self-Control in Cyberspace: Applying Dual Systems Theory to a Review of Digital Self-Control Tools. CHI 19: Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems. Arousable Mention
workshop paper	Lyngs, U. (2019). Putting Self-Control at the Centre of Digital Wellbeing. CHI19 workshop, Designing for Digital Wellbeing.
conference proceedings	Birns, R., Lyngs, U., van Kleek, M., Zhao, J., Shadbolt, N. (2018). Third party tracking in the mobile ecosystem. Proceedings of the 10th International ACM Web Science Conference 2018. Best Paper
conference proceedings	Lyngs, U., Birns, R., van Kleek, M., Shadbolt, N. (2018). So, Tell Me What Users Want: What They Really, Really Want. CHI EA '18 (at:CHI). Proceedings of the 2018 CHI Conference Extended Abstracts on Human Factors in Computing Systems
conference proceedings	Birns, R., van Kleek, M., Vesilo, M., Lyngs, U., Zhao, J., Shadbolt, N. (2018). It's Producing a Human Being to a Percentage? Perceptions of Justice in Algorithmic Decision. CHI 18: Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems

1

Teaching experience

2019	Reproducible research with R. Markdown. TIER Faculty Development Workshop. St. Anne's College, University of Oxford
2019	Introduction to Evolutionary Psychology. Oxbridge International Summer School. Organized and taught a 2-week course with group and individual tutorials for students aged 15-18.
2010 – 2011	Philosophy, theory of science, and university history. Dept. for the Study of Religion, Aarhus University. Taught a weekly supplementary seminar to a class of ~20 undergraduate students.

Selected work experience

2017 – present	Web developer. SOCIAM.org. Dept. of Computer Science, University of Oxford. Built the current version of sociam.org (which archives the outputs of a 5.5 year EPSRC research endeavour involving 50+ researchers, 40+ independent projects, and 400+ publications) from scratch in Drupal 7, assisted by two summer interns. Ongoing maintenance, feature development, and content curation.
2015 – 2016	Festival Producer and Manager. Institute of Art and Ideas, London. Generated ideas and wrote programme copy for 250+ panel debates for the internationally renowned philosophy and music festival HowTheLightGetsIn. interviewed (600+) and booked (150+) world-leading thinkers, including Cory Doctorow, Aubrey de Grey, and Simon Baron-Cohen, led and managed a research team of two full-time and music team of three full-time staff.

Professional development

2018	Invited participant at the Global Dialogue for Happiness, World Government Summit, Dubai
2017	Leading for Impact, fellowship, 4-month leadership training programme at Said Business School, University of Oxford

Technical skills

- Programming, data analysis and visualization in R (tidyverse), Python, and D3.js
- Reproducible research with dynamic documents in R. Markdown (bookdown, xaringan, pagdown) + LaTeX
- Web development (HTML, CSS, JavaScript, Drupal, Hugo, blogdown, Jekyll + GitHub)

Software development

2019	Dashboard for visualizing facebook usage, developed with R, shiny, and <i>flexdashboard</i> , deployed on shinyapps.io. Originally developed for research study on Facebook use among Oxford University students in the autumn of 2018.
2019	oxforddown , R package for writing an Oxford University thesis with R. Markdown.
2015	chi-proc-reel-template and chi-aa-template , R packages for writing ACM CHI submissions with R. Markdown.

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Ministère
de la Justice


Reproducible Corporate Publications with pagdown

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Users' templates — AACSB's Executive Summaries

by [Joshua David Barillas](#)

2018–19
Template for
AACSB's
Executive
Summaries



Basic

New Sections

New sections are started with # Header Title which will also start them on a new page, e.g., the header above is # Basic.

Blockquotes

Blockquotes are written after >, e.g.,

> Lorem ipsum dolor sit amet, consectetur adipiscing elit.
> Quisque in sodales dolor, non suscipit leo.
> Proin id massa quis libero tincidunt gravida.
> Mauris sollicitudin eleifend dignissim.
> Etiam id urna sit amet mauris rutrum luctus.

The actual output (with the custom style) will look like:


■ Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quisque in sodales dolor, non suscipit leo. Proin id massa quis libero tincidunt gravida. Mauris sollicitudin eleifend dignissim. Etiam id urna sit amet mauris rutrum luctus.

Tables

Number of Participating Schools by Region

Region	Participants
Asia-Pacific	
Asia (excluding Middle and Near East)	76
Oceania	26
Total	102
Europe, Middle East, and Africa (EMEA)	
Africa	6
Europe and Near East	136
Middle East	21
Total	163
The Americas	
Canada	35
Latin America and Caribbean	17
United States*	503
Total	555

* Excluding Puerto Rico, which is included in the Caribbean numbers



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Americas

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Suite 750
Tampa, Florida 33602-5730 USA
Main +1 813 769 6500

Europe, Middle East, and Africa

UP Building, Piet Heinkade 55
1019 GM Amsterdam
The Netherlands
Main +31 20 509 1070

Asia Pacific

331 North Bridge Road
#10-04/05 Odeon Towers
Singapore, 128720
Main +65 6592 5210


Ministère
de la Justice

Reproducible Corporate Publications with pagedown

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Users' templates — UNHCR

by [Edouard Legoupil](#)



UNHCR
The UN Refugee Agency

How to quickly produce statistical reports?

The UNHCR "R-Cookbook"

Version: 2019-04-08

The cookbook aims as well at making it easier for people new to R to create graphics. It implements a specific theme (using `ggplot2` R library) and report template using `pagedown` R library).

All the code below is ready to be copy-pasted. This report template itself, as it comes with UNHCR branding style, can also easily be reused.

The cookbook covers basic use cases. When dealing complex survey data set, based on a population sample where data must be weighted, we are advising to use the dedicated package `Rebusdata`.

This document has been largely inspired by the [BBC cookbook](#).

1 Graphics with "style"

1.1 A report or a dashboard?

Often analysts start building a dashboard when dealing with a new dataset. This is a correct approach only under certain conditions.

A dashboard is a one-screen group of summary visualizations that facilitate rapid assessment of a system (the best example for this being a car dashboard when the driver can monitor speed, fuel, fuel, etc.). It displays the most important information needed to achieve one or more objectives, consolidated and arranged in a format so that the information can be monitored at a glance. A report, by contrast, is an ordered presentation of a detailed data set. Reports are usually longer and more detailed, although they may have summary components.

In short, dashboards tend to focus on Key Performance Indicators (KPIs), while reports tend to focus on underlying data. Dashboards communicate specific points, while reports are aimed at telling a story. Statistical reports are therefore the starting point for any data analysis: this is the format to use to develop narrative interpretation for existing data in order to **develop knowledge**. It's only once the knowledge and interpretation keys on a specific data set is developed that end-users will be able to make sense of a dashboard presenting the same kind of data.

1.2 Importance of reproducibility

Reproducibility is key in data analysis:

- It can save a lot of time when very similar analysis has to be done in different operations or points in time.
- It allows for quick scanning the analysis workflow and point potential errors.
- It allows for peer review and/or can help peers to learn from what is presented. Openness and transparency improve trust in results.

United Nations High Commissioner for Refugees (UNHCR) | 7

3 Generate different kind of plots

Refugees Population are not equally spread

World wide refugee population 1951-2017



3.3 Bar chart

Some key points to consider when designing bar chart are:

- Start at the zero baseline! No exception. Do not clip the axis in order to highlight disparities at the top of the axis. Instead, try rescaling your data as percentage, or try another type of chart.
- Ensure numerical axis labels are aligned to the decimal point.
- Clearly denote currency or units.
- When axis lines are present, it is not necessary to label each data value. However, it can be useful to highlight the true value or other important data points.
- Convert your data to rounded, easily digestible values for chart labelling.

3 Generate different kind of plots

- Omit axes and baselines, when data values are labeled, simpler, better!
- When the range of your data crosses natural numerical milestones, such as from millions to billions, set the y-axis chart in the larger milestone. A chart should never reflect more than 1,000 millions, etc.
- Ensure labels fit neatly under the bars in no more than two lines.
- Horizontal bar charts help compare long lists of values or categories. It has the advantage of printing long labels without using one line or printing vertical text, as would be required for a vertical bar.
- Remember to sort your data before charting so that readers can easily compare.
- Labeled values eliminate the need for grid lines, while rounding is done to make the values easy to digest.
- Don't use 3D effect!

Note that by default, it will display your data in alphabetical order, but arranging it by size instead is simpler (and more intuitive) around the x or y variable you want to rearrange, and specify which variable you want to reorder it by.

E.g. `x = reorder(Country, Value)`. Ascending order is the default, but you can change it to descending by wrapping `desc()` around the variable you're ordering by.

Let's see what code is required for such chart:

```
#Prepare data
bar_gg = gg_gg_bar %>%
  filter(refugees > 0) %>%
  group_by(Country) %>%
  summarise(refugees = sum(refugees)) %>%
  arrange(desc(refugees))
```

United Nations High Commissioner for Refugees (UNHCR) | 23

How pagedown works?



- `pagedown::html_paged()` uses Paged.js a polyfill for CSS Paged Media
- Implements the support for CSS @page rules among others...
- You need a Chromium based browser (Chromium, Chrome, Brave...) why? see <https://caniuse.com/#feat-css-paged-media>
- **The same as your browser.** Example: multi-columns and an element which spans not on all columns

Limits



Want to implement your corporate design?

Some tips

- For now, use the dev version from GH
`remotes::install_github('rstudio/pagedown')`
- Collaborate with your webmaster
- Basic knowledge of HTML/CSS is required
- Learn the basics of the Chrome Developer Tools
developers.google.com/web/tools/chrome-devtools
- Read the Paged.js cheatsheet pagedmedia.org/paged-js
- Use web resources on CSS ([SO](#), [MDN](#), [CSS Tricks](#)...)
- Plan many tests
and some meditation sessions
- Use a version control system, e.g. `git`
or plan much more meditation sessions

Road map

`pagedown::html_paged()`
default stylesheets

Make a copy of the default
stylesheets

Preview with **xaringan**'s *Infinite Moon Reader* `xaringan::inf_mr()`

```
---  
title: "pagedown default template"  
output:  
  pagedown::html_paged:  
    css:  
      - default-fonts  
      - default-page  
      - default  
    self_contained: false  
---
```

```
files <- c("default-fonts", "default-page", "default")  
from <- pagedown::pkg_resource(paste0("css/", files, ".css"))  
to <- c("custom-fonts.css", "custom-page.css", "custom.css")  
file.copy(from = from, to = to)
```

Modify the CSS files

- Choose **fonts**, modify `custom-fonts.css`
- Choose the **paper size and margins**, modify `custom-page.css`

```
@page {  
    size: 210mm 297mm;  
    margin: 20mm 15mm 10mm 15mm;  
}
```

Adjust the HTML viewer parameters

No impact on the PDF, only
on the viewer

In `custom.css` file:

```
:root {  
  --background: whitesmoke;  
  --pagedjs-width: 6in; /* modify here */  
  --pagedjs-height: 9in; /* modify here */  
  --color-paper: white;  
  --color-mbox: rgba(0, 0, 0, 0.2);  
  --running-title-width: 2.5in;  
  --screen-pages-spacing: 5mm;  
}
```

Margins customisations

Extract of the CSS file used
for this deck

see
pagedmedia.org/paged-js

```
div.footerright {  
  position: running(footerright);  
}  
  
div.footerright::after {  
  content: counter(page);  
}  
  
@page {  
  size: 297mm 167mm;  
  margin: 6.5mm 6.5mm 18mm 6.5mm;  
  @bottom-right {  
    content: element(footerright);  
    width: var(--footer-right-width);  
  }  
  /* other margins rules */  
}
```


Front page customisation

Time consuming

Do not hesitate to modify
the Pandoc template!

```
file.copy(  
  pagedown::pkg_resource("html", "paged.html"),  
  "custom_template.html"  
)
```


Update the YAML header:

```
---  
output:  
  pagedown::html_paged:  
    template: custom_template.html  
  css:  
    - custom-fonts.css  
    - custom-page.css  
    - custom.css  
---
```

Going further...

see the [pagedown issues](#) and source code

Credits

- The amazing Paged.js core team
[Adam Hyde](#), [Julie Blanc](#), [Fred Chasen](#) & [Julien Taquet](#)
- [Zulko](#) for [ReLaXed](#)
- The [Shuttleworth Foundation](#) 

Questions?

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