Writing an Academic Paper in RMarkdown

TF

2020-04-13

Background:

I was interested in writing an academic paper in RMarkdown, but I am a n00b and it wasnt immediately obvious to me how to format everything. So I did a little searching around and have found two solutions, which I think are pretty good. One solution, which I'll call the basic YAML version, requires only some moderate reformatting of YAML header in an RMarkdown file. The other solution, which I call augemented YAML, requires some extra files called `.lua` files, which add extra features but end up making it look nicer in the end. My goal here was to end up with a document with a reasonable title page, a single spaced abstract section with Keywords at the end, and a two colum paper that I could insert figures into. Also, I needed it to have line numbers.

For this you will need to have a *LaTeX* distribution installed, pandoc, and be able to at least knit to PDF. I use RStudio for all of this. Knowing some HTML doesnt hurt either.

Basic YAML

```
library(knitr)
knitr::include_graphics("/Users/timf/Documents/Github/academic_abstract_in_markdown/baseline_yaml/basel
```

This is called basic YAML because other than a `.csl` file for your references formatting, and a `.bib` file for your references, you wont need anything special other than Markdown know how to write a paper.

```
---
title: |-
  This is a wonderful Title
author:
- Author 1^1,2^
- Author 2^1,2^
- Etc.^1,3^
date: \scriptsize^1^ University of Somewhere ^2^ Imaginary College ^3^ Mans Greatest Hospital
output:
  pdf_document:
  word_document: default
  html_document:
    df_print: paged
#classoption:
#- twocolumn #allows for double column
bibliography:
- all_the_best_refs.bib
header-includes:
- \usepackage{setspace}\doublespacing # makes for double spacing
- \usepackage[switch, pagewise, running]{lineno} #switch allows it to be used with double column
- \linenumbers # adds line numbers
- \renewcommand\linenumberfont{\normalfont\small} #changes size of line numbers
```

This is a wonderful Title

Author 1[1,2] Author 2[1,2] Etc.[1,3]

[1] University of Somewhere [2] Imaginary College [3] Mans Greatest Hospital

Abstract

This is my dream abstract. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Keywords: first, second, third

Figure 1: caption

```
keywords: 'Keywords: first, Second, Third'
csl: journal-of-the-american-college-of-surgeons.csl #citation format, in this case makes in text numbe
abstract: |-
 \singlespacing This is my dream abstract.


 **Keywords: first, second, third**

---
```

Then after the YAML use:

```
\twocolumn
\doublespacing
<!--\newpage-->
\pagewiselinenumbers
```

To start double spacing, double column, and line numbers

And then at the end near references, to return to single spacing and single column

```
\newpage
\singlespacing
\onecolumn
# References
```

Augemented YAML

This is 'augmented' because additional formatting `.lua` files are need, which if you can just keep in the same directory as the `.Rmd` file you are writing. For this you will need:

- `author-info-blocks.lua`
- `scholarly-metadata.lua`

and to knit to word I used:

- `Reference_Document.docx`

These files can all be obtained at in my Git Repo

```
---
title: |
  **A most wonderful title.**
subtitle: |
    _and a nice subtitle_
author:
- First Author:
    correspondence: yes
    email: email@mail.com
    institute:
    - CoM
    - IU
- Second Author:
    correspondence: no
    institute:
    - IU
date: ''
output:
  pdf_document:
```

```
    pandoc_args:
    - --filter=pandoc-crossref
    - --lua-filter=scholarly-metadata.lua
    - --lua-filter=author-info-blocks.lua
  word_document: default
  bookdown::word_document2:
    pandoc_args:
    - --filter=pandoc-crossref
    - --lua-filter=scholarly-metadata.lua
    - --lua-filter=author-info-blocks.lua
    - --reference-doc=Reference_Document.docx
bibliography:
- all_the_best_refs.bib
header-includes:
- \usepackage{setspace}\doublespacing
- \usepackage[switch, pagewise, running]{lineno}
- \linenumbers
- \renewcommand\linenumberfont{\normalfont\small}
- \usepackage{rotating}
- \usepackage{float}
institute:
- IU: Imaginary University
- CoM: College of Magic
csl: journal-of-the-american-college-of-surgeons.csl #include your reference format of    choice here.
abstract: |-
 \singlespacing This is my dream abstract.


  **Keywords: first, second, third**
Keywords: Incidental Adrenal Mass, Endocrinology,
---
```

And include the beginning:

```
\twocolumn
\doublespacing
<!--\newpage-->
\pagewiselinenumbers
\begin{center}
\textbf{Introduction:}
\end{center}
```

And ending as before.

```
\newpage
\singlespacing
\onecolumn
# References
```

To include R code and figures/tables after references include this bit

```
<div id="refs"></div>

\newpage
```

Summary

I hope this is somewhat helpful. Please see my Git repo for output from these and the files needed to make this work.

Future Directions

- Figure out how to include inline tables
- Figure out how to include Tikz graphics and DAGs; likely will need `TikzDevice` for this.