

Example file for easy creation of a LaTeX file from Markdown

clemrouxx¹

¹ETH Zürich

Today's date !!!

Abstract

This paper show a fairly minimal example of file that can be transcompiled from Markdown to LaTeX and eventually to PDF, in the general style of a preprint. Although the style can be personalized using imported or custom LaTeX packages, this project has the advantage of implementing ways to label, reference and cite inside of the markdown file, in addition to other features, such as writing the abstract just as a modified quote (a "callout" in Obsidian terms).

1 Goals

We try to provide a markdown to LaTeX program oriented towards scientific articles or preprints. We give ourselves the following guidelines :

- The user should have as little LaTeX code to write as possible
- But : it should still be feasible to customize the output style to a certain extent
- The Markdown file should still be readable
- The user shouldn't have to memorize some too specific syntax
- Ideally, it should look nice in Obsidian, and be consistant with its parsing

2 Examples

2.1 Modification of basic features

In our program, all inserted images will be transformed into Figures. As such, the program expects a label (just after the image, preceded with a caret "`~`"),



Figure 1: Enjoy this public-domain picture of ducks I found, as an example.

First column	Second column
Yay some text !	How about some $mAt\hat{H}$??
Should the header text be automatically bold ?	Maybe as an option, we'll see.

Table 1: This should function as a caption for this table. Does it now ?

and a caption (A paragraph of text just after the label and a line break). The usual prefix "fig:" for the label will be added automatically.

Also, see for example Table 1.

2.2 New features

Here is a list of new features allowed by this syntax :

- References ! For this, just surround your label with ** ! For example, see Figure 1. (NB : For this to work, your label must include ":". If it doesn't, add one in front of the label in your reference, like in the proof of Theorem 1).
- Labeled equations ! See for example equation (1).

$$\hat{H}_{\text{int}} = \chi \int_V |e\rangle \langle g| \otimes \hat{a}(\vec{r}) d^3\vec{r} + \text{h.c.} \quad (1)$$

- Citations ! They work with an external .bib file that has to be named "bibliography.bib". You can cite any paper present in this file by preceding the reference key with an "@". Just like this : [1].

- Footnotes¹ !
- Additionnal information in a YAML header, which allows you to precise things like title, author(s), date, additionnal LaTeX packages... and more maybe in the future

Theorem 1 (Callouts). *Obsidian callouts can be used to create any LaTeX environment, like theorems and proofs ! In these cases, the relevant packages will be automatically added.*

Proof. This is the proof of Theorem 1 □

2.3 Options

I also want to have all equations (display math) to be numbered if I want, even without adding a label manually. Let's see if it works :

$$E = mc^2 \tag{2}$$

I had way less ideas for that equation, as you can tell

References

- [1] A. Einstein. “Über einen die Erzeugung und Verwandlung des Lichtes betreffenden heuristischen Gesichtspunkt”. In: *Annalen der Physik* 322.6 (1905), pp. 132–148. DOI: <https://doi.org/10.1002/andp.19053220607>. eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/andp.19053220607>. URL: <https://onlinelibrary.wiley.com/doi/abs/10.1002/andp.19053220607>.

¹For this, I am copying the syntax from Obsidian.