Research Article

[Tutorial] How to use Curvenote for writing papers

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The purpose of this tutorial and article is to describe the process of writing data driven documents and scholarly papers using Curvenote and Jupyter Notebooks. Curvenote is a content authoring platform that lives on the web, similar to Google Docs and similar other platforms that allow you to author papers and documents. You can connect a Jupyter Notebook or a Jupyter lab document to this system so that you can keep codes and content separate but connected. In this sense it is similar to weaving documents such as knitr but simpler than that system. In this paper, we will learn how to use Curvenote to write an academic paper and include sections, paragraphs, text decorations, tables, figures, results of analyses, and citations and cross references. We will also cover how to export the document to PDF and *LaTeX* for further processing.

Introduction

Writing and publishing scholarly papers, theses, and documents have undergone major changes over the past several decades. For many people the workflow of writing a scholarly document for their work starts with starting up research, collecting papers, reading them, taking notes, conducting experiments or studies, analysis of data, setting up tables and figures, and then writing the paper. When we write data driven articles or papers that have significant statistical data analyses are conducted, we tend to keep the data analyses in one place, and the writing process elsewhere. For example, it is common to keep writing in a Word document and do or run analyses in another software such as SPSS or Stata or SAS or even R.

While this practice is widely used, it is also possible now with free and open source software such as R for statistical computing to use environments where you can both write your paper and conduct your analyses on the same ‘page’. This is referred to as ‘weaving’ documents. For example Sweave is an example of reproducible research where R codes and text are written in the same document (cite this). The data, the analyses, and codes are written in the same paper and then the paper is reproduced. This is the principle of

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reproducible research (citation needed), where all the codes and the analyses can be interpreted and used by other researchers.

Another way to "weave" codes and text is to use a programming environment referred to as Jupyter Notebooks. Here, software programme and languages Julia (need link or citation), python (link or cite), and R (link?cite?) are used for coding and markdown is used for writing text. Markdown is a set of syntaxes that can be used for writing rich text documents but the input is in the form of plain text with specific marks (citation needed). For scientific documents, pandoc is a document conversion programme that is used to convert documents from different formats (such as from markdown to *LaTeX*, or from markdown to Word document and so on).

What is markdown

The following table shows you the different marks used in the academic markdown format in Jupyter notebooks to render rich text outputs

One, two, or more hashes ("#")	Headings of first level (one hash mark), second level (two hash marks) and third level (three hash marks)
Asterisks or dashes	Results in unnumbered lists or bullet points
Numbers followed by period such as `1.`	Results in numbered lists
Using pipes (`|`) and dashes (`-`) sequentially for tables	Results in tables where individual cells are separated by dashes; the header row is separated from the data rows by three dashes (`|---|`) and the cells are written below them
Using `![]()` for inserting images	The images are inserted in the form of a URL or URI and the descriptor of the image is written between the square brackets and this is prefaced with a bang ! mark. So an image is inserted in the document with something like `![Description of the image or figure](URI of the image with suffix such as png or jpg)` and the image is inserted where the code is inserted
Using `$` signs to write equations	Single line equations are written between two single dollar signs and multiline expressions are written between double dollar signs
using `[@citation ids]`	These citation ids are used to cite papers and a reference section is appended at the end of the document
Marks used	Results in ...

As the above table suggests, using a plain text document as a source file and using a combination of *LaTeX* and `pandoc`, it is possible to write well formulated research papers and scholarly documents that are both structured and can contain all elements of a research paper, namely, a title, the name of the author, the date when the paper was published and a set of keywords. These latter elements (title, author, keywords, date) are part of a segment of the paper referred to as "preamble" or "front matter" and is written between three dashes (`---`) that separate such contents. The following box shows such an exhibit

```
---
title: A paper
author: A Student
date: 2020-03-28
bibliography: references.bib
keywords: paper, research
---
```

Sample markdown paper written in plain text

```
---
title: A Paper
author: A Student
date: 2023-03-28
bibliography: references.bib
keywords: paper, research
---
## Abstract
An abstract of the paper is written here
## Introduction
Introduction to the topic is written here
## Methods
The materials or people and methods of the study are written in this section
```

The citations are given as [@smith2020]

Results

Table 1. Description

| Age | N (%) |

|------------|--------------|

| < 20 | 100 (10) |

| 20-34 | 150 (15) |

![Age distribution histogram](age_distribution.png)

Figure 1. Distribution of age

Discussion

The discussion section of the paper is written here

References

(This part is left blank because the references are inserted at the time of processing these documents)

As can be seen in the above table or exhibit, if you want to write a research paper in a plain text format, you will need to be aware of several things: a way to write the preamble or front matter for the paper, a series of headers to organise your work, and correct syntaxes to write your tables and images. Finally, you will need to export the raw paper in the form of markdown or `md` format to other formats such as Word Documents or other formats indeed. Also, while you can share this document in the plain text format to your collaborators, it is not common for others to provide you with the feedback in the same format, and many people or collaborators would like you to provide them with a WYSIWYG (what you see is what you get) formatted paper. As a result of this, many people either use a Word document or a Google Docs like environment to write their papers and share the work.

As with use of plain text to write papers and then process with pandoc, other tools that one can use to weave documents also work on similar principles although more intuitive. One of them is the use of `knitr` package that is based on R software, and its derivates such as Rmarkdown and lately `Quarto` or quarto markdown. This is also a package or software you can use to write the paper and weave codes in various languages and then use quarto to convert the paper into a publishable unit on the web or as Word document or LaTeX or PDF and distribute. Quarto, for example, is also integrated in a web based software referred to as Rstudio or Posit Cloud environment where you can write a document in quarto markdown and can render it in other formats. Once again, while all of these are intuitive enough to use, these do not necessarily all integrate with different programming languages and can often bind a user to one particular software.

What is Jupyter Notebook and why do we use it?

Continuing our discussion on the ease of writing research papers and weaving data, Jupyter Notebooks (citation wanted) is a tool where you can conduct data analyses and write papers in markdown and then export the papers using `jupyter nbconvert` code within the Jupyter code cells or terminal to any format such as latex or pdf or word document. Jupyter stands for Julia, Python and R and indicates that you can conduct data analysis in these three programming languages in the same software environment. As with the plain text tools, if you use Jupyter, you will need to be using plain text or limited WYSIWYG tools. While Jupyter is intuitive, as it depends on your skills of then exporting or converting the document to the other formats, these also involve an appreciation of research software engineering skills. Many people when they write research papers may not be familiar or be skilled in research software engineering skills, and therefore many people tend to use word processing tools for writing research papers and theses. This is far from ideal as word processing software were not meant to write research papers which involves complex weaving of ideas and cross referencing. How about a tool that would incorporate the complexity of Jupyter notebooks where codes can be kept and called at will, and also provides a first class wysiwyg writing or content authoring environment? This is the space where Curvenote shines.

Jupyter notebook provides separate spaces or "blocks" for data analysis, and text writing in markdown format. Once the markdown formatted text and the analyses are woven, these combined text and analyses can then be exported to other formats such as word documents or pdf or indeed other formats for further processing. Both rstudio, and jupyter notebooks are based on plain text content authoring or limited sets of wysiwyg (what you see is what you get) style content authoring. On the other hand, many people are familiar with Word or Google docs where the text is written in rich text. So a system that can "weave" rich text with analyses may suit the workflow of people who are familiar with working with word processor systems. This is the problem that Curvenote solves.

Why curvenote and what problems does Curvenote solve?

Curvenote provides a content authoring environment that lives on the web. So, you can fire up a browser, start writing your paper, and then weave in or bring in jupyter notebooks and can import parts of the jupyter notebook within the Curvenote paper writing process. In the rest of this document, I am going to show the principles and how to use Curvenote for writing papers. We will cover the following:

1. Start with the preamble, where to write the preamble and what to write
2. Then we cover the basics of blocks and how to write in blocks
3. Some discussions about how to write in paragraphs and how to organise the paragraphs

4. We will show how to insert tables in Curvenote
5. We will show how to insert images in Curvenote
6. We will learn how to insert code blocks from Jupyter into curvenote
7. We will learn how to add citations and bibliography in curvenote
8. How to export Curvenote document from the web interface to other formats, notably word and latex for further processing

There are many more features that distinguish Curvenote from other tools but for now, these are the features that we are most likely to use on a regular basis and make for useful content writing, so let's get started.

First things first: start a project and a document

Step 1. First, go to https://www.curvenote.com and create an account. If you have an invitation where you are invited to edit a curvenote document, then accept the invitation and set up your account.

Step 2. Once you have done that, then start a document by clicking on the plus sign in the document creation page and this will lead you to a project page where you will type the name of the project, set it as a public or private project as you choose and then start your work

Step 3. Once you are in the project, click on the plus sign to start a new article. You can also upload or start new group, but for now, to keep things simple, start with an article. When you start an article, you will see somehting like as follows:

Figure 1. New Article creation

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Write the title of the article and the block url

When you do that, it will bring you to the article interface.

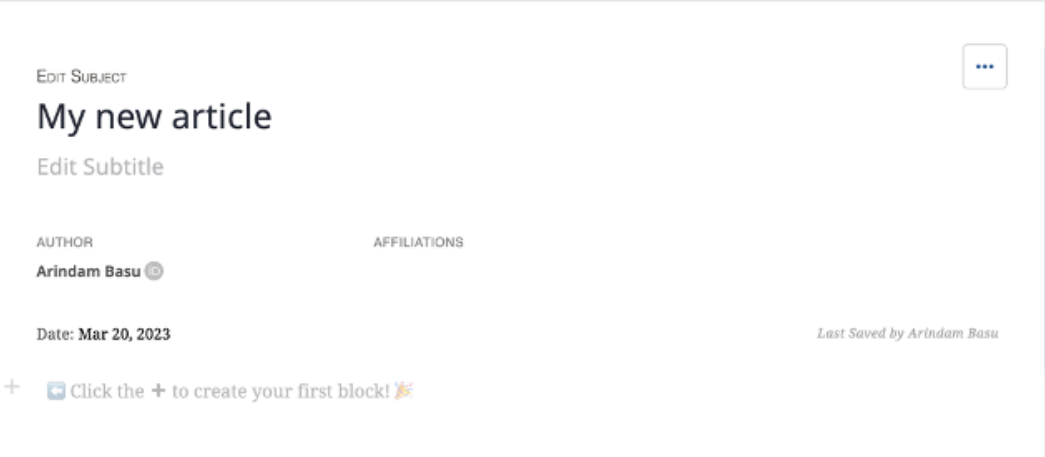

Figure 2. Article interface

Here:

1. You can type the subject of the article and the subtitle
2. The author is already prefilled but you can add new authors there if you want. To do that, click on the "Author" space and this will bring up the following interface, add additional authors as needed. If the author is not already included in the project or is not part of the Curvenote ecosystem, you can invite such an author.

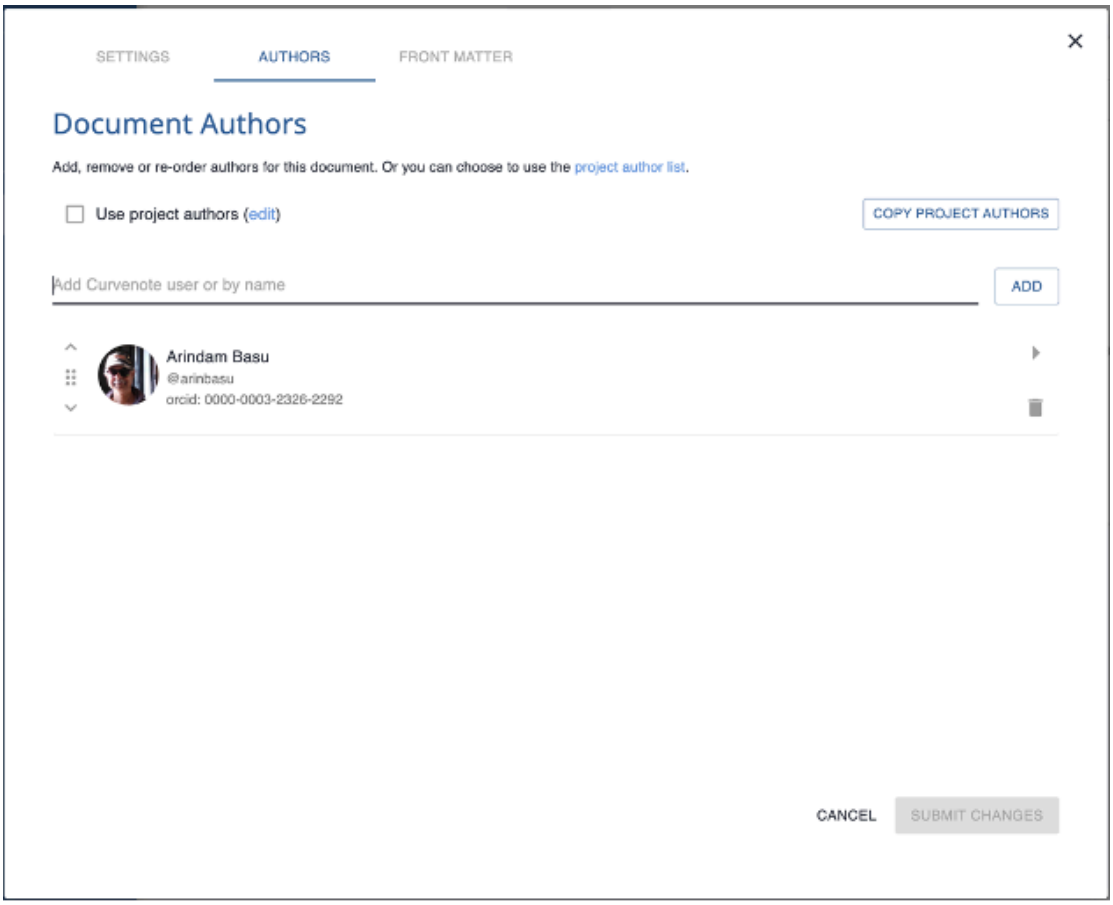

Figure 3. Author interface

3. On this window, click on the "Settings" tab. It will bring up the following:
4. In the article settings tab, change the article title if you want, add subtitle, add a short title description, add tags as appropriate.

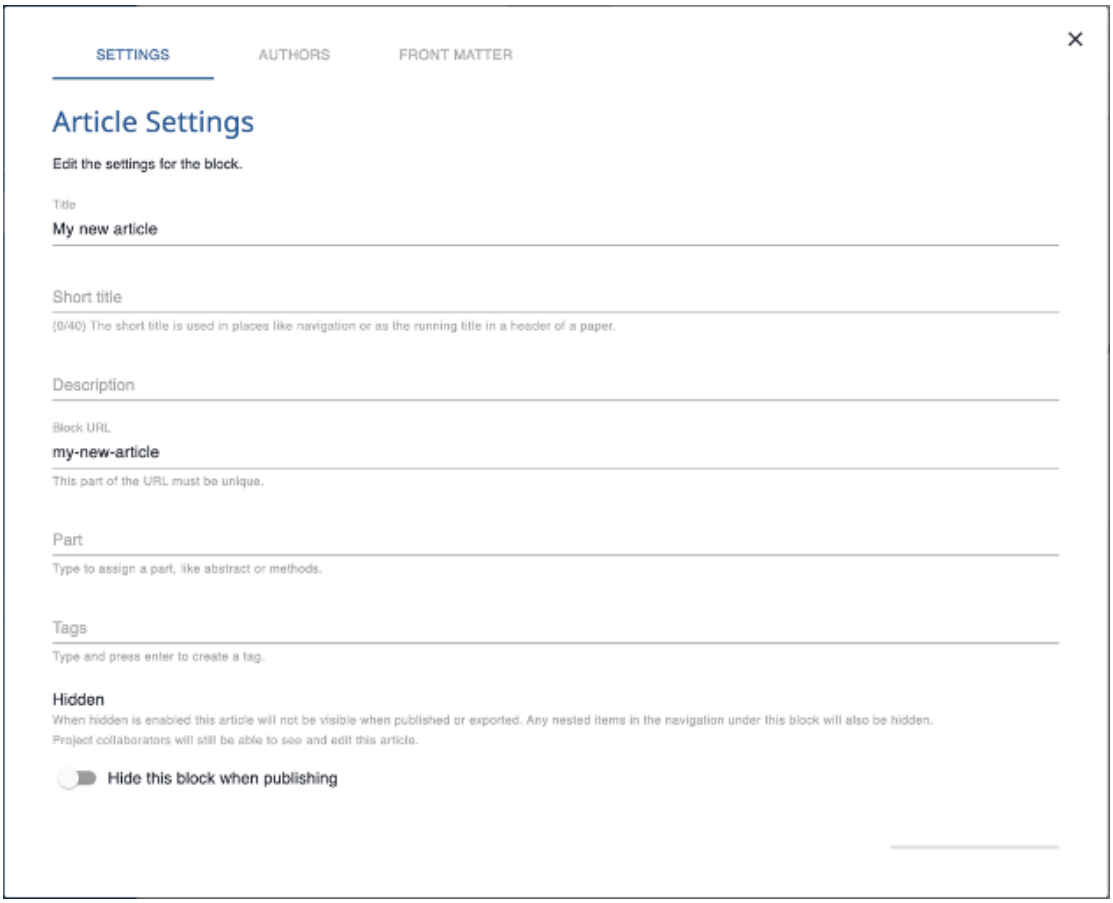

Figure 4. Settings tab

5. Bring up the "Front Matter" tab as below:

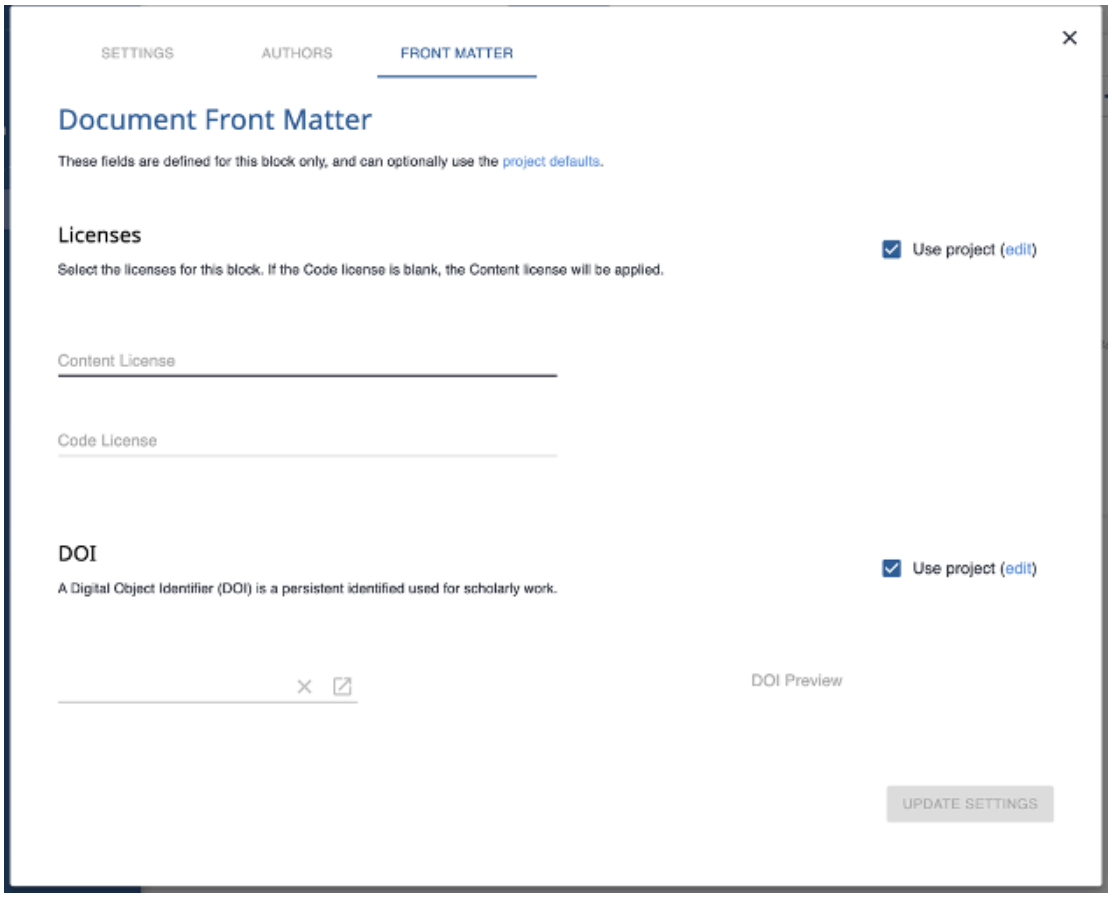

Figure 5. Curvenote Settings of Front Matter

Choose the licences. If you are not sure what these mean, leave them blank.

The update settings and this will bring you back to your article.

Step 4. Use blocks to write your article

Completing steps 1 - 3 will bring you back to your original article page which is now blank. You will need to fill it up to write your paper. At this stage it looks like as follows:

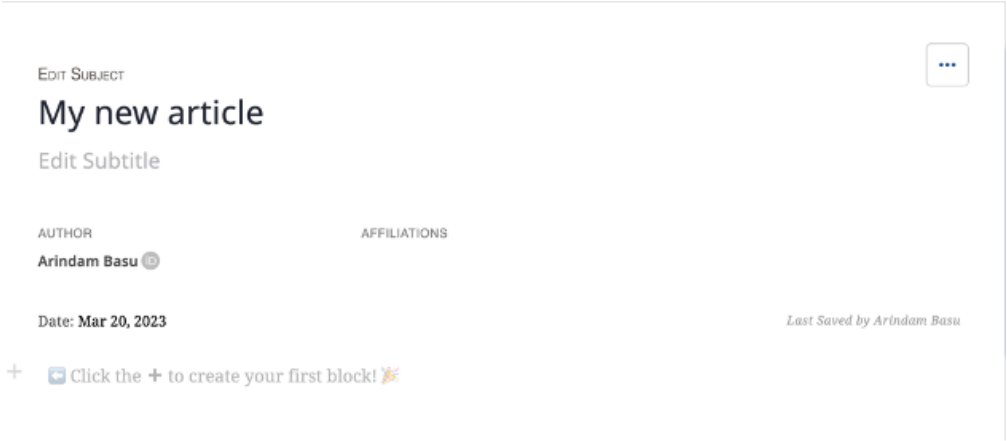

Figure 6. The blank new article

Note the "+" sign. If you click on the plus sign, you will bring up a block where you will write part of your paper. We suggest you write your article block by block. You can have each block to contain a paragraph. Or you can have an entire section in a block, but it is best that you keep a paragraph or a slightly longer strand of thought per block. On the left of the plus sign is a grey area that contains three dots. If you click on the three dots, you will see something like this:

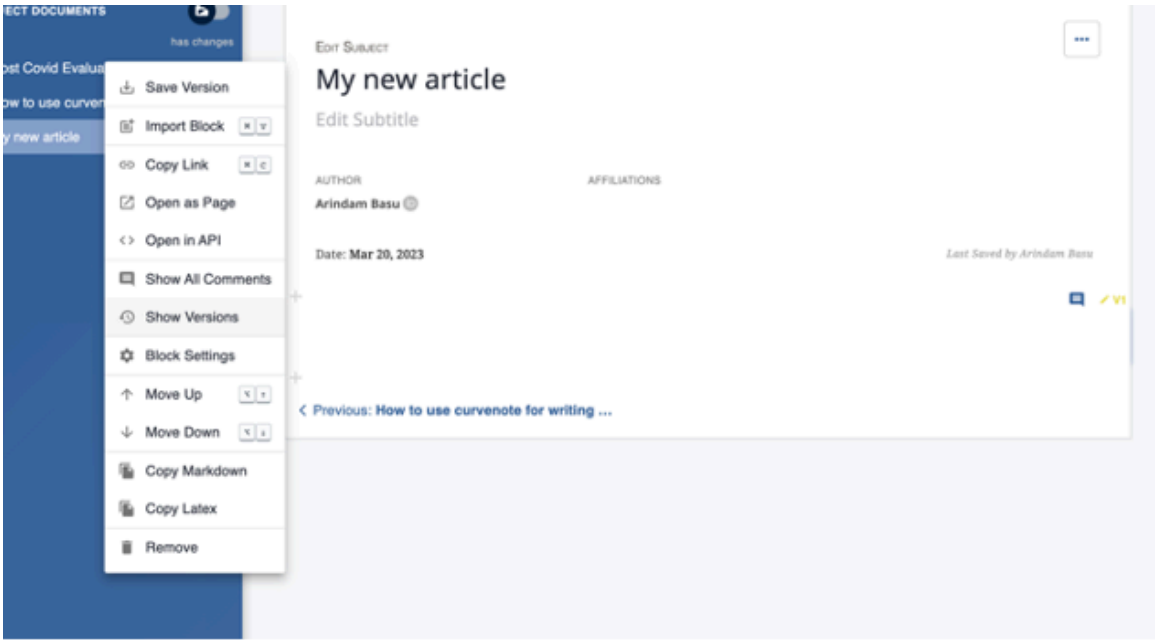

Figure 7. HOw to use curvenote blocks

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Blocks is the building block of curvenote style of paper writing. In the block you will write your paragraphs, but you will also upload images and tables. You can import blocks from other curvenote articles, you can import blocks from jupyter notebooks, and you can move the blocks up and down the document. In this way, you can organise your article using the blocks. You can remove one block keeping the rest of the article intact. Think of blocks like the outline feature of a Word document. You will also see that each block is marked by two plus signs: one on the top of the block on the left hand side and one on the bottom of the block on the left hand side. The text or content is written in between these two plus signs.

These four steps are the most important steps for you to start with writing in Curvenote. In the following, let's focus on writing or composition as such. Here, we will cover:

1. How to write paragraphs of text
2. How to insert images
3. How to insert tables
4. How to insert jupyter notebook based blocks
5. How to insert references

Mundane details: how to write paragraphs

As you may expect, writing the paragraphs is same as writing paragraphs of text in any other word processing programmes. Insert headers with hash marks. One hash mark will bring up a first level header, two hash marks will bring up a second level header, and so on.

Each paragraph is separated by a single space. In Curvenote there is no option of indenting of the first line, it is flush with the left margin. But you can insert lists (bulleted and numbered lists), you can make a letter or a word bold, italicised, underlined, or all three. To start a bulleted list, hit enter on the line you are and then type the star sign

- This is the first bullet list, and if I hit enter or return
- I get to see this new line and I can keep writing till I get to hit return or enter
- To start the third bullet point and so on.

When I am done, I hit two times enter or return and I return to the normal text. When you write paragraphs, there is no option to write paragraphs as one and a half spaces or double spaces, those are best done postprocessing or with templates, not here. If you want to make some words bold, like this one, enclose these between two asterisks and it will be bold. If you want italicised, enclose them between one pair of asterisks, and if you want to insert underlines like this one, use Cmd-u or Ctrl-u, depending on your operating system. Cmd-u or Ctrl-u toggles the underlines

If you want to start a bulleted list, hit enter or return and then:

- Type 1 then dot to start the numbered list, then
- hit enter to type the next number, and
- So on, by hitting return or enter

If you want to get out of the numbered list, hit enter twice or return twice.

If you want to insert a hyperlink then select the word and hit Cmd-k or Ctrl-k depending on your operating system, say you type Curvenote.com and then select it. If Curvenote senses that a word contains dot com, it will automatically turn it into a hyperlink. Next learn how to insert code blocks and equations.

How to insert code blocks, quotes, and equations

In order to insert a code block, use three backticks. The code blocks will not do anything, in other words, you cannot evaluate the code blocks. Select the preferred language style. The following code block was inserted by typing three backtick marks and enclosing the contents within those backtick marks

```
x = [1,2,3]

y = [4,5,6]

plot (x, y)
```

How to insert quote and quotations

In order to inset quote marks and quotations, use > sign and then write the content.

> *Where the mind is without fear*
>
> *and the head is held high*
>
> *Where knowledge is free ...*

To exit the quote mode, click enter or return twice.

How to insert single line equations and multiline equations and Greek symbols

Enclose the single line equations with $ dollar marks. The following equation:

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Y\ =\ b__0\ +\ b__1\ \ast\ X

was inserted this way. In order to write subscripts, use _ character

Y__{12}\ =\ b__0\ +\ b__{12}\ \ast\ X

In order to have more than one character in your subscripts, enclose them within curly brackets like `_{12}`

The above expression was written this way.

If you want to insert Greek symbols, first type `\` (back slash) between dollar signs and then write the english language equivalent. So, the following beta was written this way \beta. For Capital letters, use the first character in capital, so \Delta (or delta in caps) was written in this way.

In order to write multiline expressions, enclose them in double dollar signs and then write. So the following expression

Y\ =\ \beta__0\ +\ \beta__1\ \ast\ X\ \\ Z\ =\ \gamma__0\ \ast\ Y (1)

Separate multiple lines with `\\` double backslashes. Next learn how to insert images

How to insert images

Type forward slash `/` and then type image. In the dialogue box select the image you want and upload it. You must have the image in the first place on your hard drive, otherwise it won't work. There are several ways to insert images. Let's say you have the image of a cat in a folder in your computer. In order to insert that image into your curvenote document, do this:

Type `/`, then type "image"

Then in the dialogue box, drag the image file

Figure 8. Image of a cat (image courtesy: https://unsplash.com/photos/IZ7W626JoQs)

If you then click on the image, you will note that it has spaces for writing the caption, the symbol is two lines. Click on the caption and complete writing the description of the image. You will see that the image is correctly numbered in the order in which it appears in the document.

How to insert tables?

In the same way, you insert images to a document, type forward slash and then write “table”, preferably do this in a separate block. This will open a dialogue where you can specify the number of rows and columns. The default is a two by two table. You can increase the rows and columns by clicking on the table and adding more rows and columns. The first row is the header row by default. The tables are simple tables by default and you can expand the scope of the table in any way you want to suit your authoring of the paper. Each table comes with a caption. In order to toggle the caption, click on the table and write the caption. You will note that the caption for the table is placed on the top of the table.

This is the first body of text	This is the second body of text
This is a header	This is another header

Table 1: The first table of text

Linking Jupyter Notebooks and how to work with jupyter notebooks with Curvenote

As we wrote in the section on Jupyter Notebooks, these are notebooks where you can keep your analyses and as and when needed, you can refer to the specific code or the code output in your paper. In order to use Jupyter Notebook with your Curvenote, there are several ways to interact with it. Here are a few ways:

1. Set up a jupyter notebook or jupyter lab and start a jupyter lab notebook
2. Conduct your analyses
3. Then upload a copy of your jupyter notebook into the project space
4. You will see that the jupyter notebook itself consists of a number of blocks
5. Note the address of the blocks you want to import and copy the address
6. Then paste the address of the block you want to import into the space where you want them
7. This process is fast if you use a Chromium browser (for example Google Chrome or Brave, or Vivaldi, or Ungoogled Chromium, indeed any browser based on Chromium codebase) and you can install an extension named "Curvenote". If you do, and if you set that browser as your default browser, then, as you "fire up" the Jupyter notebook or Jupyter lab, you will notice an icon on your jupyter lab prompting you to connect to your Curvenote project and you can directly communicate between the Jupyter lab and your curvenote instance.

How to upload a copy of Jupyter notebook to Curvenote space

On the left hand side of your Curvenote web content authoring system, you will see the project space. At the bottom of the space, you will notice a plus sign. If you click on the plus sign, it will show an icon titled, "Upload". When you click on Upload, it will prompt you to upload ipython notebooks or bibtex files. Drag or select the ipynb file that you want to upload to your project space. After you have completed these steps, you will see something like this in your project space (remember this is my jupyter notebook, your jupyter notebook codes, etc will appear differently)

Jupyter Notebook content

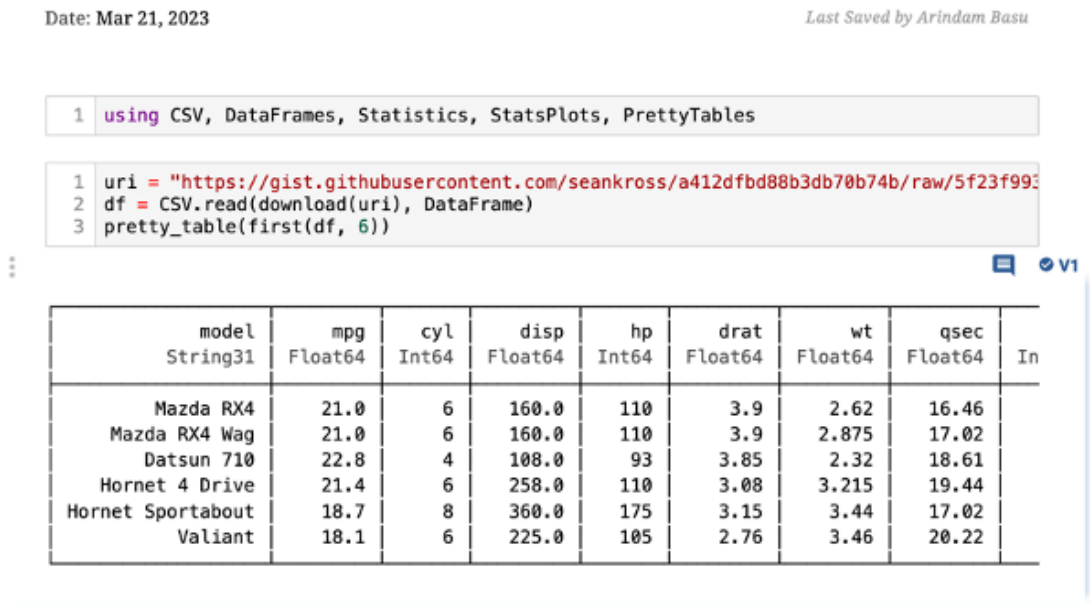

Figure 9. Jupyter Notebook contents

How to move contents between Jupyter Notebook and Curvenote

Click on the Jupyter Notebook you just uploaded. You will see that it too, like a Curvenote document, has blocks and each block has its own address that you can copy and paste from one part to another. For example, in the above figure (Figure 9), you can see that there are code blocks and a table. Each of these sit in their own blocks and each block has their own "addresses". Suppose I want to paste the above table in a block. How do I do that?

How to paste the above table in a block

1. Open the Jupyter lab notebook that you have uploaded to your project space
2. Locate the block where you find the table
3. Click on the three grey dots on the top left hand corner of the table or figure or code. It will bring up a box like as follows:

doi.org/10.32388/BS78NF

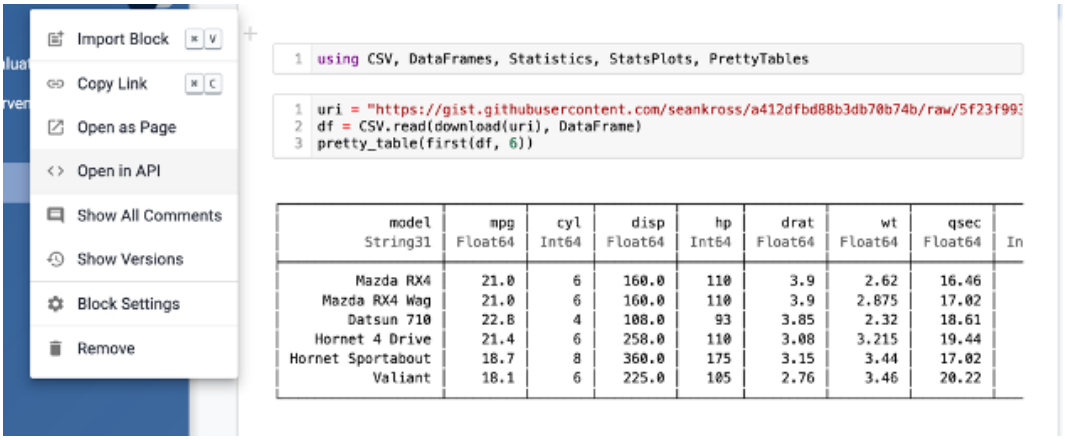

Figure 10. The processes to import a block from Jupyter. Note the large box on the left hand side

1. Click on "Copy Link" in the drop down box on the left hand side of the block
2. Return to the Curvenote document where you want to paste it
3. Then open a new block in the Curvenote document, and again, as you did with the Jupyter Notebook block, click on the three grey dots on the top left hand side.
4. It will show "Import Block" as the first entry on the drop down box
5. Click on the "Import Block" and paste the URL of the link you copied earlier

Following these steps, I got the following table

In this way, you can import blocks from Jupyter Notebook that you will upload to Curvenote. At first, these steps may seem too many steps to do, but once you have done a few of these steps, these will be easy and second nature to upload these tables in your own Curvenote document. Better yet, these jupyter notebooks themselves can be your Curvenote document as the jupyter notebooks can be modified to add/delete/edit blocks to turn into a paper in itself.

So far, we have learned how to add tables, images, and codes and code outputs from jupyter notebooks to write papers. Any academic or scholarly document must also include citations and references. In the next section, let's learn how to add citations and references in our Curvenote document.

How to add citations and references?

To add citations and references, you can either directly add them in Curvenote by adding the document object identifiers of the papers you want to cite and refer, or you can add a separate bibtex file and you can add citations from the bibtex file. Let's see each style of adding papers.

How to add citations and references based on DOIs?

Suppose you are reading about reproducibility of study results and have come across this seminal paper by Roger Peng (2011) that you want to cite in your own work. Note that beneath the title and author of the paper, in the third line, where they have provided the source of the publication, there is a hyperlink titled, "DOI..." (see Figure 11).

Here is the figure of the paper we are about to cite.

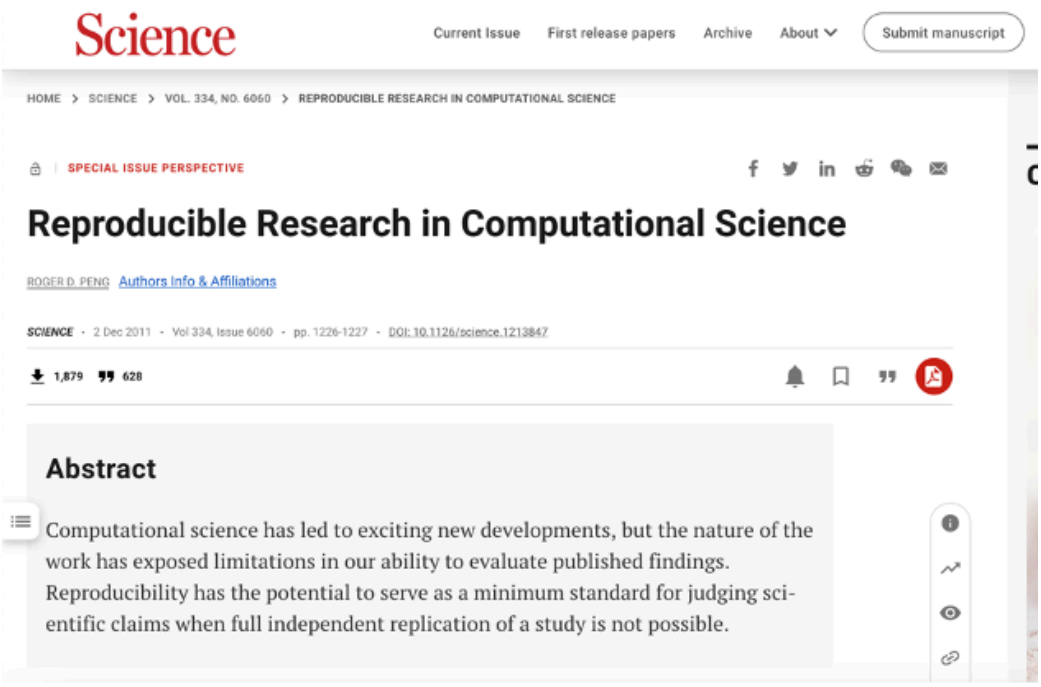

Figure 11. A paper on reproducible research by Peng.

In any scholarly publication, particularly that of science and in public health for example, we strive to achieve complete reproducibility or full reproducibility of our work, and this goes beyond replication of the work. This also means that we must be able to cite everyone from whom we read or learn or whose works we borrow from in our papers. The document object identifier by the Crossref makes it easy to search and make use of permanent addresses of papers. So now that you have got hold of the DOI for this paper, to insert this as a citation or reference in your own paper, this is what you do:

Steps of inserting a DOI in a Curvenote document

1. Type the text next to which you want to insert the reference. Say "Peng has written about the necessity and processes of reproducible research ..."

2. Then type forward slash and “ref”

3. When you do so, you are presented with the dropdown box as below

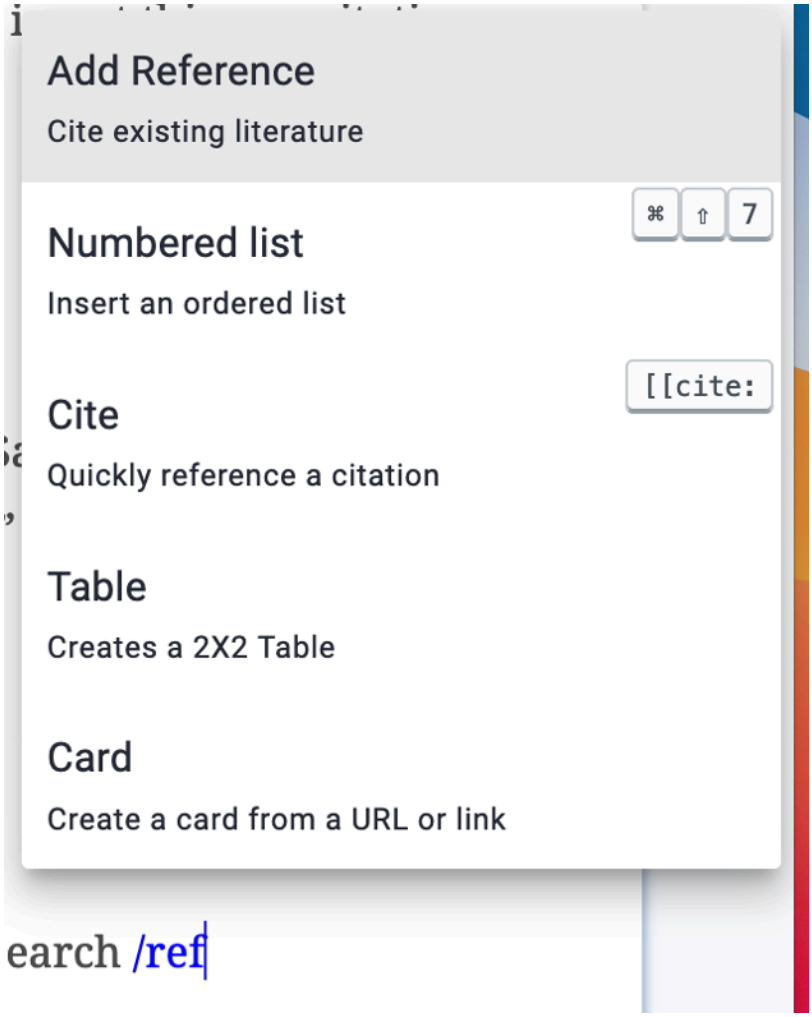

Figure 12. How to add reference, select reference drop down

Click on “Add reference here”

When you click on add reference, it will open up another box where you can insert the DOI and search for it, as below

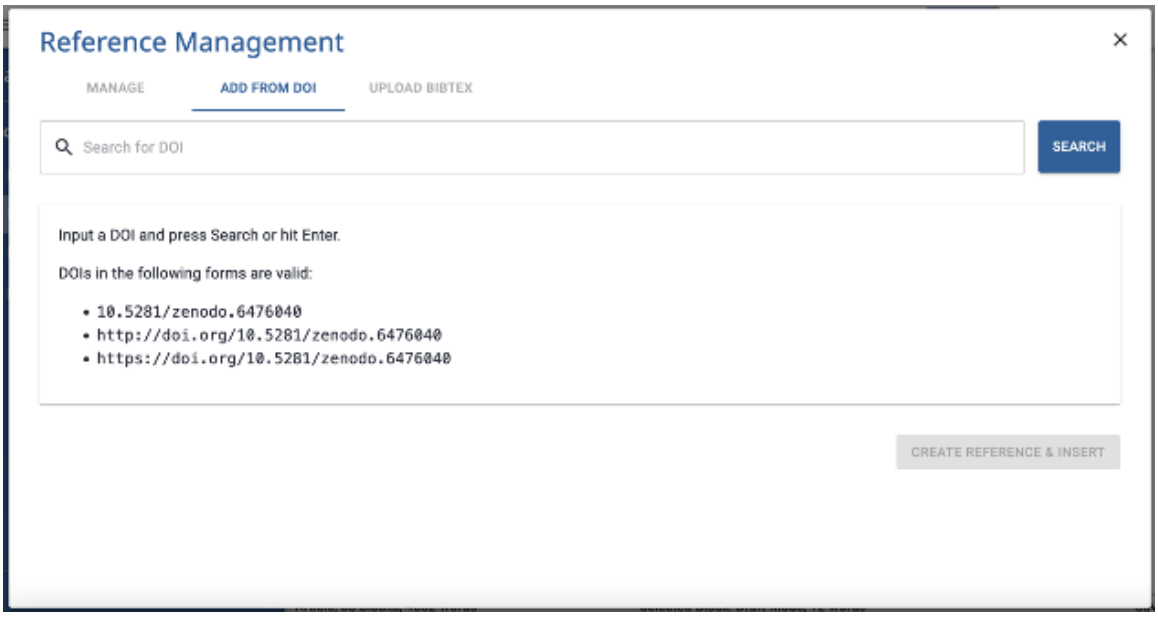

Figure 13. Reference management box, select ADD FROM DOI

Copy paste the DOI here, and click search. This will bring you to the following box

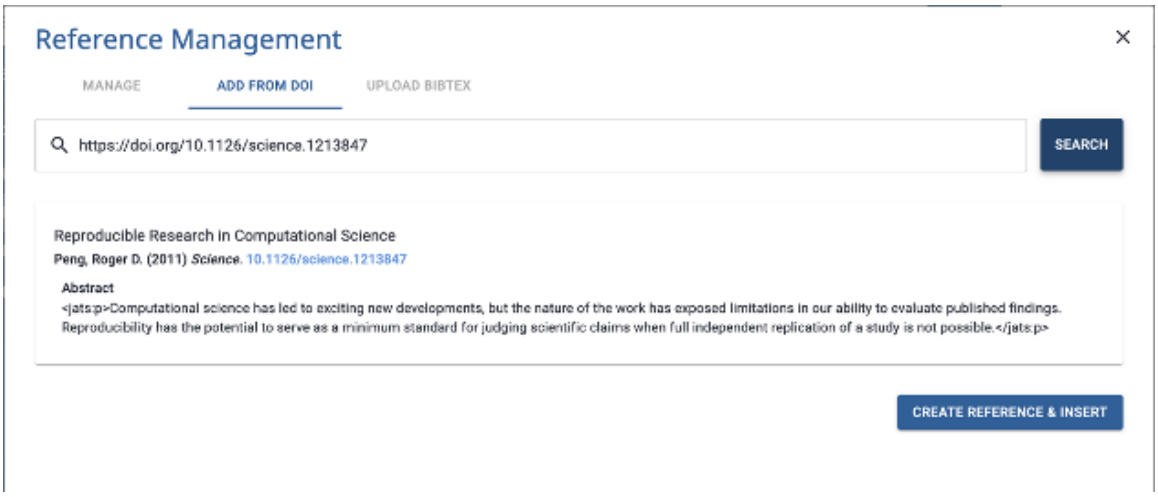

Figure 14. Reference ready to be added

Now you see the reference and you are ready to add the reference.

Once you click on “Create reference and insert”, Curvenote will add the reference, put the citation marks, and create a separate “References” block in the document. The first time you do this, you may think these are too many steps, but you do this only once. Once this is done, the reference is stored project wide. Next

time, if you want to use it, use forward slash and then type "cite" or double square opening brackets and type "cite", and it brings up a selection panel where you can search for individual papers. The following block shows the sample output.

Sample output

As you can see, the line below is a sample output of the process of adding a citation.

Peng written about the necessity and processes of reproducible research (Peng, 2011)

How to use a bibtex file to upload and work with citations

Using doi to upload and add citations is useful, but it can also be time consuming. Besides, you may have your citations located in a bibliography database such as Endnote or Zotero or Paperpile, so it helps if you can make use of them. In this case, using bibtex is the best way to add citations relatively quickly without going through the process of indicating DOI and all that. A bibtex file is a file format where structured data about a publication such as an article, or a book, or a book chapter is presented in plain text format. For writing in LaTeX managing citations using bibtex is standard. You can learn more about bibtex from their main site here: http://www.bibtex.org/

In order to use bibtex to manage your citations in Curvenote, take the following steps:

1. First create a bibtex file. If you want to create a bibtex file from scratch, follow instructions from here: http://www.bibtex.org/Using/, or
2. Export your references from your favourite citation management system to bibtex format. Several online tutorials can guide you as to how to do these, for instance, here is a tutorial on how you can export from Endnote to Bibtex, here is a tutorial on how to export to bibtex from Zotero, as two very popular reference managers. For other reference managers, please see their reference management help files and learn how to export to bibtex format.
3. If you use Google Scholar to search for references, then beneath every search result, you will see they have a link titled, "import into bibtex", click on that link and you will get a formatted bibtex entry. You can use these bibtex entries to build up your bibtex file using a plain text editor (if you are on Windows, use Notepad, or if you are on Mac or Linux, there are many plain text editors available that you can use. If you use Jupyter notebook, or Jupyter lab, these installations come with plain text editor, so you can use them as well.

4. Once you have created the bibtex file, upload the bibtex file to your project space. You do this by clicking on the plus sign and selecting upload and then select bibtex file to upload
5. After that, wherever you want to insert the citation, put your cursor and then type two opening square brackets and then select the paper to cite it.

Exporting your paper to Word or other/html format such as webpage

At this stage, assuming that you have drafted your paper, added citations, added images, figures, and tables and have incorporated your jupyter notebook blocks, your paper is ready to be viewed in Curvenote itself. At this stage, two other tasks remain that you may want: share this paper with others or add collaborators to your paper, and that, you want to convert this paper from Curvenote to Word or LateX and submit to a journal or a preprint server. Besides, you may want to present the paper as a webpage and distribute to others. Let's take a look at three of these tasks: (1) how to export your curvenote article to Word or Latex, (2) how to share this article with others and add collaborators, and (3) how to add and resolve comments on your article.

How to export Curvenote to Word or LaTeX

In order to do the export, you will first need to save the paper. On the top of the Curvenote page (which we refer to as "breadcrumb" or a visual navigation tool on the top of the page), you will see a link "SAVE VERSION". If you click on that link, Curvenote creates a version of this paper and freezes the site. At that point, navigate to the top of the page in which you are working, in this case, the article itself. Click on the "Download" icon. It will result in another button labelled "Export As", and if you click on that button, it will ask you to select "docx" to export to Word or "tex" to export to LaTeX or "PDF" to export to PDF format, depending on how you may want to distribute the article to your reviewers. If you select "Docx", it will prompt you to select the "template" that you want to use to export. For both LaTeX and PDF, it will also ask you to select the template to which you want to export. Select the appropriate template and if you are confused, use the default Curvenote template and it will export the document to the desired template. It may take a while before you can see a download file link. Download the file to your desired folder on your hard drive and you can then either further process it or share it with others.

What happens when you save a Curvenote document?

Once you save the Curvenote document, it saves the main document and also all the other blocks contained within the document. This is a fine tuning of the version control system that Curvenote maintains. Next time, when you start re-editing the document by clicking the "Edit" button, it will make the document

editable, but not the individual blocks. You will need to drill down to the individual block, then click on the three grey dots on the top left hand corner, click "Edit", and then edit that particular block. The other blocks will remain in their older version state and you will see a new version number for your block. So it is possible to have different blocks to have different version numbers.

How do I share a document and comment on the work and work on the feedback?

I hope by now you get a feel of how things work with Curvenote. If you want to share a document with your colleagues without downloading the paper as the paper may not be ready yet, and you want to do all your work till the time of submission in Curvenote, you want to share your work with others so that they can visit your paper and leave comments and yet this will be discreet. How do you do that?

Click on the dark blue "SHARE" button on the top of the screen of Curvenote (the "navigation bar" or the so-called "breadcrumb"). When you do that, it will bring up a window where you will be able to add collaborators by their usernames (if they have an account on Curvenote already), or by adding their email addresses. Please remember to send them a message inviting them to review or collaborate with you on the document.

You may also invite others to review and leave comment on your paper without being a member of the writing team In order to do that, share with them the URL of the paper. You will find URL of the paper on the URL bar of your web brower. Click save version first, then copy the URL of the paper at the URL bar of your brower and then paste the URL to an email or any other way (such as chat) where you can invite people to visit your paper and leave comments. Remember that people can leave comments at the level of your blocks. So, it is better to have shorter blocks if you are interested to have commenting turned on and you want to act on them. It is different in this sense from Word where people can leave comments at word level and leave text decorations and strike outs. If your collaborators would like to edit the document and change it and you want to revert the changes, click on the version control on the right hand panel and reverse the version changes. To examine which version you are working on, click on the right sided triangle on the top right hand corner of the document, and it will bring up a panel that has "versions" and "comments" as two subpanels. If you click on the versions subpanel, you can save, or discard version changes, and can revert back to the desired versions.

Recommended workflow to make most use of this platform

In this brief tutorial, we have covered a fair bit of ground in introducing you to the basics of how to write a paper in Curvenote and integrate Jupyter notebooks. A frequent question that some of you may ask is how do

we make best use of this medium to write my thesis or larger papers or complex papers? There is no one size that fits all, but perhaps I can describe my workflow. See if this helps.

Start with a Curvenote document and add a title and subtitle. If you want to have collaborators, discuss with them and invite them over and add them to your document to start with. If you are planning to do literature review before writing, then I find it useful to read the paper, make notes, and then copy paste the notes and observation from that paper directly into curvenote. That way, you have a ready reference at hand along with your paper and notes. You can begin to use Curvenote as a reference manager without worrying about using a separate reference management system but your practice can vary.

If you have data that you want to analyse, at this stage, either connect your jupyter notebook (or jupyter lab) directly to Curvenote using their connector extension app using a Google Chrome or Chromium based browser, or upload your Jupyter Notebook after you have conducted your analyses if you use other browsers for which you do not have the extension. At this stage, you have a complete set up of the analyses, the reference or the literature, and the text that you want to write. After this it is is a matter of authoring, analysing, and writing the paper that you want to craft, and invite people to review and comment and take actions. At some point, you wold like to export the paper when it is ready for publishing elsewhere.

Final Notes and conclusions

In this tutorial paper, I have barely touched the surface of everything that is possible with Curvenote to write your thesis and papers. I have started with a basic description of markdown, the language that forms the engine of your writing, and introduced some basic concepts of formatting, and use of Jupyter notebooks. But Curvenote is capable of much more that will need another advanced tutorial. You can download the curvenote cli tool to your hard drive and you can use the cli tool to make use of Curvenote from your computer and using a simple text editor to publish your papers and write them. You can use Curvenote with myst, a tool for reproducible research. You can also use Curvenote as a powerful tool for authoring dynamic documents and explorable explanations. These concepts were beyond the scope of this paper where the aims was mainly to describe this tool for your work. In future articles related to Curvenote, the plan is to explore how to use Curvenote for not only authoring complex documents such as research papers and theses, but also how to weave in Jupyter notebooks, compose dynamic documents, write explorable explanations such as fidyll, use command line to use Curvenote from your computer, and use Curvenote in conjunction with other tools such as MyST (clicking this will download a PDF) and make it FORCE11 compliant (Martone, 2015).

References

- Martone, M. E. (2015). FORCE11: Building the Future for Research Communications and e-Scholarship. BioScience, 65(7), 635–635. 10.1093/biosci/biv095
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