

# Jupyter Book interactive, open books from your notebooks

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# Thanks to the Jupyter Community

viter lupyterhub

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menna I zkatona I zlanvi i zneudi I znicholis I Zsailer I zxoGrace

## The Executable Book Project

executablebooks.org



IAB readiab.org/



QuantEcon quantecon.org/



ipypublish ipypublish.readthedocs.io/



# What is Jupyter Book?

Build an online book with Jupyter Notebooks and Markdown



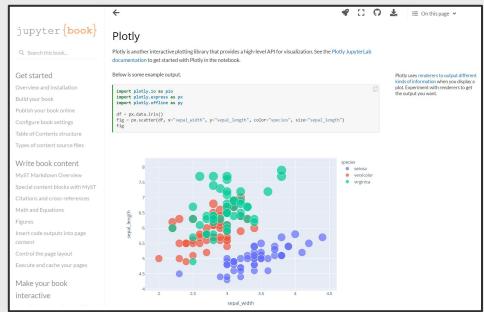
jupyterbook.org



## A collection of notebooks & markdown files



#### An enriched, explorable book





## Some of Jupyter Book's goals

- Display notebook content in a more familiar, beautiful, and accessible form.
- Focus features on authoring and reading.
- Support most publishing workflows and needs.
- Connect content with interactive computation.
- Easy to deploy and share with others.
- Deploy on any infrastructure.



## Example + Documentation jupyterbook.org

#### jupyter {book}

Q Search this book...

#### Get started

Overview and installation

Build your book

Publish your book online

Configure book settings

Table of Contents structure

Types of content source files

#### Write book content

MvST Markdown Overview

Special content blocks with MyST

Math and Equations

Insert code outputs into page

Control the page layout

Execute and cache your pages

Make your book

4

#### Books with Jupyter

Jupyter Book is an open source project for building beautiful, publication-quality books and documents from computational material.

Jupyter Book has the following main features:

- · Write publication-quality content in markdown. You can write in either Jupyter markdown, or an extended flavor of markdown with publishing features. This includes support for rich syntax such as citations and cross-references, math and equations, and figures.
- . Write content in Jupyter Notebooks, allowing you to include your code and outputs in your book. You can also write notebooks entirely in markdown to execute when you build your book.
- Execute and cache your book's content. For .ipynb and markdown notebooks, execute code and insert the latest outputs into your book. In addition, cache and re-use outputs to be used later.
- · Insert notebook outputs into your content. Generate outputs as you build your documentation, and insert them in-line with your content across pages.
- Add interactivity to your book. You can toggle visibility of cells, connect with an online service like Binder, and include interactive outputs from Jupyter.
- · Generate a variety of outputs, including single- and multi-page websites, as well as PDF outputs.
- A command-line interface to quickly generate your books with one command, like so: jupyter-book build mybook/

This website is built with Jupyter Book! You can browse its contents to the left to see what is possible.

#### A Warning

Jupyter Book 0.7 is a total re-write from 0.6, and some things have changed. Open an issue with any feedback! See the legacy upgrade guide for how to upgrade, and legacy.jupyterbook.org for legacy documentation

Get started





Get started

A Small Example Project Under the hood - the components

of Jupyter Book

Contribute to Jupyter Book Acknowledgements



#### Raw content files

(.ipynb, .md)







Notebooks with outputs

execution and cacheing outputs



## Enriched document model

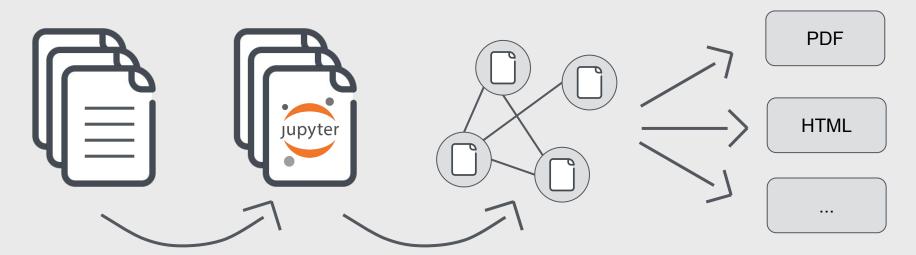


execution and cacheing outputs

citations, cross-refs, rich metadata



## Multiple kinds of outputs



execution and cacheing outputs

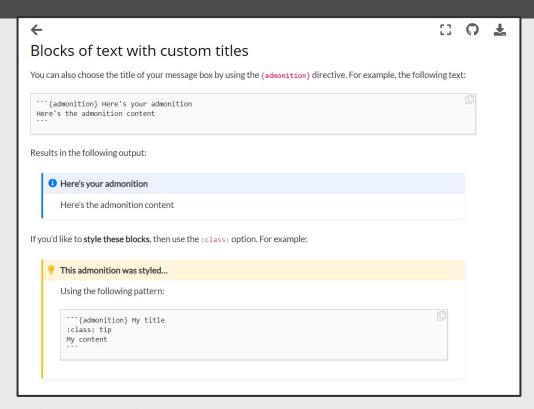
citations, cross-refs, rich metadata



# Some features

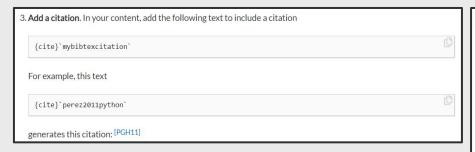


## Semantic content blocks





### Citations and cross-references



#### **Bibliography**

#### [CKS+10]

J Gregory Caporaso, Justin Kuczynski, Jesse Stombaugh, Kyle Bittinger, Frederic D Bushman, Elizabeth K Costello, Noah Fierer, Antonio Gonzalez Pena, Julia K Goodrich, Jeffrey I Gordon, and others. Qiime allows analysis of high-throughput community sequencing data. *Nature methods*, 7(5):335–336, 2010.

#### [HdHP+16]

Christopher Ramsay Holdgraf, Wendy de Heer, Brian N. Pasley, Jochem W. Rieger, Nathan Crone, Jack J. Lin, Robert T. Knight, and Frédéric E. Theunissen. Rapid tuning shifts in human auditory cortex enhance speech intelligibility. *Nature Communications*, 7(May):13654, 2016. URL:

http://www.nature.com/doifinder/10.1038/ncomms13654, doi:10.1038/ncomms13654.

#### [PGH11](1,2)

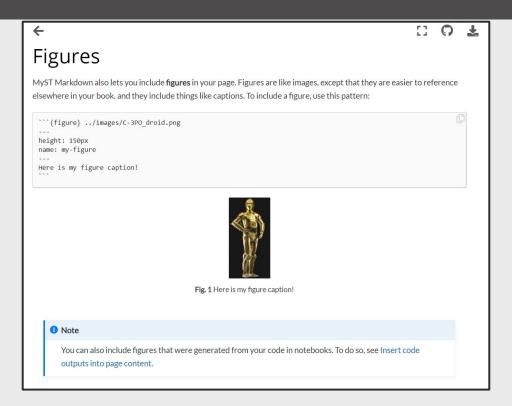
Fernando Perez, Brian E Granger, and John D Hunter. Python: an ecosystem for scientific computing. *Computing in Science* & *Engineering*, 13(2):13–21, 2011.

#### [SK14]

 ${\it John Stachurski} \ and \ {\it Takashi Kamihigashi}. Stochastic stability in monotone \ economies. \ {\it Theoretical Economics}, \ 2014.$ 



## Figures and captions





## Execute/cache your notebook outputs

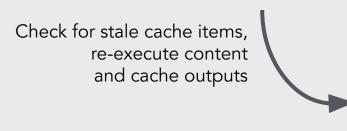
#### raw content files

(maybe edited since last build)













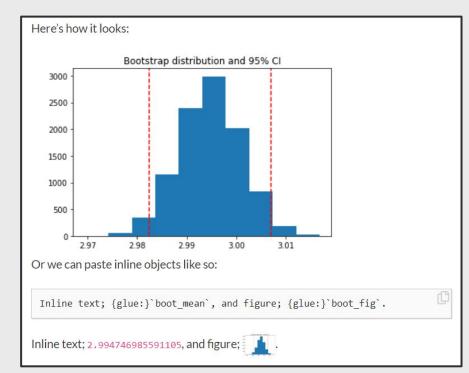


Insert cached outputs, artifacts into a book build



## Insert outputs of code into your text

# The glue role/directive The simplest role and directive are glue: any, which paste the glued output inline or as a block respectively, with no additional formatting. Simply add this: [Sqlue: Your-key] For example, we'll paste the plot we generated above with the following text: [Sqlue: Your-key] [Gqlue: Your-key]





## Markdown notebooks with

## -jupy +text

```
jupytext:
 formats: ipvnb.md:mvst
 text representation:
    extension: .md
   format name: myst
   format version: '0.7'
   jupytext version: 1.4.1
kernelspec:
 display name: Python 3
 language: python
 name: python3
# A demo notebook
This will be converted to MyST-markdown using Jupytext!
## Some python code
``{code-cell} ipython3
import numpy as np
data = np.random.randn(3, 100)
data[0, :10]
## A little plot
``{code-cell} ipython3
import matplotlib.pyplot as plt
plt.scatter(data[0], data[1], c=data[2], s=100*np.abs(data[2]))
```

#### A demo notebook

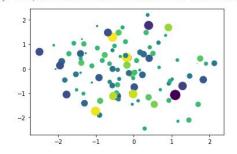
This will be converted to MyST-markdown using Jupytext!

#### Some python code

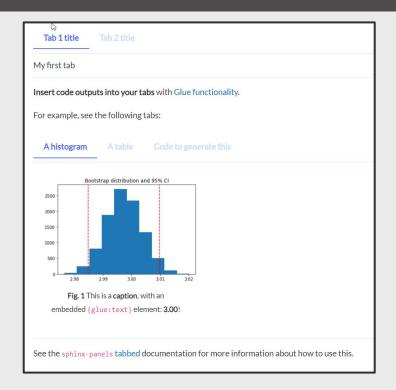
- [4]: import numpy as np data = np.random.randn(3, 100) data[0, :10]
- [4]: array([-0.5637771 , 1.16804072, 0.07430825, 0.92728153, 0.39095119, 0.39252918, -0.97280272, 0.32585906, -0.14544016, -0.44772765])

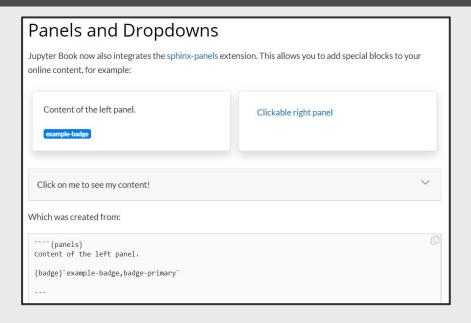
#### A little plot

- [7]: import matplotlib.pyplot as plt
   plt.scatter(data[0], data[1], c=data[2], s=100\*np.abs(data[2]))
- [7]: <matplotlib.collections.PathCollection at 0x7f0ff17aeef0>



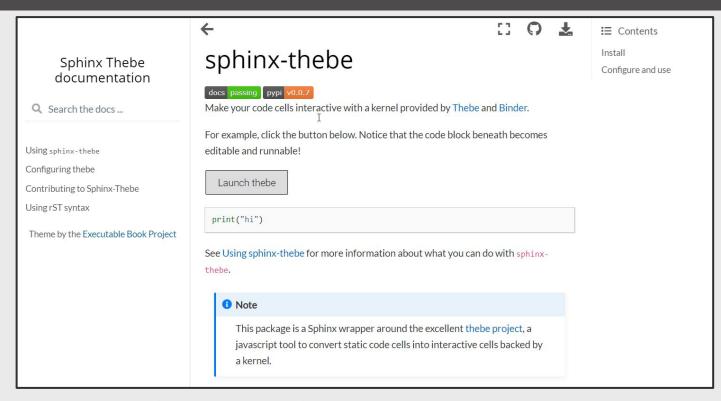
## Collapsible content blocks







## Integration with sphinx-thebe





## Last feature: Community driven

- Jupyter Book (and the Jupyter Project) are supported by a broad and diverse community, made up of people just like you
- If you're interested in being involved, you are welcome to join
- Reach out if you're interested in using these tools, or in helping out. There are many ways to join the community!



Try Jupyter Book jupyterbook.org

Follow the project executablebooks.org github.com/executablebooks

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