Reproducible Self-Publishing via PythonTEX

Pitch and Reference Slides

[github.com/TheChymera/RepSeP]

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Publish From Code, Openly.

- Transparency $\longrightarrow$ verifiability
- Reproducibility $\longrightarrow$ hackability, reusability
- Version management $\longrightarrow$ sustainability, attribution, e.g. via:
  - `diff` -ability
  - `blame` -ability

Publish in a Distributed Model, Free.

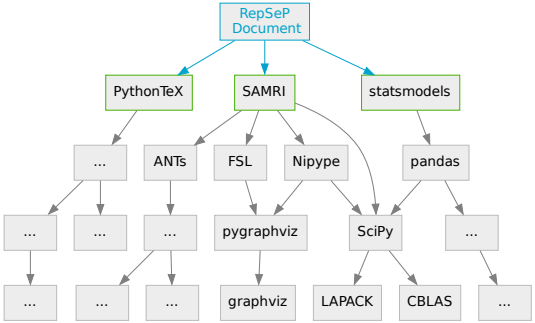
- No external entry barrier $\longrightarrow$ citizen science
- No institutional bias $\longrightarrow$ free science
- *Less* publication bias $\longrightarrow$ honest science

Publish, in a Presentable Format.

- Article
- Poster
- Slides

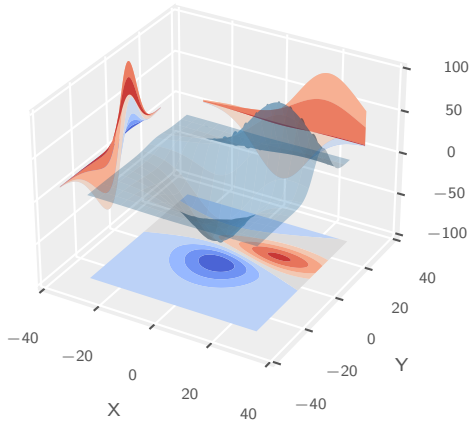
("Notebooks" integrate poorly with both presentation and development.)

Manage Dependencies for Reliable Reexecution



Automated dependency management via Gentoo Linux

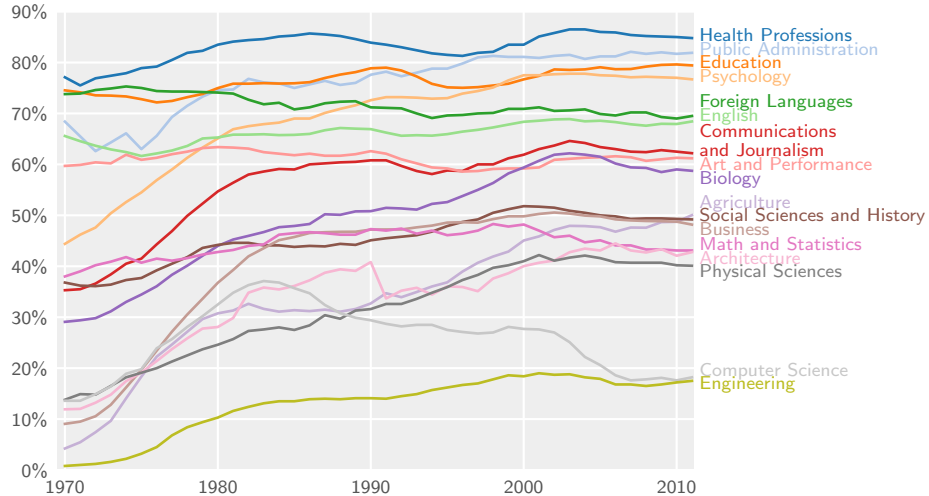
- Because dependency graphs should never be managed ad hoc.



A 3D plot.

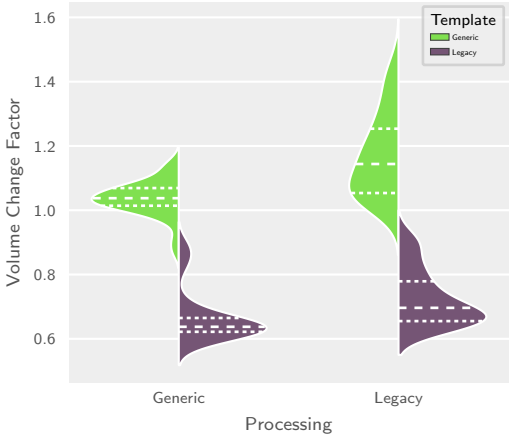
Produced by including:

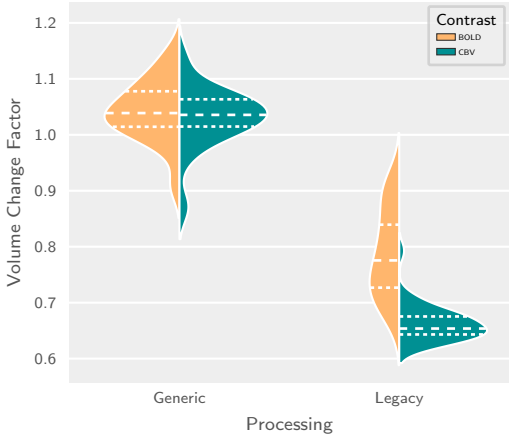
```
\py{
    pytex_fig('scripts/radar.py',
        label='radar',
        caption='A radar plot.',
        )
    }
```



Percentage of Bachelor's degrees conferred to women in the U.S.A. by major (1970-2011).

And So Much More





Onset [s]	Duration [s]	Frequency [Hz]	Pulse Width [s]	Wavelength [nm]
333.050000	20.000000	20.000000	0.005000	488.000000
513.050000	20.000000	20.000000	0.005000	488.000000
693.050000	20.000000	20.000000	0.005000	488.000000
873.050000	20.000000	20.000000	0.005000	488.000000
1053.050000	20.000000	20.000000	0.005000	488.000000

Table: BIDS event file table.

Produced by including:

```
\py{
    pytex_tab('scripts/small_table.py',
        script='scripts/stim_table.py',
        label='sp',
        caption='BIDS event file table.',
        data='data/JogB.tsv',
        options_post='}',
        )
    }
```

Sometimes Less is More

$$F_{1,268} = 10.97,\ p = 0.0011$$

Produced by including:

```
\py{
    pytex_printonly('scripts/drs_activityANOVA.py')
    }
```

But Sometimes You Just Want More

- Processing Factor: $F_{1,268} = 72.8$, $p = 1.07 \times 10^{-15}$
- Template Factor: $F_{1,268} = 1333$, $p = 5.13 \times 10^{-106}$
- Processing:Template Intearction: $F_{1,268} = 10.97$, $p = 0.0011$

Produced by including, e.g.:

```
\py{
    boilerplate.fstatistic('Processing:Template', condensed=True)
    }
```

Help Test the Format

- Get help harnessing the power of reproducible documents for your own work.
- Already tested for three neuroimaging research articles — but does it work for you?

Co-Author the Reference Implementation

- The `article.tex` reference document is still in early draft.
- You can contribute, fork, and publish it together with us.

Co-Found a Valuable Service for the Modern Research Environment

- Powerful technologies should be provided as services.
- Discuss and join a publishing platform in its early stages.