

Reproducible Self-Publishing via PythonT_EX

Pitch and Reference Slides

[github.com/TheChymera/RepSeP]

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Publish From Code, Openly.

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

Publish in a Distributed Model, Free.

- ▶ No external entry barrier → citizen science
- ▶ No institutional bias → free science
- ▶ *Less* publication bias → honest science

The tools which make this format amazing.

Publish, in a Presentable Format.

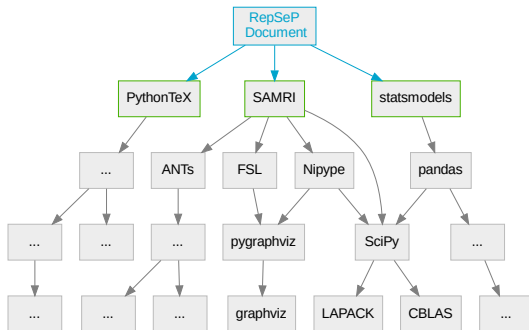
- ▶ Article
- ▶ Poster
- ▶ Slides



(“Notebooks” integrate poorly with both presentation and development.)

The tools which make this format amazing.

Manage Dependencies for Reliable Reexecution



Automated dependency management via Gentoo Linux

- Because dependency graphs should never be managed ad hoc.

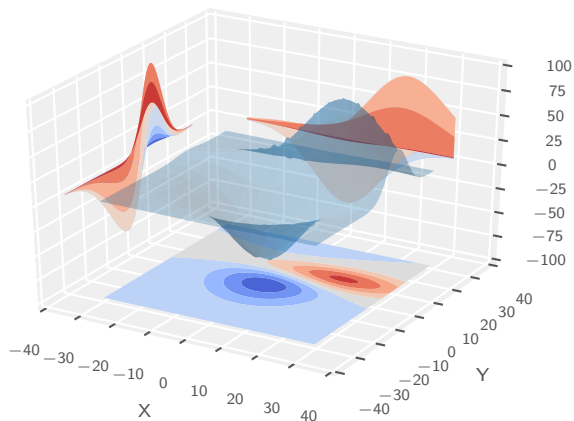


Figure: A 3D plot.

Produced by including:

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

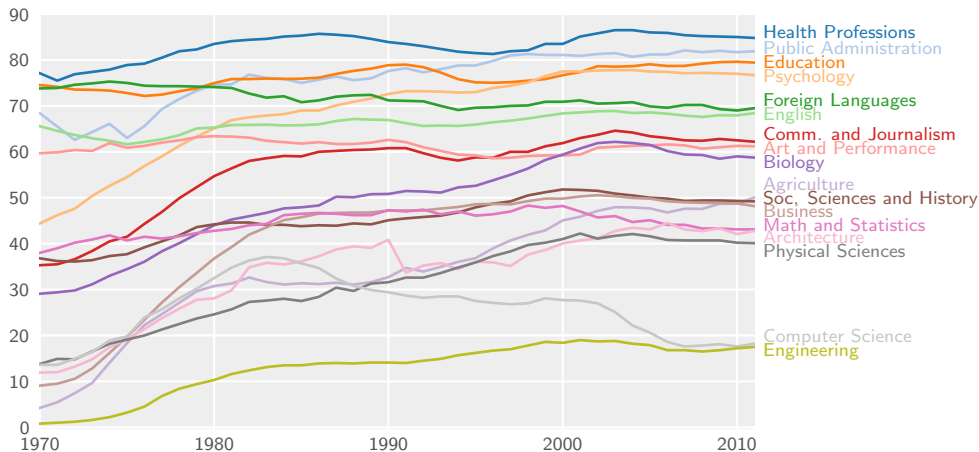
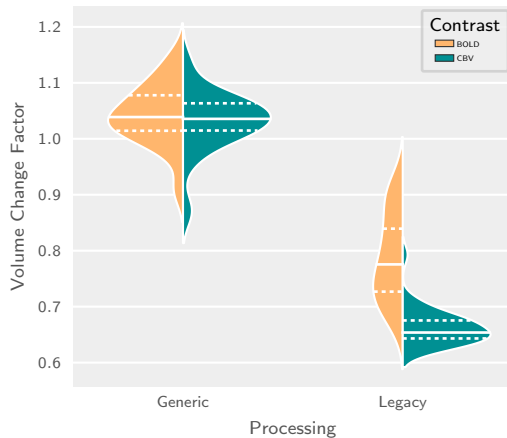
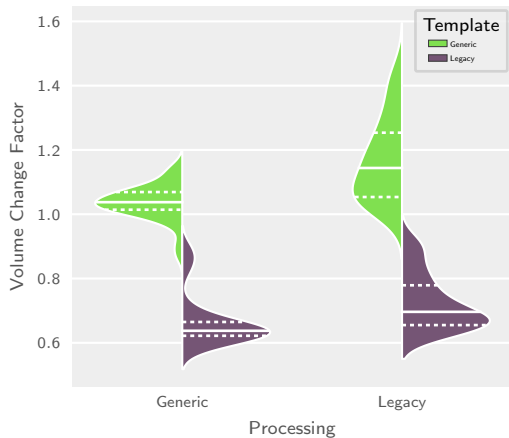


Figure: Percentage of Bachelor's degrees conferred to women in the U.S.A. by major (1970-2011).

And So Much More



Onset [s]	Duration [s]	Frequency [Hz]	Pulse Width [s]	Wavelength [nm]
333.05	20.0	20.0	0.005	488.0
513.05	20.0	20.0	0.005	488.0
693.05	20.0	20.0	0.005	488.0
873.05	20.0	20.0	0.005	488.0
1053.05	20.0	20.0	0.005	488.0

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 Interaction: $F_{1,268} = 10.97$, $p = 0.0011$

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.