

JupyterLab: Building Blocks for Interactive Computing



SciPy 2016

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20 Minutes Ago



5 Minutes Ago (rebase)

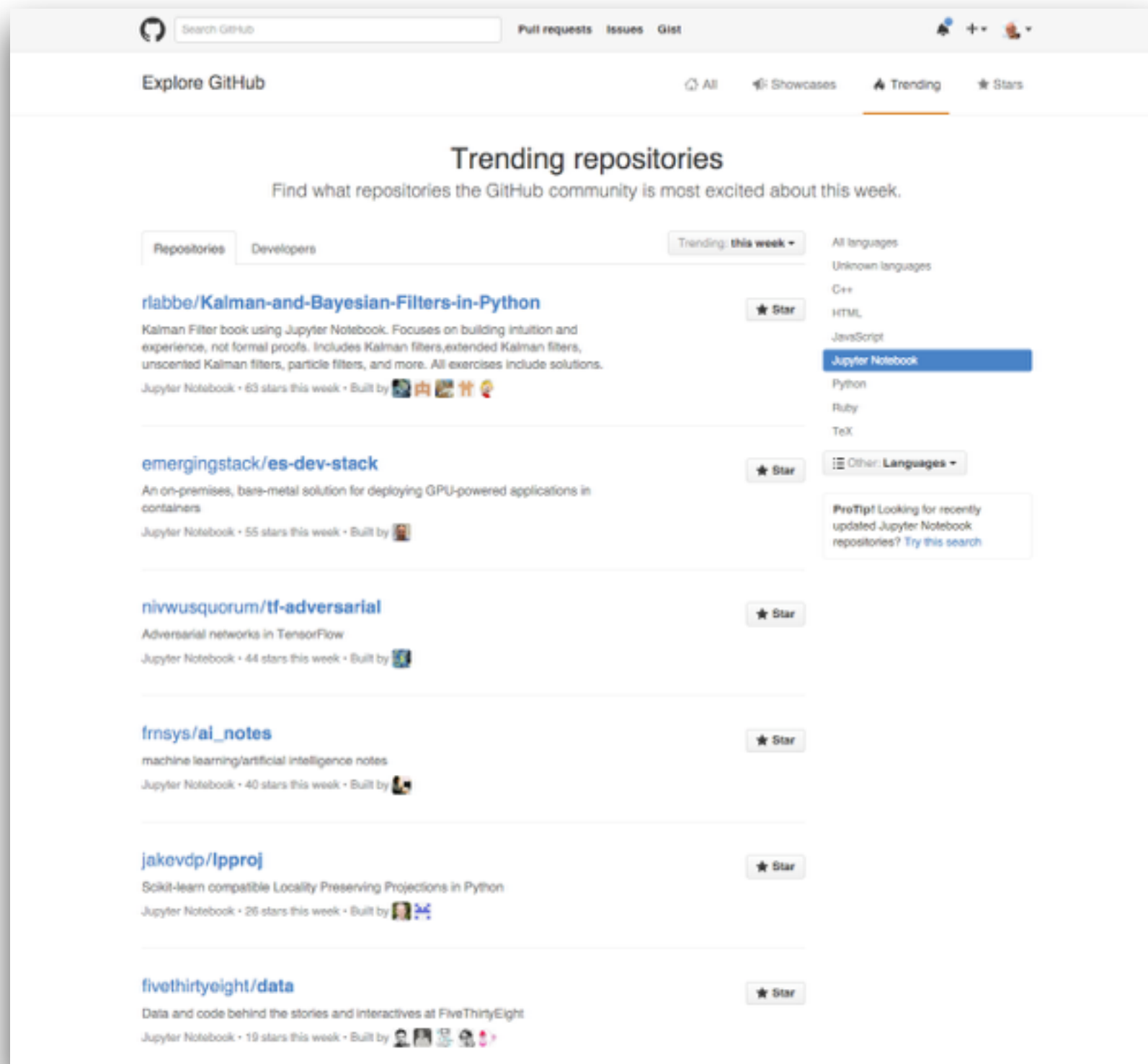


Where Are We Today?



~3M Jupyter
Users

Over 500k Notebooks on GitHub



<https://github.com/trending/jupyter-notebook?since=weekly>

Enabling Reproducible Science



The screenshot shows the LIGO Open Science Center website. The header features the LIGO logo and the text 'LIGO Open Science Center' with a subtitle: 'LIGO is operated by California Institute of Technology and Massachusetts Institute of Technology and supported by the U.S. National Science Foundation.' A left sidebar contains a navigation menu with links like 'Getting Started', 'Tutorials', 'Data', 'Events', 'Bulk Data', 'Timelines', 'My Sources', 'Software', 'GPS ↔ UTC', 'About LIGO', 'Data Analysis Projects', and 'Acknowledgement'. The main content area has a 'Welcome to the LIGO Open Science Center' heading, followed by links to 'About LIGO', 'Get Started with LIGO data', and 'Join the E-mail list for updates'. It also provides general information and a link to 'ligo.org'. A section titled 'More discoveries from LIGO!' lists three data releases from June 15, 2016, including GW151226, LVT151012, and GW150914. At the bottom, there is a 'Jupyter notebook' section with a link to a tutorial on binary black hole signals.

LIGO LIGO Open Science Center
LIGO is operated by California Institute of Technology and Massachusetts Institute of Technology and supported by the U.S. National Science Foundation.

Getting Started
Tutorials
Data
Events
Bulk Data
Timelines
My Sources
Software
GPS ↔ UTC
About LIGO
Data Analysis Projects
Acknowledgement

Welcome to the LIGO Open Science Center

About LIGO
Get Started with LIGO data
Join the E-mail list for updates
For general information on LIGO, please visit ligo.org
If you have LSC credentials, you may go to the [development site](#)

More discoveries from LIGO!
Data Releases from two events and a candidate event

released 2016 June 15:
[Event of December 26, GW151226: Chirp mass 9](#)

released 2016 June 15:
[Candidate event of October 12, LVT151012: Chirp mass 15](#)

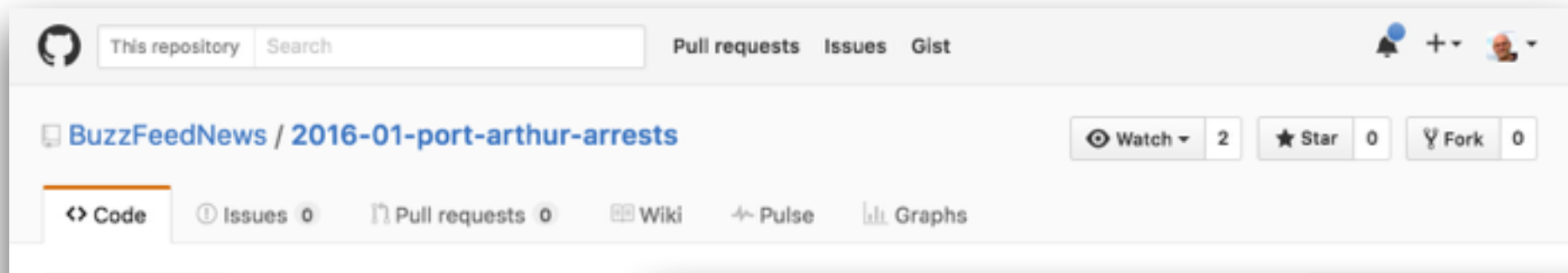
released 2016 Feb 11:
[Event of September 14, GW150914: Chirp mass 30](#)

The [LIGO Laboratory's Data Management Plan](#) describes the scope and timing of LIGO data releases.

Jupyter notebook
See the new tutorial on signal processing with LIGO data, as a Jupyter (iPython) notebook.
[Tutorial on Binary Black Hole Signals in LIGO Open Data](#)

<https://losc.ligo.org/about/>

Enabling Open Data Journalism



Branch: master 2016-01-port-arthur-arrests / no

taggartk Initial commit

1 contributor

896 lines (895 sloc) | 24.1 KB

Analysis of Jefferson Co

The code below analyzes arrest data from Jeffers

Load the data

```
In [1]: import pandas as pd
```

```
In [2]: date_cols = ["ARREST DT", "RELEASE D
```

```
In [3]: all_class_c_arrests = pd.read_csv(".  
       parse_dates=date_cols, dtype={"W
```

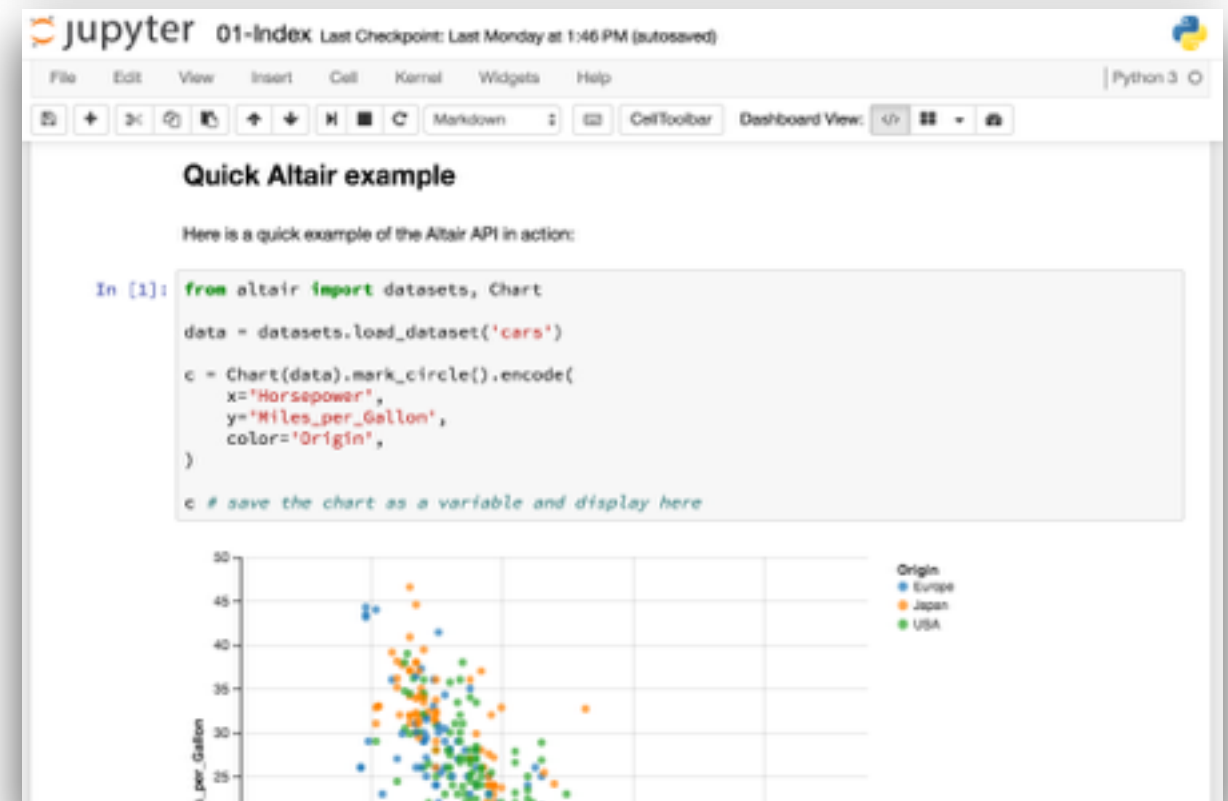
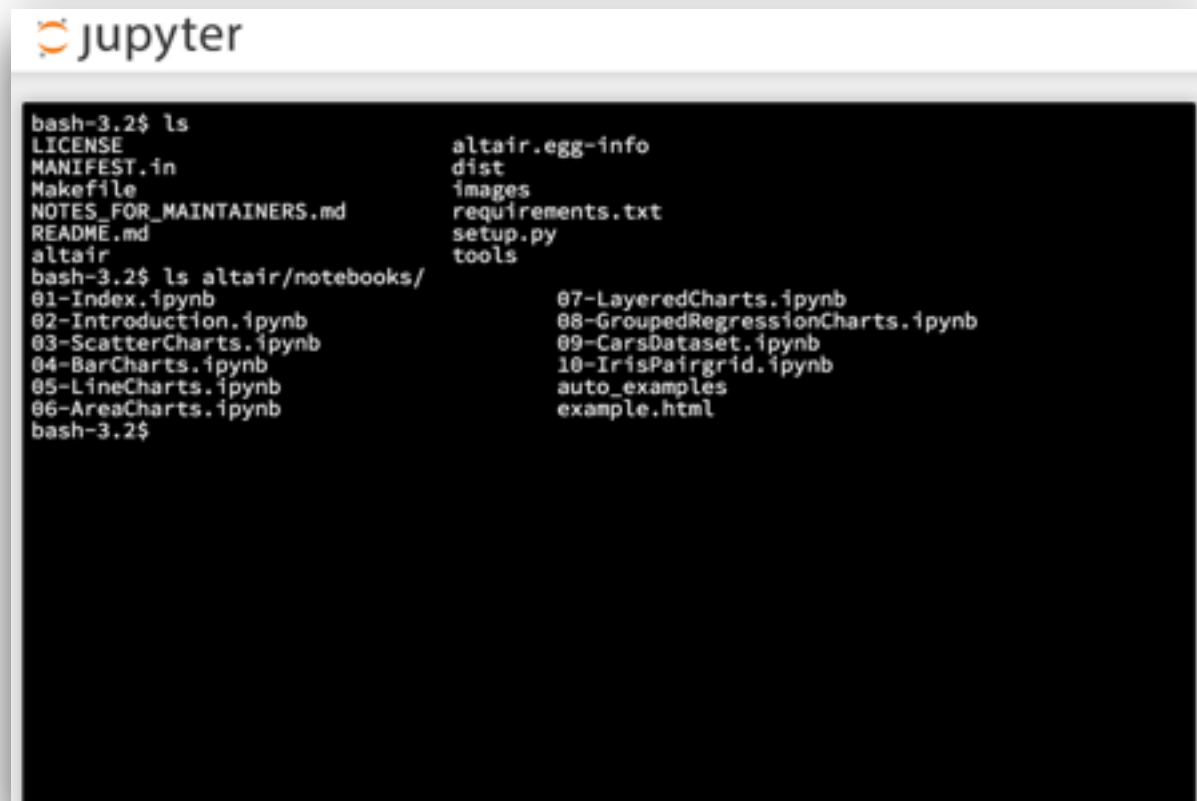
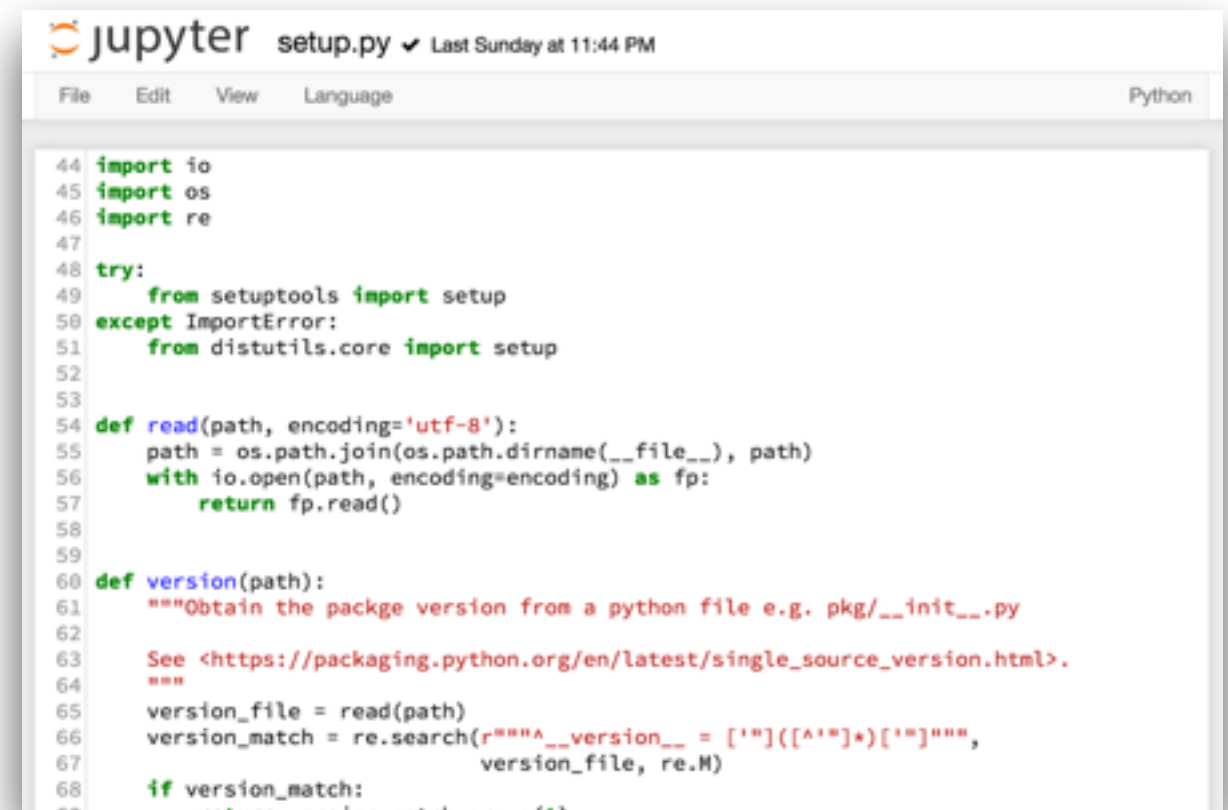
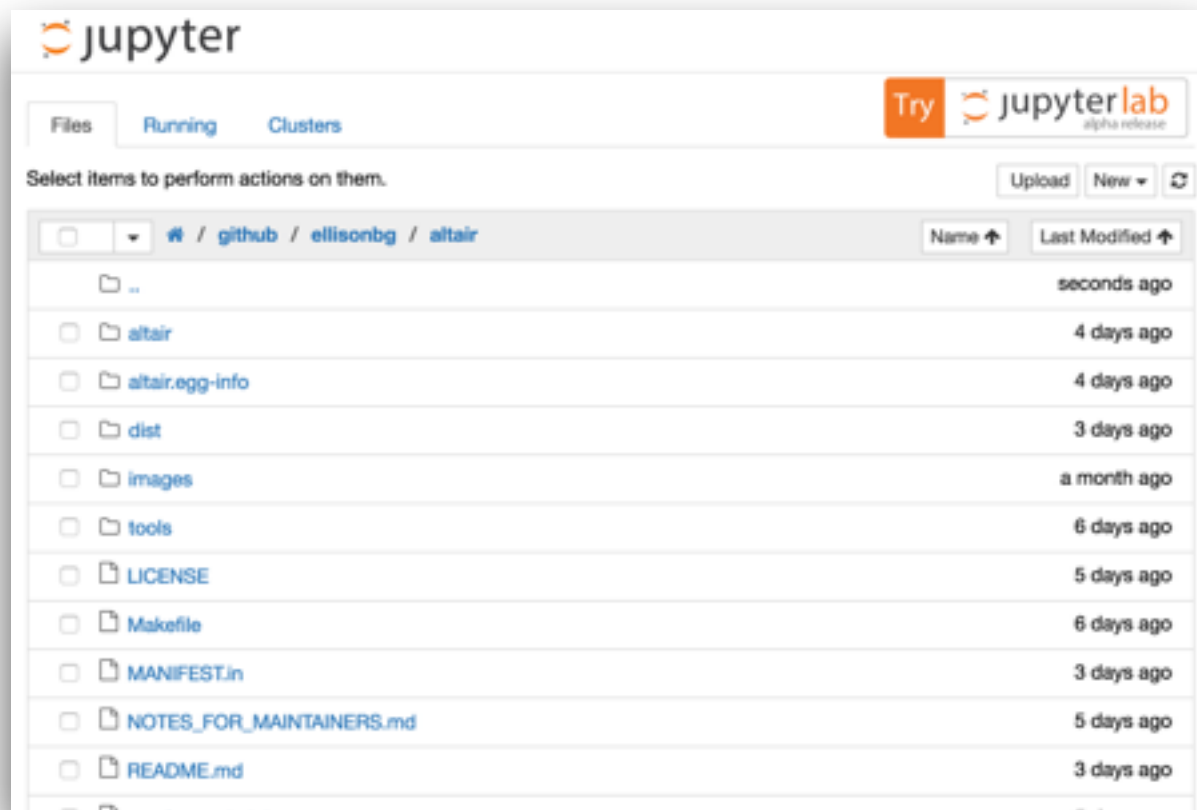
```
In [4]: all_class_c_arrests.head()
```

```
Out[4]:
```

	#	OFFENSE	BOND	WARRANT #	FILED BY
0	1	FAILURE TO APPEAR	0	8080676	PAPD



More Than Just Notebooks



Building Blocks

File Browser

Notebooks

Text Editor

Widgets

Output

Terminal

What Are We Hearing
From Users?

2015 User Experience Survey

- Mostly daily/weekly users
- Love the notebook workflow and user experience
- Top needs:
 - Integration with version control systems (git/GitHub)
 - Code/text editing
 - Layout/integration of building blocks
 - Debugger, profiler, variable inspector, etc.

Introducing JupyterLab (alpha)

JupyterLab

- JupyterLab is the natural evolution of the Jupyter Notebook user interface
- JupyterLab is an IDE: *Interactive* Development Environment
- Flexible user interface for assembling the fundamental building blocks of interactive computing
- Modernized JavaScript architecture based on npm/webpack, plugin system, model/view separation
- Built using PhosphorJS (<http://phosphorjs.github.io/>)
- Design-driven development process

<https://github.com/jupyter/jupyterlab>

Roadmap

- Today (July 2016) JupyterLab is an early preview only
- Not suggested for general usage:
 - Visual design, UI, UX, interactions, code all still changing rapidly!
- Phases:
 - 1) Series of alpha/beta releases of JupyterLab available as an alternative UI alongside the classic notebook
 - 2) JupyterLab 1.0 = Lab notebook component has feature parity with classic notebook
 - 3) JupyterLab becomes the default UI, but classic notebook is still available
 - 4) Classic notebook only available as a separate download

Live Demos

What next?

Alpha (rapid iteration, major changes, may break)

```
pip install jupyterlab
jupyter serverextension enable --sys-prefix
jupyterlab
```

(or `conda install -c condaforge jupyterlab`)

```
jupyter lab
```


Contribute

- User testing downstairs
- Sprints on Saturday/Sunday
- Regular JupyterLab progress meetings on Fridays
- Follow repo on Github

<https://github.com/jupyter/jupyterlab>

Thanks!

- Bloomberg, Continuum, Jupyter team, especially Chris Colbert, Steve Silvester, Afshin Darian, Dave Willmer
- Moore, Sloan, and Helmsley Foundations

Thank You!