
# JupyterLab: The Evolution of the Jupyter Notebook

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# The Jupyter Notebook

# Jupyter Notebook

## Interactive, Exploratory, Reproducible

- Interactive, browser-based computing environment
- Exploratory data science, ML, visualization, analysis, stats
- Reproducible document format:
  - Code
  - Narrative text (markdown)
  - Equations (LaTeX)
  - Images, visualizations
- Over 50 programming languages
- Everything open-source (BSD license)

# Jupyter Notebook

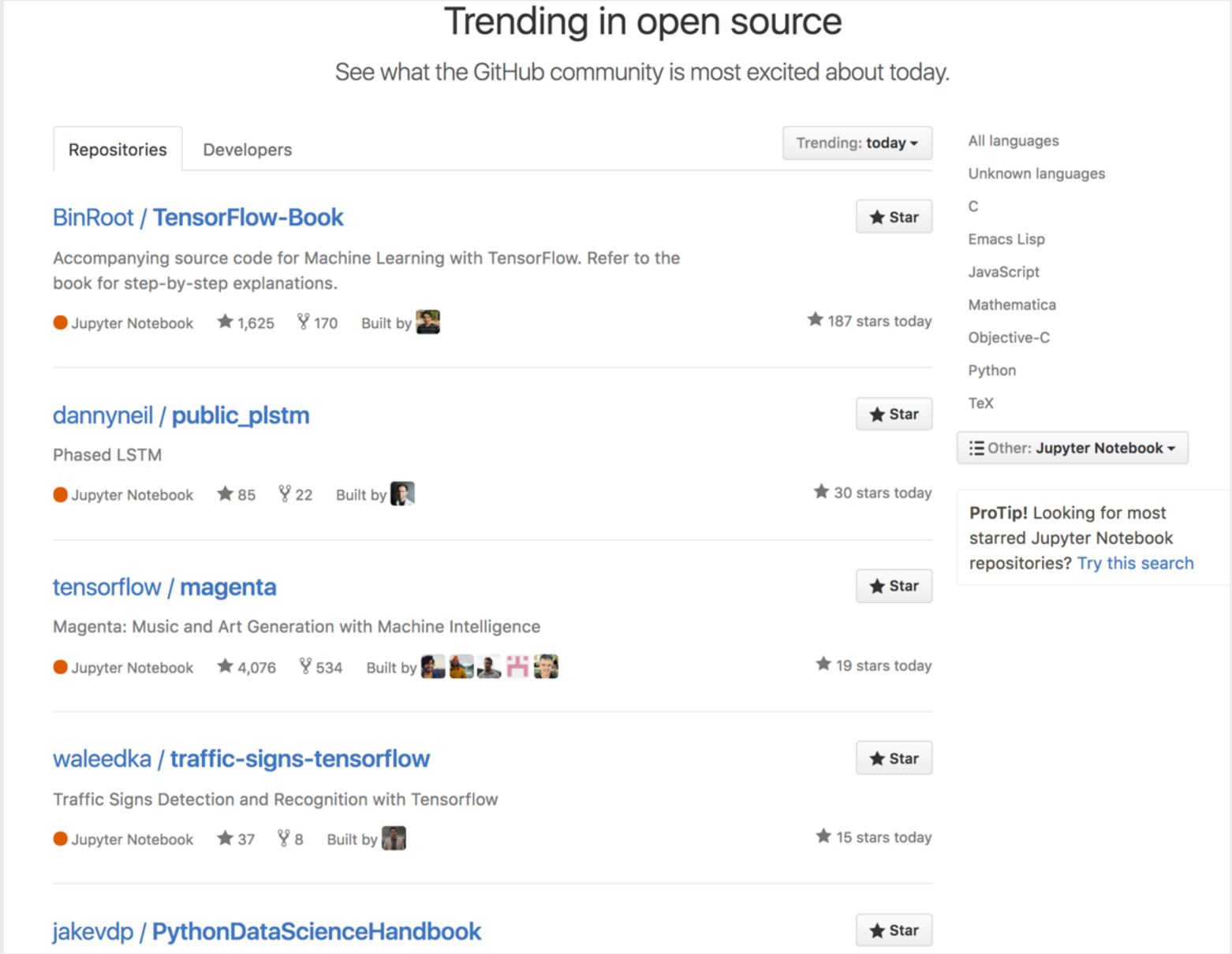

*A Jupyter Notebook document with a visualization of measles data.*

# Project Jupyter: Where are we today?

# ~3M Users


https://github.com/jupyter/design/blob/master/surveys/2015-notebook-ux/analysis/report_dashboard.ipynb

# Over 650,000 Notebooks on GitHub

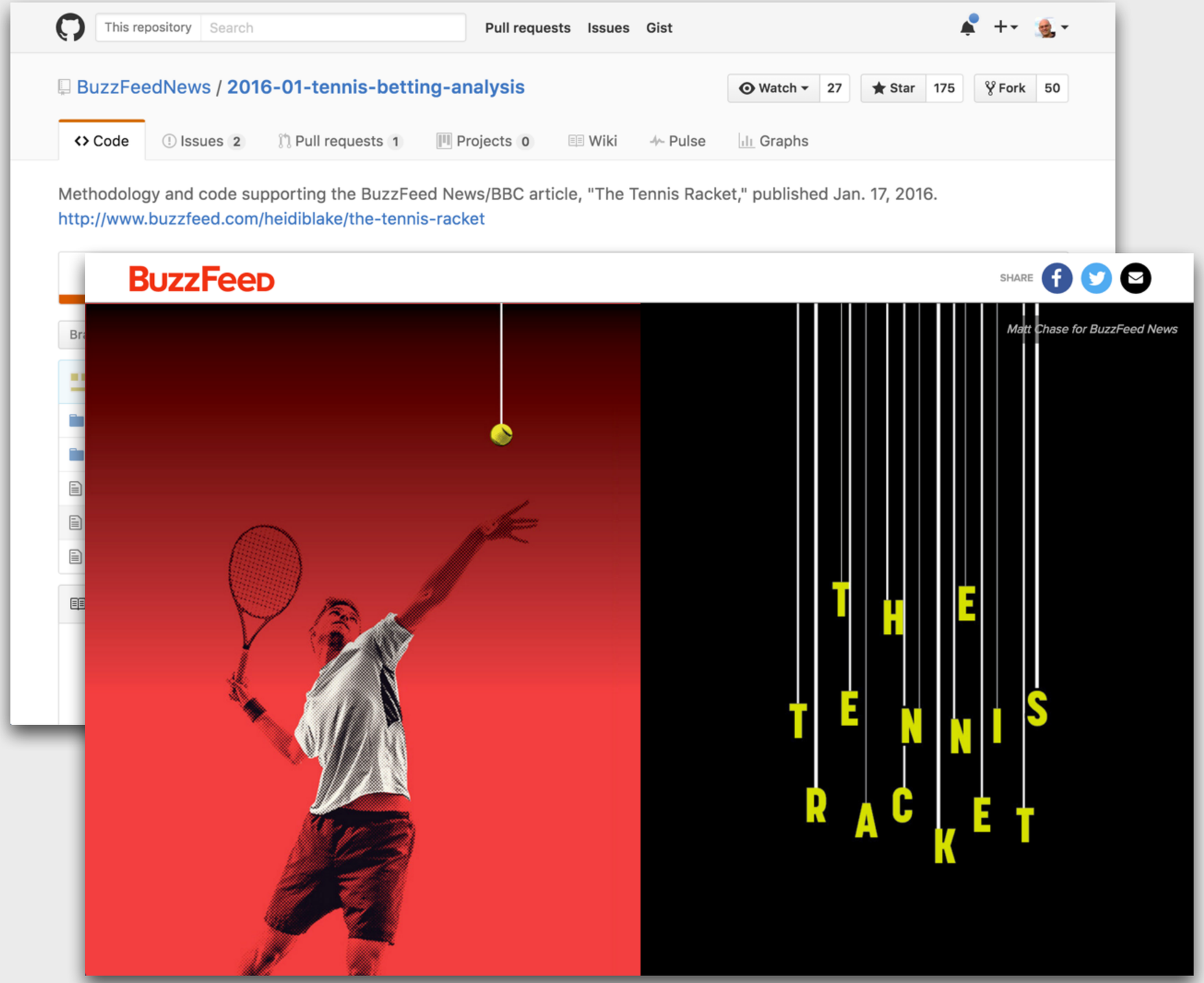



https://github.com/trending/jupyter-notebook?since=weekly

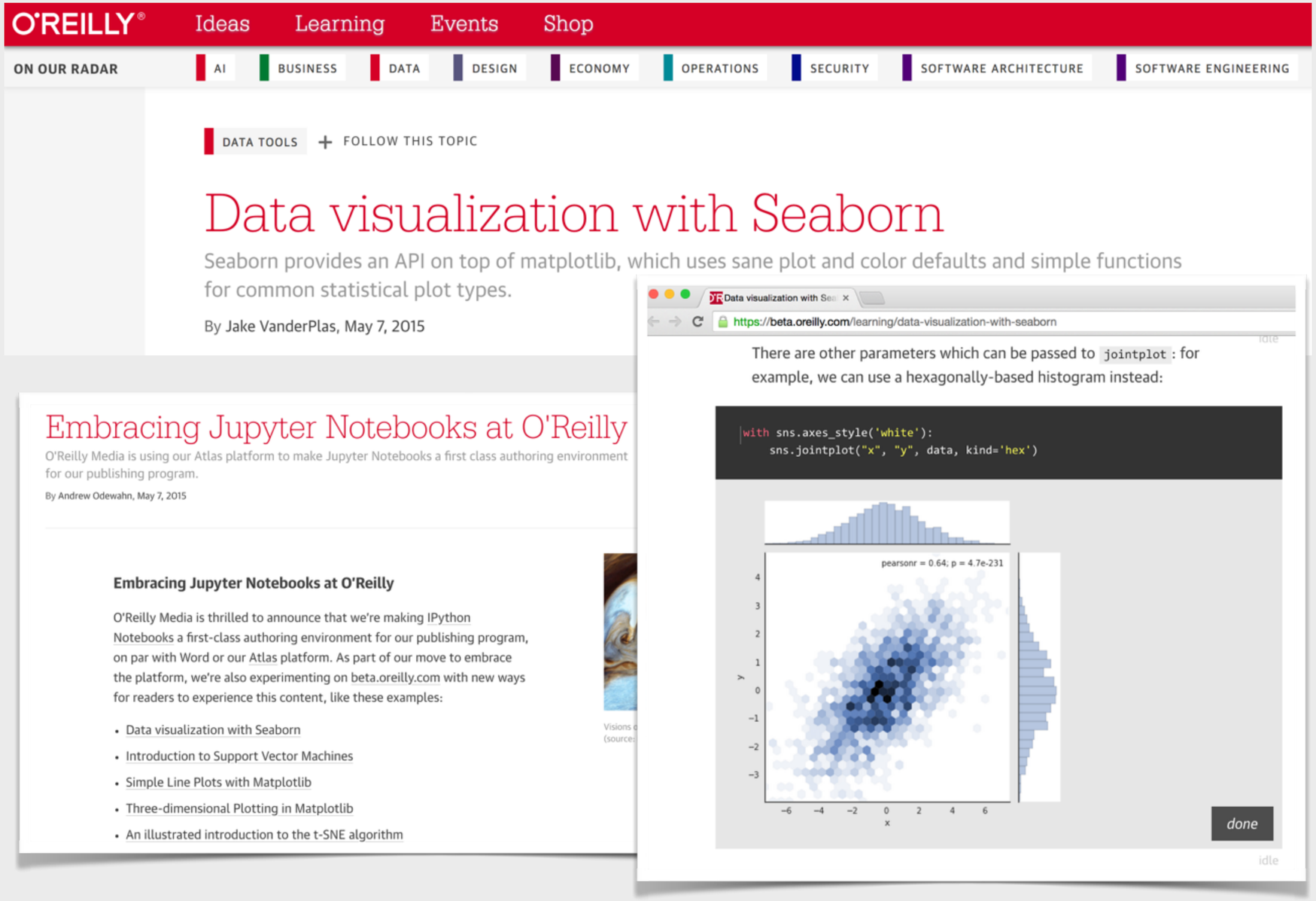
# Enabling Reproducible Science


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

# Enabling Open Data Journalism



# Authoring Interactive Books

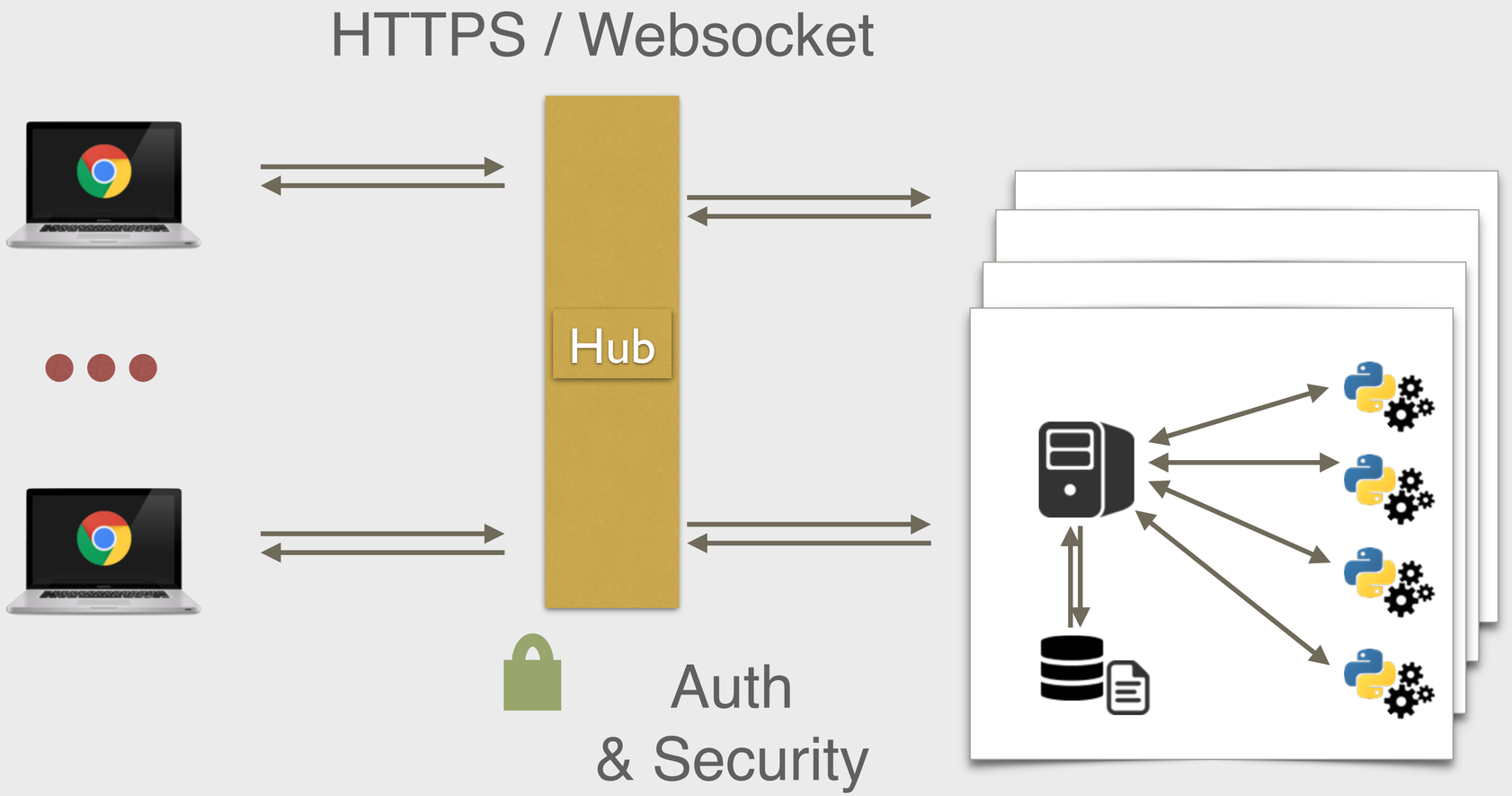



O'Reilly Atlas authoring platform incorporating live code

https://www.oreilly.com/ideas/jupyter-at-oreilly

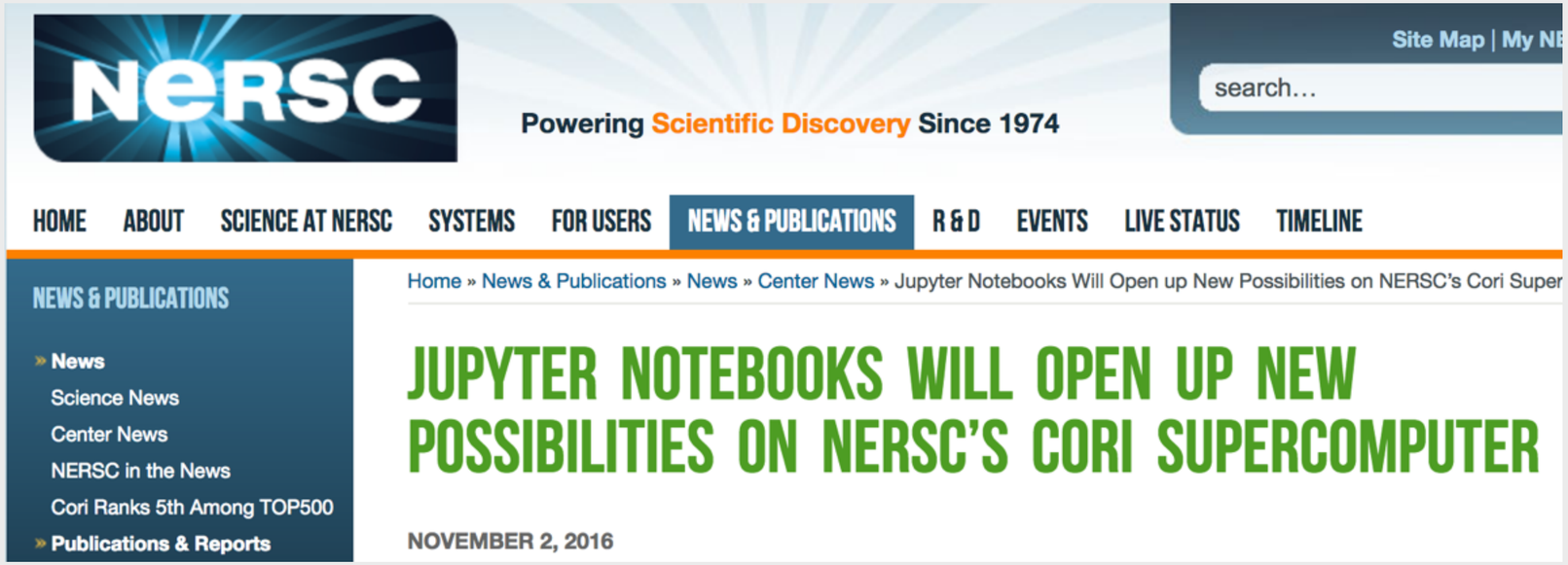
# Multi-user Notebook Servers

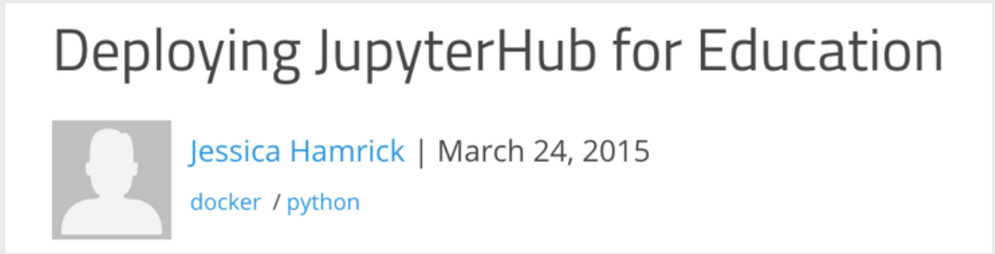
jupyterHub




https://github.com/jupyterhub/jupyterhub

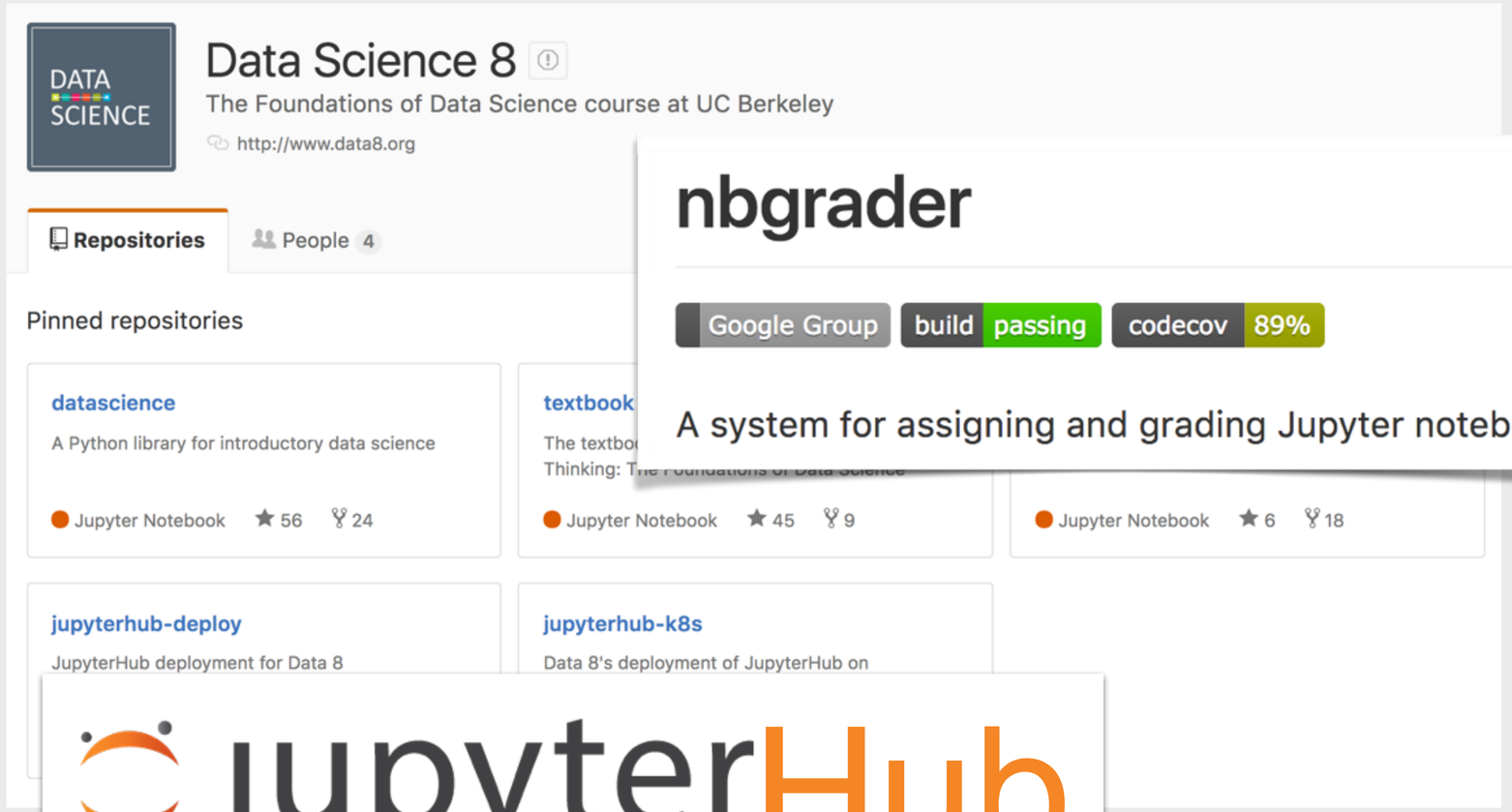
# Multi-user Notebook Servers


https://github.com/jupyterhub/jupyterhub

# Teaching Interactive Courses; Educational Material







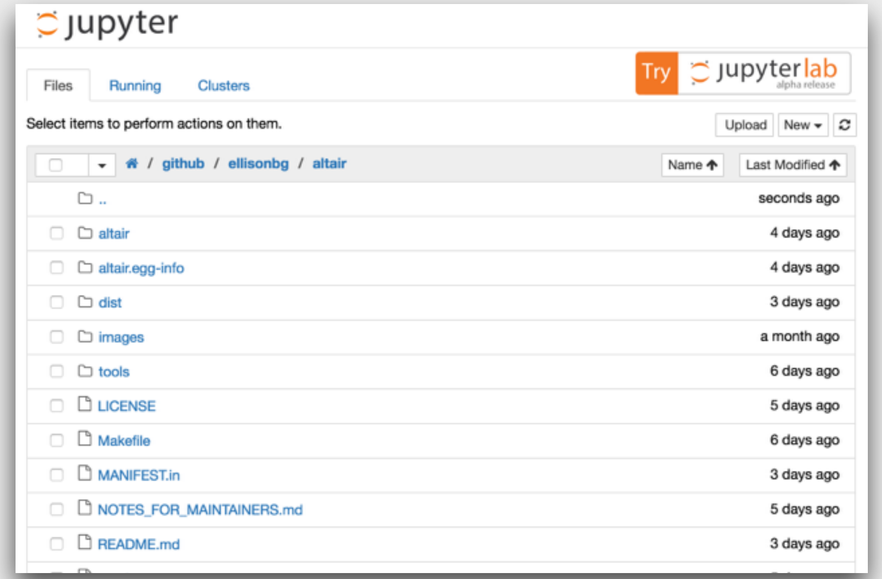


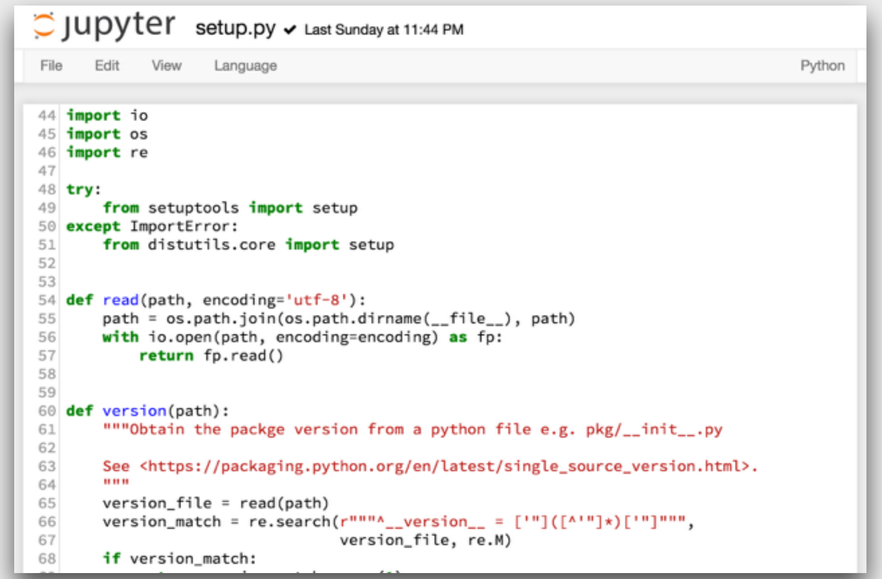

A gallery of interesting IPython Notebooks

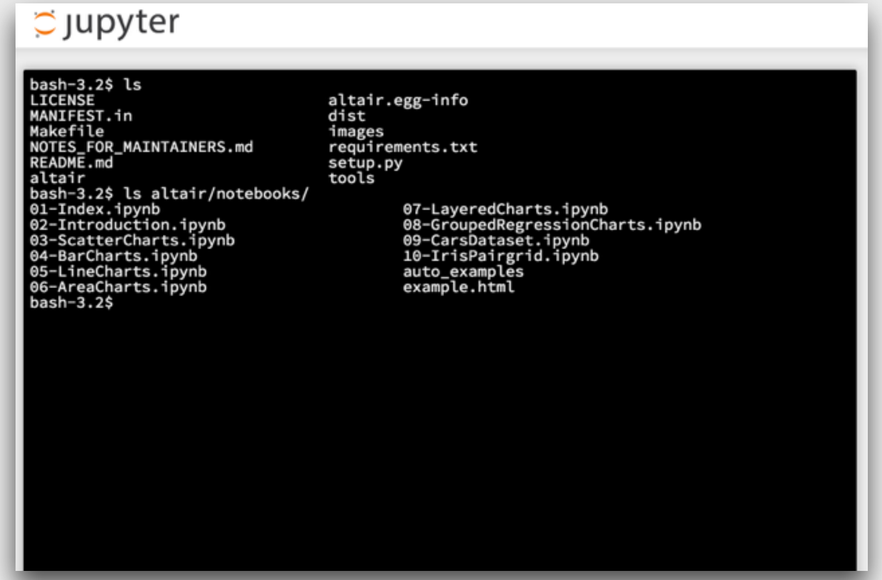
http://data8.org

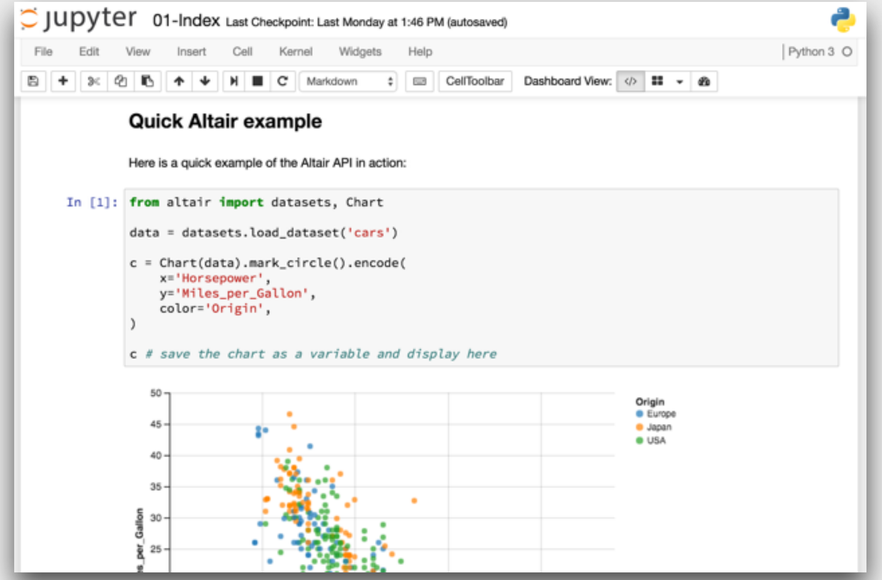
https://github.com/ipython/ipython/wiki/A-gallery-of-interesting-IPython-Notebooks

# More Than Just Notebooks



# Building Blocks

File Browser

Notebooks

Terminal

Text Editor

Kernels

Output

# What are we hearing from users?

# 2015 UX Survey

- Mostly daily/weekly users
- Love the notebook workflow and user experience
- Top needs:
  - Integration with version control systems (Git, GitHub)
  - Improved code/text editing
  - Flexible layout and integration between the building blocks
  - Debugger, profiler, variable inspector, etc.

https://github.com/jupyter/design/blob/master/surveys/2015-notebook-ux/analysis/report_dashboard.ipynb

# Introducing JupyterLab (alpha)

# JupyterLab

## Natural Evolution of the Notebook

- JupyterLab: a browser Interactive Development Environment
- Common building blocks: notebook, terminal, editor, etc.
- Integration between tools
- Extension system for 3rd party plugins
- Fluid, efficient UX
- Built on PhosphorJS (http://phosphorjs.github.io/)
- Open-Source (BSD licensed)

https://github.com/jupyter/jupyterlab

# Live Demos!

# Roadmap

- Today JupyterLab is an alpha preview only
- Not suggested for general usage:
  - Design, UI, UX, interactions, code all changing rapidly!
- Phases:
  - 1) Series of alpha/beta releases of JupyterLab available as an alternative UI alongside the classic notebook
  - 2) JupyterLab 1.0 = feature parity with classic notebook + small number of new features (first half 2017?)
  - 3) JupyterLab default UI, classic notebook still available
  - 4) Classic notebook only available as separate download

# Thank you!

***alpha preview!***

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

***or***

```
conda install -c conda-forge jupyterlab
```

- Credits and thanks:
  - The Project Jupyter community
  - Partnership between Bloomberg, Continuum, and Jupyter
  - Moore, Sloan, Helmsley Foundations
- Jupyter is a NumFOCUS Foundation Sponsored Project
- Help: gitter.im/jupyterlab/jupyterlab; Jupyter Google group

github.com/jupyterlab/jupyterlab