

Gitter: <https://gitter.im/scikit-learn/wimlds>

# Crash-Course in Contributing to Open Source Projects

(with some specific instructions  
to sklearn)

Andreas Müller

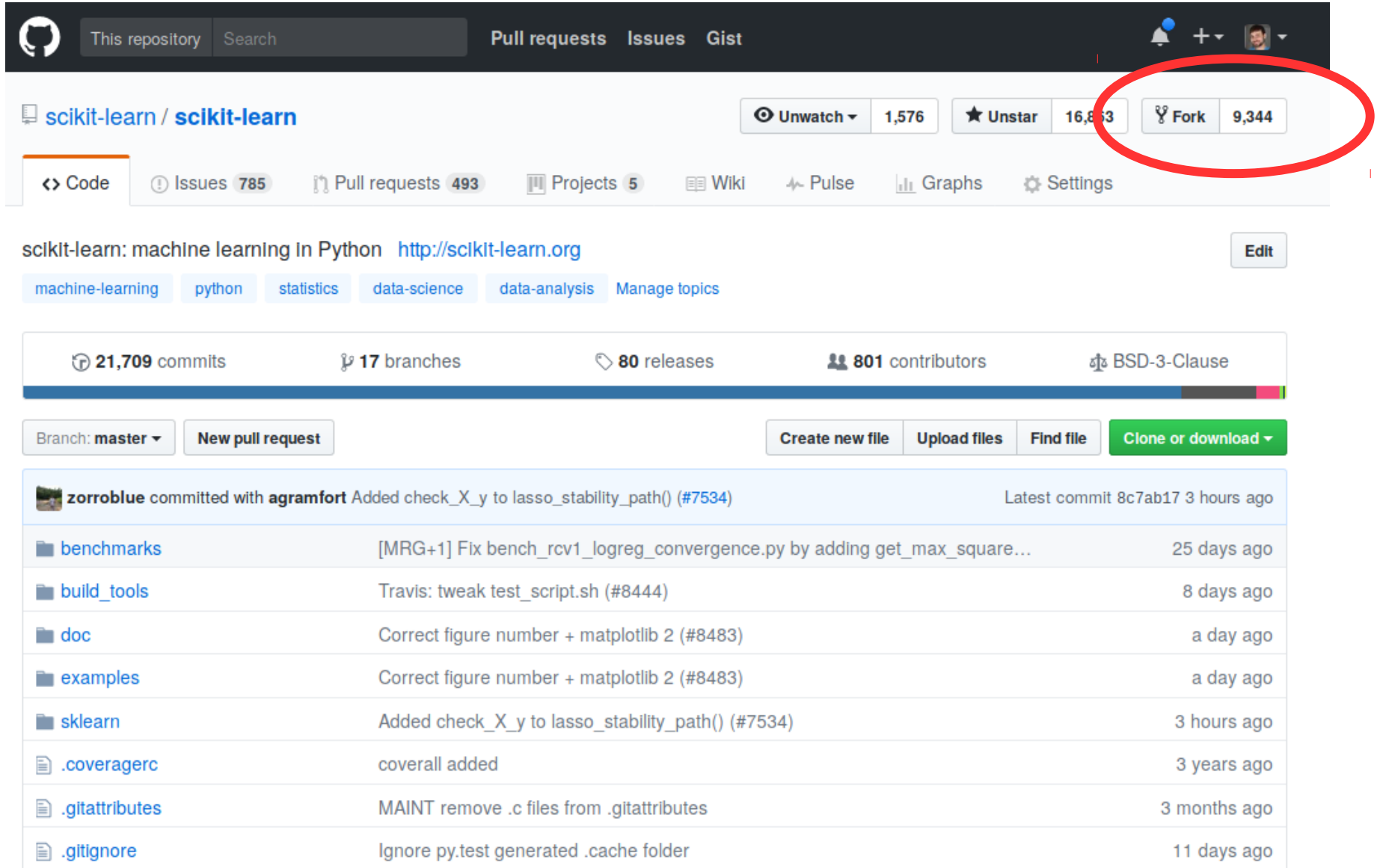
# Environment

- If you don't have a working python installation, install anaconda.
- If you don't want to install the scikit-learn development version in your main environment, create a separate environment (with conda or virtualenv):










```
conda create -n sklearndev numpy scipy matplotlib  
            pytest sphinx cython ipykernel sphinxgallery  
source activate sklearndev
```

# Fork sklearn on github

<https://github.com/scikit-learn/scikit-learn>



The screenshot shows the GitHub repository page for `scikit-learn / scikit-learn`. The `Fork` button is circled in red. The repository has 1,576 stars, 16,853 forks, and 9,344 forks. The `Code` tab is selected. The repository description is "scikit-learn: machine learning In Python" with a link to <http://scikit-learn.org>. The repository has 21,709 commits, 17 branches, 80 releases, 801 contributors, and is licensed under BSD-3-Clause. The `Clone or download` button is highlighted in green. The commit history table is shown below.

Commit	Message	Time
 <b>zorroblue</b> committed with <b>agramfort</b>	Added check_X_y to lasso_stability_path() (#7534)	Latest commit 8c7ab17 3 hours ago
 <a href="#">benchmarks</a>	[MRG+] Fix bench_rcv1_logreg_convergence.py by adding get_max_square...	25 days ago
 <a href="#">build_tools</a>	Travis: tweak test_script.sh (#8444)	8 days ago
 <a href="#">doc</a>	Correct figure number + matplotlib 2 (#8483)	a day ago
 <a href="#">examples</a>	Correct figure number + matplotlib 2 (#8483)	a day ago
 <a href="#">sklearn</a>	Added check_X_y to lasso_stability_path() (#7534)	3 hours ago
 <a href="#">.coveragerc</a>	coverall added	3 years ago
 <a href="#">.gitattributes</a>	MAINT remove .c files from .gitattributes	3 months ago
 <a href="#">.gitignore</a>	Ignore py.test generated .cache folder	11 days ago

# Clone the Fork

The screenshot shows a GitHub repository page for a fork of scikit-learn. A green circle highlights the repository name 'amuel / scikit-learn' and the 'Code' button. A red circle highlights the 'Clone or download' button and the 'Clone with SSH' dropdown menu. The dropdown menu shows the SSH URL 'git@github.com:amuel/scikit-learn.git' and a 'Download ZIP' button. The repository statistics show 21,555 commits, 275 branches, 43 releases, and 752 contributors. The commit history shows a recent commit by TomDLT with the message 'Add multiplicative-update solver in NMF, with all beta-divergence'.

Firefox Web Browser

amuel / scikit-learn  
forked from scikit-learn/scikit-learn

Unwatch 3 Unstar 9 Fork 9,344

Code Pull requests 0 Projects 0 Wiki Pulse Graphs Settings

scikit-learn main repo <http://scikit-learn.sourceforge.net> Edit

New Add topics

21,555 commits 275 branches 43 releases 752 contributors PSD-3-Clause

Branch: master New pull request Create new file Upload files Find file Clone or download

This branch is 154 commits behind scikit-learn:master.

TomDLT committed with ogrisel [MRG+1] Add multiplicative-update solver in NMF, with all beta-divergence

benchmarks MAING make benchmarks scripts Python 3 compatible

build\_tools CI report which doc files were likely affected (#8032)

doc [MRG+1] Add multiplicative-update solver in NMF, with all beta-divergence... 3 months ago

examples [MRG+1] Add multiplicative-update solver in NMF, with all beta-divergence... 3 months ago

sklearn [MRG+1] Add multiplicative-update solver in NMF, with all beta-divergence... 3 months ago

Clone with SSH ? Use HTTPS

Use an SSH key and passphrase from account.

git@github.com:amuel/scikit-learn.git

Download ZIP

If you don't have ssh keys set up, use https!

Add main scikit-learn repo as remote called "upstream":

```
git remote add upstream git@github.com:scikit-learn/scikit-learn.git
```

# Build and run tests!

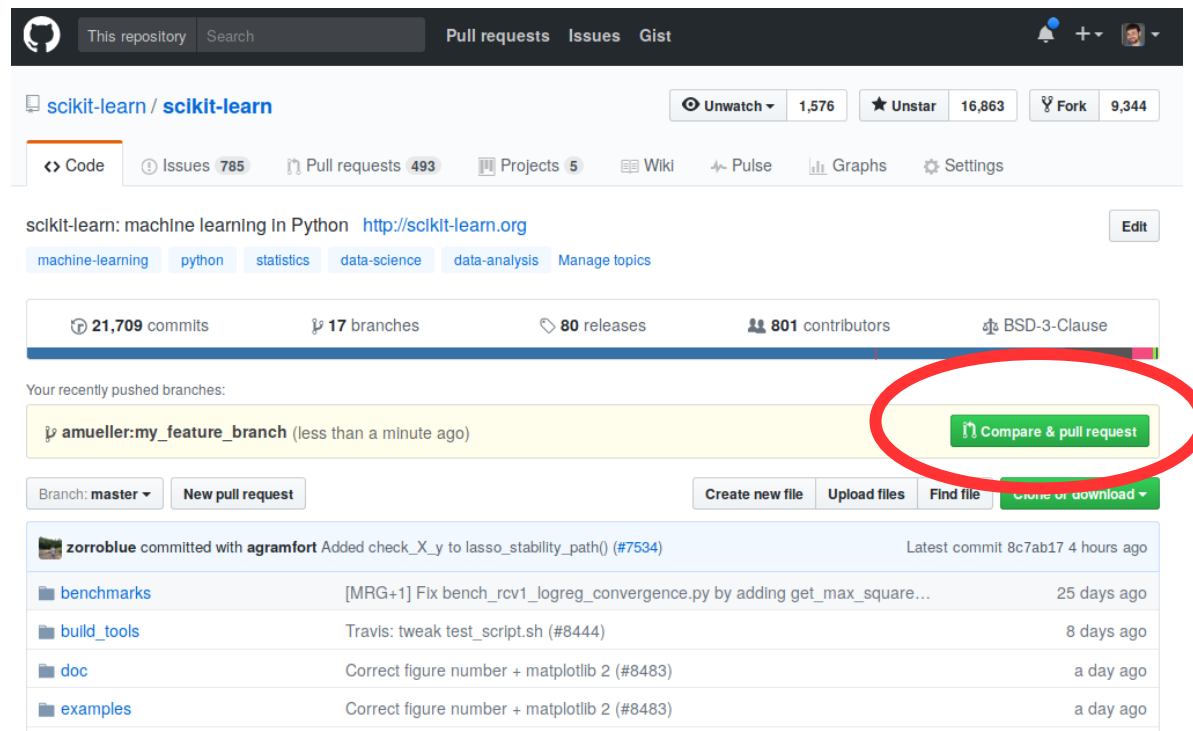
- Easiest way:  
`cd scikit-learn`  
`pip install -e .`
- Will overwrite existing installations!

# Starting on Issues

- Go to  
<https://github.com/scikit-learn/scikit-learn/issues?q=is%3Aissue+is%3Aopen+label%3ASprint>
- Comment on issue saying “I’m working in this”.
- Update local master branch from main sklearn repo (`git pull upstream master`).
- Create feature branch  
`git checkout -b <branchname>`
- Commit changes to branch, run tests  
`pytest sklearn`  
(or individual test files)
- Run flake8 on changed files

# Creating a PR


- Push changes to your fork  
`git push origin <branchname>`
- Create PR using github UI:



# Describing PR

## Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#).



base fork: **scikit-learn/scikit-learn** ▼

base: **master** ▼

...

head fork: **amueller/scikit-learn** ▼

compare: **my\_feature\_branch** ▼

✓ **Able to merge.** These branches can be merged.

Please review the [guidelines for contributing](#) to this repository.



[MRG] minor pep8

Write

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Thanks for contributing a pull request! Please ensure you have taken a look at the contribution guidelines: <https://github.com/scikit-learn/scikit-learn/blob/master/CONTRIBUTING.md#Contributing-Pull-Requests>

-->

### Reference Issue

<!-- Example: Fixes #1234 -->

Attach files by dragging & dropping, [selecting them](#), or pasting from the clipboard.

☒ **Allow edits from maintainers.** [Learn more](#)

Create pull request

Reviewers

No reviews—request one

Assignees

No one—assign yourself

Labels

None yet

Milestone

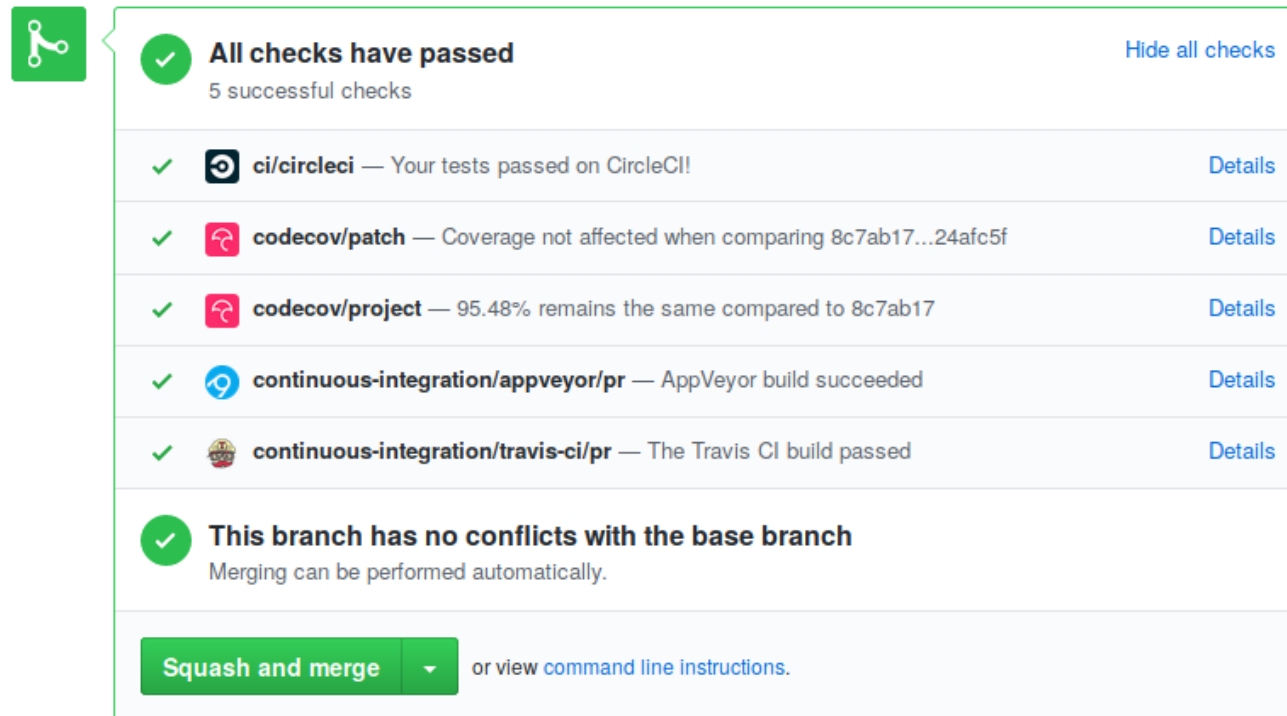
No milestone

[WIP] = work in progress  
[MRG] = ready to merge









# Regression tests

- Are mandatory! For everything (except documentation changes)!
- Make sure continuous integration passes:




The screenshot shows the GitHub Actions status bar for a pull request. It features a green checkmark icon on the left. The main status is "All checks have passed" with a link to "Hide all checks". Below this, a list of five checks is shown, each with a green checkmark, an icon, a name, a description, and a "Details" link. The checks are: "ci/circleci" (Your tests passed on CircleCI), "codecov/patch" (Coverage not affected when comparing 8c7ab17...24afc5f), "codecov/project" (95.48% remains the same compared to 8c7ab17), "continuous-integration/appveyor/pr" (AppVeyor build succeeded), and "continuous-integration/travis-ci/pr" (The Travis CI build passed). At the bottom, there is a green "Squash and merge" button with a dropdown arrow, followed by the text "or view command line instructions."

 **✓ All checks have passed** [Hide all checks](#)  
5 successful checks

✓		<b>ci/circleci</b> — Your tests passed on CircleCI	<a href="#">Details</a>
✓		<b>codecov/patch</b> — Coverage not affected when comparing 8c7ab17...24afc5f	<a href="#">Details</a>
✓		<b>codecov/project</b> — 95.48% remains the same compared to 8c7ab17	<a href="#">Details</a>
✓		<b>continuous-integration/appveyor/pr</b> — AppVeyor build succeeded	<a href="#">Details</a>
✓		<b>continuous-integration/travis-ci/pr</b> — The Travis CI build passed	<a href="#">Details</a>

**✓ This branch has no conflicts with the base branch**  
Merging can be performed automatically.

**Squash and merge**  or view [command line instructions](#).

# What's next?

- Wait for reviews (be patient).
- Address review comments in the same branch.
- Pushing to your fork will update the PR
- Reviewers will “approve” PR or change title to [MRG + 1]
- You need two approvals for a merge.

# Finding Issues

- Check “need contributor”, “easy” and “sprint” issues.
- Something unclear in the docs? Fix it!
- Can’t fix something that’s unclear? Open an issue!
- Problem that you keep running into: Open an issue!
- Find stalled PRs (the author didn’t address reviews for ~>1 month) and continue them!
- <https://docs.google.com/document/d/1dgEPcGnbfs6DRs7qtZMkbF6mLP6cywfn46rMFGRmTQg/edit?usp=sharing>

# Reviewing

- You can review PRs and issues!
- Some bugs are not confirmed. See if you can confirm them and under what conditions?
- You can review documentation PRs for language and whether they are clear to you.
- You can review code changes on whether they address the issue (might be a bit tricky).
- Don't be afraid to ask clarifying questions!

# Final words

- Pick something TRIVIALY SIMPLE as the first contribution.
- You can do the cool stuff afterwards!
- There might be interesting issues that are not appropriately tagged.

Thank you for your help!  
Enjoy!