Nurturing Nilearn

(Or any Open-Source Project)
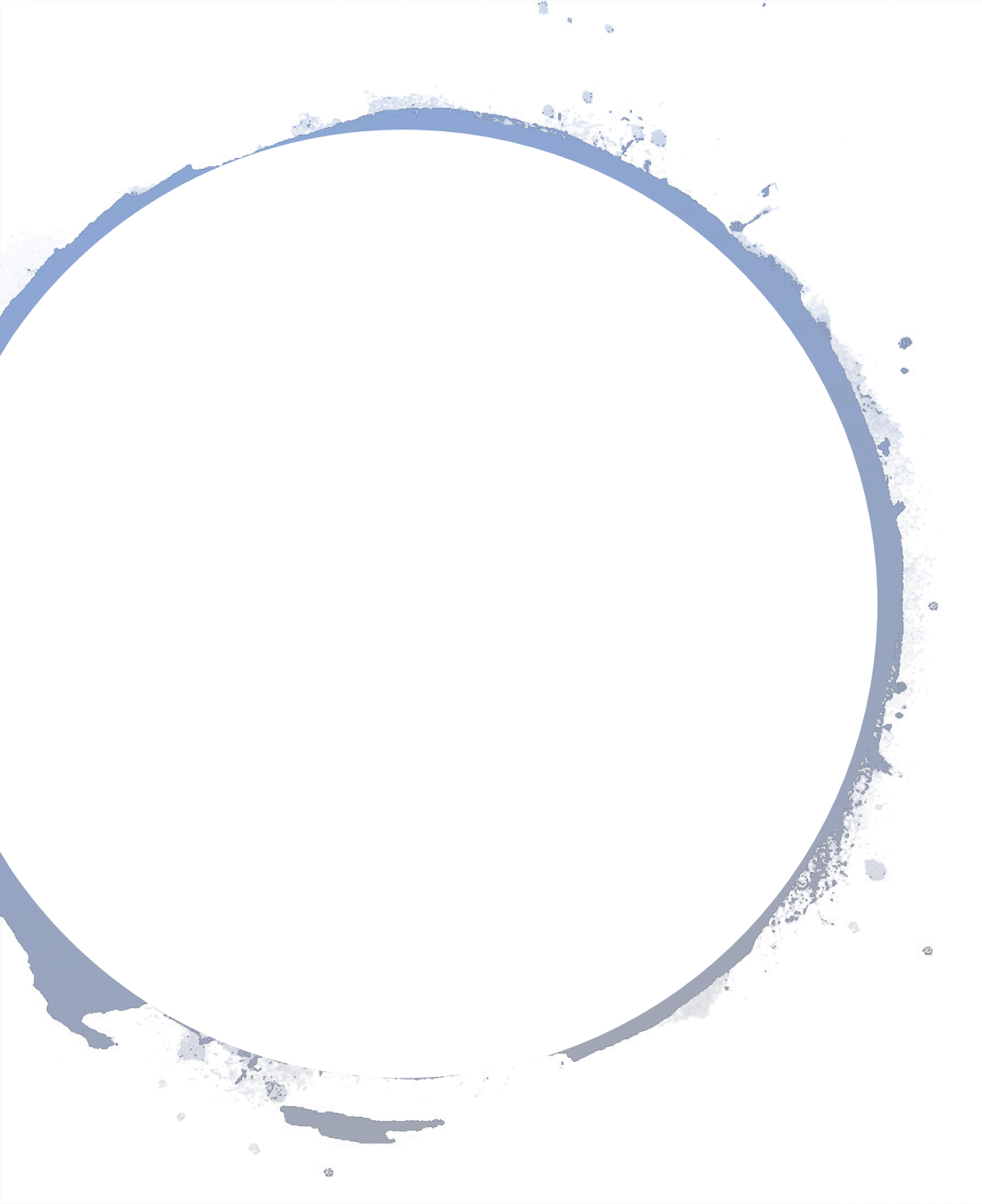
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Nilearn is...

5 years old

Python Library

ML for fMRI data

Fully open-source

89 contributors

264 citations

> 25k downloads last month

(as per https://pypistats.org/)

Guessing a few tens of thousands users are using it…

What Helped…

Well begun is half-done

Know thyself

- Nilearn does MVP Analysis of fMRI data

- Simple to use

- Easy to contribute to

- Minimizes surprises

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- (Eventually) crowd-sustained

Well begun is half-done

<u>Users</u> are <u>Developers</u>

<u>Developers</u> are <u>Users</u>

- Nilearn Core Devs were also Users

- Knew many Users+Devs

- Involved them as initial users

- Easier to improve rapidly

Well begun is half-done

- The right tool → Python

- Code, UI, BOTH Python

Anyone who uses Nilearn
could easily become
a contributor

Here's another one to break the monotony

Well begun is half-done

- User Perspective
  - Imagine we are a new user
  - Easy install

- Remove idiosyncrasies
  - Functions such as
    - create_<something>
    - make_<something>
    - check_<something>
    - verify_<something>

- create & make : same meaning
- check & verify : same meaning
  - so use one

Make it easy for Users

- Absolute Rule: No feature without a real world example

- Of course, made it easy to learn & use

- Easy point-of-entry for researchers to become contributors

Make it easy for Users

- Don't move fast. Don't break things
  - Don't implement HOT NEW techniques
  - Implement tried, tested, trusted techniques

- For example, FReM (Fast Regularized ensemble of Models)
  - Paper published in 2017
  - We are now implementing the components necessary for FReM

Make it easy for Developers

- Apply good, well-established software engineering principles

- Personal philosophies & opinions about software engineering should remain personal

Make it easy for Developers

- Every user is a potential developer
  - Invite issue-filers to submit a PR
  - Guide them every step of the way
  - Carefully phrase language to not put people on the defensive

- **Puts people on defensive:**
  - "This function is too long. You need to break it down into smaller, sub-functions. "

- **A better way:**
  - "Refactoring this function into smaller functions will simplify comprehension and improve testability."

Make it easy for Developers

- Organize regular
  - Hackathons
    - Come up with ideas, solve them

  - Coding Sprints
    - Work on other's (our) ideas & products

  - Tutorials
    - Use our product with one on one help

  - Talks at conferences
    - Small demos, talks, get people curious

- Monitor neurostars.org, tag: 'nilearn'
  - Help users with questions
  - Be timely

…done.

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