Code for Reproducible Research

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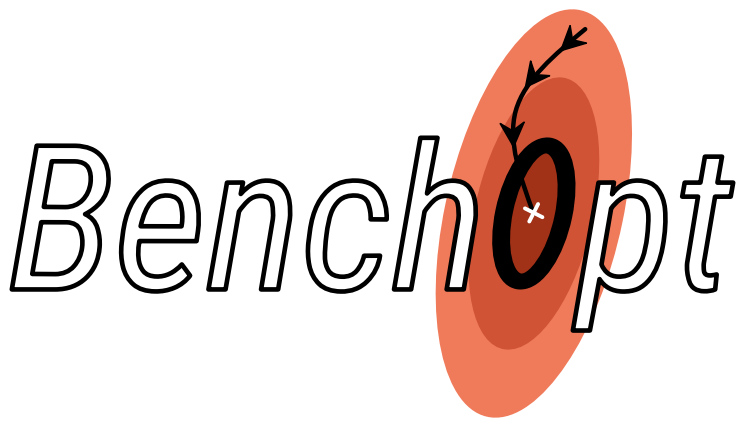

Reproducible research

Different goals:

- Reproduce the exact same results?
- Run with new parameters with robust results?
- Run with a new dataset?
- Extend the results with a new method?
- Provide tools for other to use?

Does not require the same set of tools!

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Here is my take.

Reproducing the same results

Minimal requirement for a research project:

- Write clean code:
  - Consistent style: *Use `black` or `flake8`.*
  - Use readable names.
  - No notebooks!
- Document your code: *docstring and `README.md`.*
- Determinist output: *Set a random seed!*

Optional but advised

- Document dependencies.
- Proper package organization
- Add some tests: *Use `pytest`.*

Extending the results?

These advice makes it easier to reproduce the same results, but we want to extend them!

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Pain points of a benchmark:

- competitors' methods do not work out of the box.
- re-code methods and tools to integrate a new method.
- hard to extend with new settings.

all of this started from scratch by every submission!

`Benchopt` produces **open**, **reproducible**, **extendable** benchmarks

Going further: creating a package

If you really want to make your research *reproductible* by other in different contexts, you need to properly package it.

- Documentation: *Sphinx*.
- Test on multiple platforms: *Continuous Integration*.
- Release on pypi/conda-forge
- Talk about it ! :)

Example of package:
https://github.com/tomMoral/test_package

Conclusion

Reproducible research needs more than just releasing code:

- Clean and Documented.
- Reusable.
- Extendable.

Use proper tools to make it possible!

Research is also collaborative: don't hesitate to report your issues and give feedback :)