

diff - diff

# Difference-in- Differences.

Now in Python.

Up to 2,000x faster than R

```
$ pip install diff-diff
```

diff-diff

# DiD in Python

## Was Broken

- X** Fragmented packages
- X** Missing modern methods
- X** Slow performance
- X** R required for serious work

Researchers deserved better.

diff-diff

# Introducing

## diff-diff

- + Complete DiD toolkit
- + sklearn-like API
- + All modern methods
- + Blazing fast

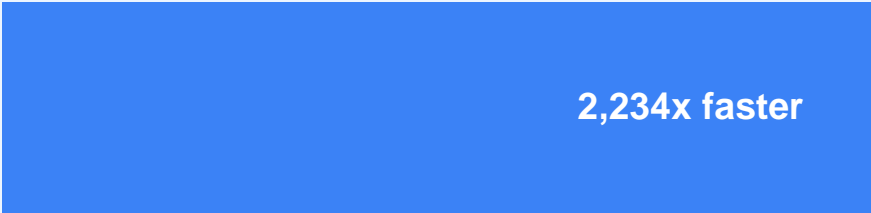
One library. Everything you need.

diff-diff

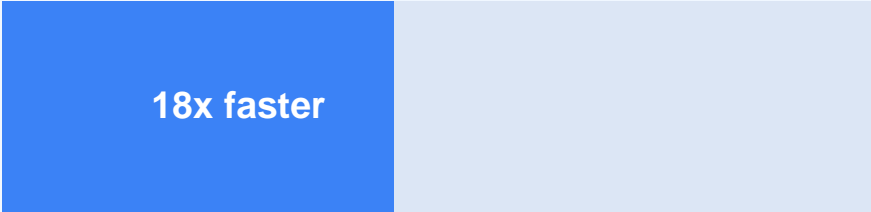
R: 24 minutes

diff-diff: 2.6 seconds

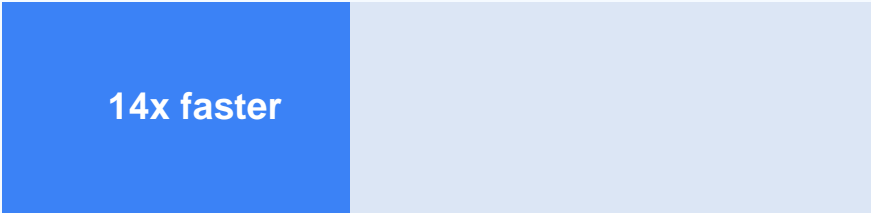
Synthetic DiD



Basic DiD



Callaway-SA



Benchmarked at 10K scale vs R packages

diff-diff

# Every Method

## You Need

### Basic DiD / TWFE

Classic 2x2 and panel

### Callaway-Sant'Anna

Staggered adoption (2021)

### Sun-Abraham

Interaction-weighted (2021)

### Synthetic DiD

Arkhangelsky et al. (2021)

### Triple Difference

DDD with proper covariates

### Honest DiD

Rambachan-Roth sensitivity

diff-diff

# Clean, Pythonic API

```
from diff_diff import CallawaySantAnna

# Staggered DiD in 5 lines

cs = CallawaySantAnna()

results = cs.fit(

    data,

    outcome='sales',

    unit='firm_id',

    time='year',

    first_treat='first_treat'

)

results.print_summary()
```

sklearn-like fit() + statsmodels-style output

diff-diff

# Validated. Trusted.

## Production-Ready.

Comparison	Result
Point estimates vs R	Identical (10+ decimals)
Standard errors	Within 1-3%
R packages tested	did, synthdid, fixest
Real-world validation	MPDTA dataset
Academic-grade accuracy. No compromises	
diff-diff	

# Everything

## Included

\*

Robust & Cluster SEs

\*

Wild Bootstrap

\*

Event Study Plots

\*

Parallel Trends Tests

\*

Bacon Decomposition

\*

Power Analysis

\*

Pre-trends Power

\*

Placebo Tests

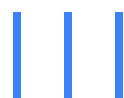
Publication-ready visualizations included

diff-diff



# Built for

## Researchers



**Applied Economists**



**Policy Researchers**



**Data Scientists**

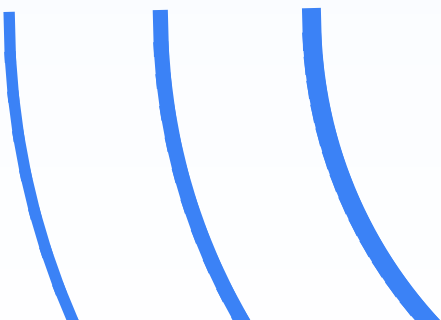


**Python-First Teams**



Finally escape R for causal inference

diff-diff



# Get Started in

## 30 Seconds

```
$ pip install diff-diff
```

[github.com/igerber/diff-diff](https://github.com/igerber/diff-diff)

Full documentation & tutorials included

MIT Licensed | Open Source

## diff-diff

Difference-in-Differences for Python