

diff - diff

# Difference-in- Differences.

## Now in Python.

Up to 2,000x faster than R

```
$ pip install 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.

# Introducing

## diff-diff

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

One library. Everything you need.

~~24~~ minutes

diff-diff:

2.6 seconds

Synthetic DiD

2,234x faster

Basic DiD

18x faster

Callaway-SA

14x faster

Benchmarked at 10K unit scale against 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

# 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

# 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.

# Everything

## Included

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Robust & Cluster SEs

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Wild Bootstrap

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Event Study Plots

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Parallel Trends Tests

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Bacon Decomposition

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Power Analysis

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Pre-trends Power

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Placebo Tests

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Publication-ready visualizations included



# Built for

# Researchers

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Applied Economists

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Policy Researchers

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Data Scientists

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Python-First Teams

Finally escape R for your causal inference work

# Get Started in 30 Seconds

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

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

Full documentation & tutorials included

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## diff-diff

Difference-in-Differences for Python