

**diff - diff**

# Difference-in- Differences.

## Now in Python.

Up to 2,000x faster than R

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

# DiD in Python

## Was Broken

- ✗ Fragmented packages
- ✗ Missing modern methods
- ✗ Slow performance
- ✗ 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

# 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

\* Robust & Cluster SEs

\* Wild Bootstrap

\* Event Study Plots

\* Parallel Trends Tests

\* Bacon Decomposition

\* Power Analysis

\* Pre-trends Power

\* Placebo Tests

Publication-ready visualizations included

# Built for Researchers



Applied Economists



Policy Researchers



Data Scientists



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