

Unit tests in python

June 18, 2021

Introduction

Some good practices

- Run tests before committing changes to source code.
- Should be **fast** (5-10 seconds to run *all* tests).
- Each test function name should have a postfix describing what we're testing:

```
test__function_name__what_property_we_are_testing
```

- One assertion per test.

Conventional unit testing

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We will practice writing tests like this using the `catinabox` module.

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The hypothesis package

`hypothesis` is a Python library supporting property-based testing.

It works by generating arbitrary data matching your specification and checking that your guarantee still holds in that case.

It can find edge cases in your code you wouldn't have thought to look for.


```

import hypothesis.strategies as st
import numpy as np
import pytest
from hypothesis import given

from pypolygamma import PyPolyaGamma

from fall_2020.logistic_models.polya_gamma_vi.bayes_logreg.inference import (
    compute_polya_gamma_expectation
)

@given(
    b = st.floats(min_value=1, max_value=1),
    c = st.floats(min_value=-100, max_value=100),
)
def test_compute_polya_gamma_expectation(b, c):
    # Test that our computed polya gamma expectation for a PG(b,c) distribution
    # is close to the empirical mean of a bunch of samples (obtained from the pypolygamma library)
    pg = PyPolyaGamma()
    empirical_mean = np.mean([pg.pgdraw(b, c) for i in range(10000)])
    computed_mean = compute_polya_gamma_expectation(b,c)
    print(f"For b={b}, c={c}, the Monte Carlo mean was {empirical_mean}, and my function's value was {computed_mean}")
    assert np.isclose(empirical_mean, computed_mean, atol=.01, rtol=.05)

```

Code fails to raise error when user specifies a non-positive real number for the first parameter **b** #49

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mikewojnowicz opened this issue on Feb 19 · 1 comment



mikewojnowicz commented on Feb 19 · edited ▾



For example:

```
from pypolygamma import PyPolyaGamma
pg = PyPolyaGamma()
b,c = -2, -1
values=[pg.pgdraw(b, c) for i in range(10000)]
assert all([x==0 for x in values])
```

The sampler returns all 0's, although one would expect it to raise an error.

I would have opened a PR myself, but I do not know how to code in C.

Assignees

No one assigned

Labels

None yet

Projects

None yet

Milestone

No milestone

Linked pull requests

Successfully merging a pull request may close this issue.

None yet



slinderman commented on Feb 20

Owner



Good catch! I think you can add an assert in `pgdraw` before the C code gets called.