Author Contributions Checklist Form

This form documents the artifacts associated with the article (i.e., the data and code supporting the computational findings) and describes how to reproduce the findings.

# Part 1: Data

This paper **does not** involve analysis of external data (i.e., no data are used or the only data are generated by the authors via simulation in their code).

I certify that the author(s) of the manuscript have legitimate access to and permission to use the data used in this manuscript.

## Abstract

We use a dataset of weekly deaths in the United States between January 2017 and June 2020 (available at: [https://www.cdc.gov/nchs/nvss/vsrr/covid19/excess\_deaths.htm](https://www.cdc.gov/nchs/nvss/vsrr/covid19/excess\_deaths.htm)). There are 12506 rows (excl. headers) and 12 columns in this dataset.

## Availability

Data **are** publicly available

Data **cannot be made** publicly available

If the data are publicly available, see the *Publicly available data* section. Otherwise, see the *Non-publicly available dat*a section, below.

### Publicly available data

Data are available online at:

Data are available as part of the paper’s supplementary material.

Data are publicly available by request, following the process described here:

Data are or will be made available through some other mechanism, described here:

Data are available on the first author’s GitHub repository.

### Non-publicly available data

Discussion of lack of publicly available data:

## Description

### File format(s)

CSV or other plain text: US\_weekly\_deaths.csv

Software-specific binary format (.Rda, Python pickle, etc.):

Standardized binary format (e.g., netCDF, HDF5, etc.):

Other (described here):

### Data dictionary

Provided by the authors in the following file(s): README.md

Data file(s) is (are) self-describiing (e.g., netCDF files)

Available at the following URL:

### Additional information (optional)

# Part 2: Code

## Abstract

The codes implement the ocd\_CI algorithm described in the submitted manuscript. In the main algorithm, we output a confidence interval for the changepoint location and estimate the set of indices of coordinates in which the mean changes, all under online changepoint monitoring.

## Description

### Code format(s)

Script files

R  Python  Matlab

Other:

Package

R  Python  MATLAB toolbox

Other:

Reproducible report

R Markdown  Jupyter notebook

Other:

Shell script

Other (described here):

### **Supporting software requirements**

Version of primary software used

R version 3.6.2.

Libraries and dependencies used by the code

MASS 7.3-55

### Supporting system/hardware requirements (optional)

### Parallelization used

No parallel code used

Multi-core parallelization on a single machine/node

Number of cores used:

Multi-machine/multi-node parallelization

Number of nodes and cores used:

### License

MIT License (default)

BSD

GPL v3.0

Creative Commons

Other (described here):

### Additional information (optional)

# Part 3: Reproducibility workflow

## Scope

The provided workflow reproduces:

Any numbers provided in text in the paper

The computational method(s) presented in the paper (i.e., code is provided that implements the method(s))

All tables and figures in the paper

Selected tables and figures in the paper, as explained and justified here:

## Workflow details

### Format(s)

Single master code file

Wrapper (shell) script(s)

Self-contained R Markdown file, Jupyter notebook, or other literate programming approach

Text file (e.g., a readme-style file) that documents workflow

Makefile

Other (more detail in 'Instructions' below)

### Instructions

ocd\_CI.R is the main function which implements the proposed method

table.R reproduces all tables and figures (apart from the real data Figure 3)

US\_excess\_deaths provides codes for the application on the real dataset; it produces Figure 3.

All above information can be found in README.md

Expected run-time

Approximate time needed to reproduce the analyses on a standard desktop machine:

<1 minute

1-10 minutes

10-60 minutes

1-8 hours

>8 hours

Not feasible to run on a desktop machine, as described here:

### Additional documentation (optional)

# Notes (optional)