CODECHECK certificate 2020-006

Item	Value
Title	[Re] A Generalized Linear Integrate-and-Fire Neural Model Produces Diverse Spiking Behaviours
Authors	Tiziano Zito
Reference	ReScience (2017) 3, 1, 7 http://rescience.github.io/bibliography/detorakis_2017.html
Codechecker	Iain Davies
Date of check	2020-07-16 10:00:00
Summary	The three figures from the ReScience article "[Re] A Generalized Linear Integrate-and-Fire Neural Model Produces Diverse Spiking Behaviours" were reproduced using the code provided by the article authors. The code was straightforward to run and took minimal computation time.
Repository	https://github.com/codecheckers/Detorakis-reproduction

Table 1: CODECHECK summary

Output	Comment	Size (b)
`figures/figure_1.png`	manuscript Figure 1	286309
`figures/figure_2.png`	manuscript Figure 2	98203
`figures/figure_3.png`	manuscript Figure 3	167107

Table 2: Summary of output files generated

Summary

This code was straightforward to check. All original code was provided and took minimal computation time to run. The figures were reproduced with the correct features and formatted as in the ReScience paper.

CODECHECKER notes

The original code was provided in the GitHub repo here: https://github.com/ReScience-Archives/Detorakis-2017/tree/master/code. Code was written in Python 3.6.1 and the README gave explanations for all scripts. To run the code I first cloned the repo in a Linux terminal. I then created a conda environment called detorakis_1 in the cloned repo and installed the package versions given in the README:

```
$ conda create -n detorakis_1 python=3.6
$ conda activate detorakis_1
$ conda install numpy==1.13.1
$ conda install scipy==0.19.1
$ conda install matplotlib==2.0.2
```

I then ran the code using:

```
$ python run_all.py
```

The figures were produced within 15 seconds. Figures 2 and 3 were reproduced and plotted in the format given in the ReScience paper. Figure 1 was initially plotted as very squashed compared to the ReScience paper. However when I pressed the minimize button twice the image formatted itself correctly and I could save all three figures into the figures folder.

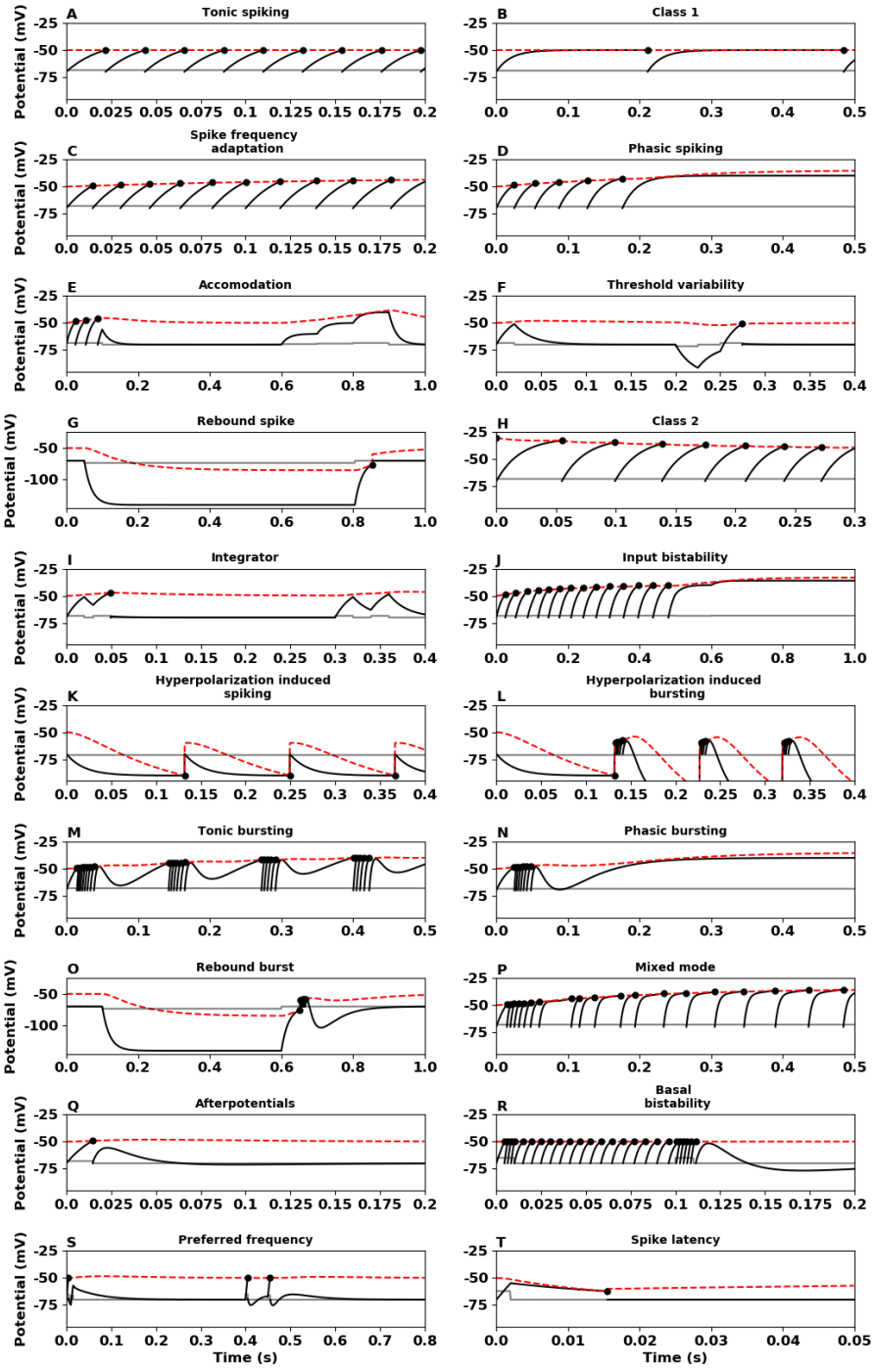

Figure C1: manuscript Figure 1

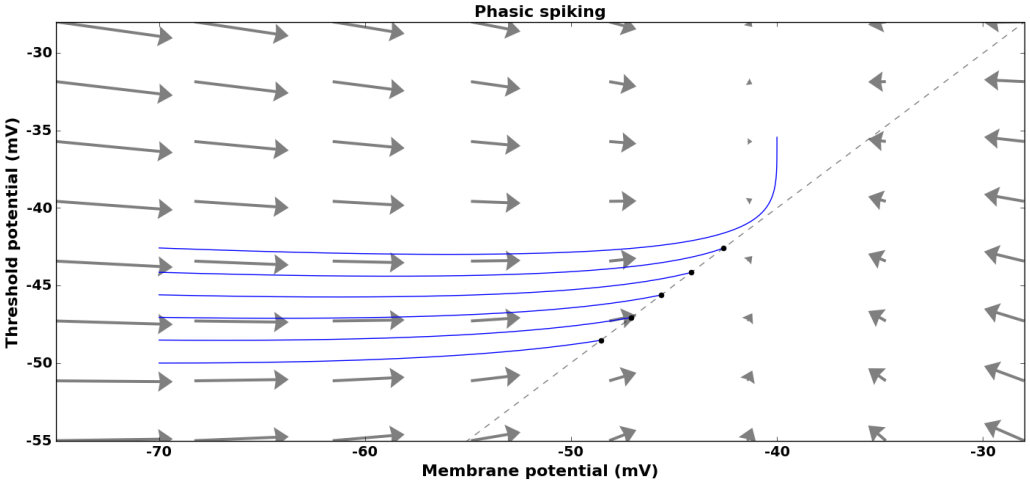

Figure C2: manuscript Figure 2

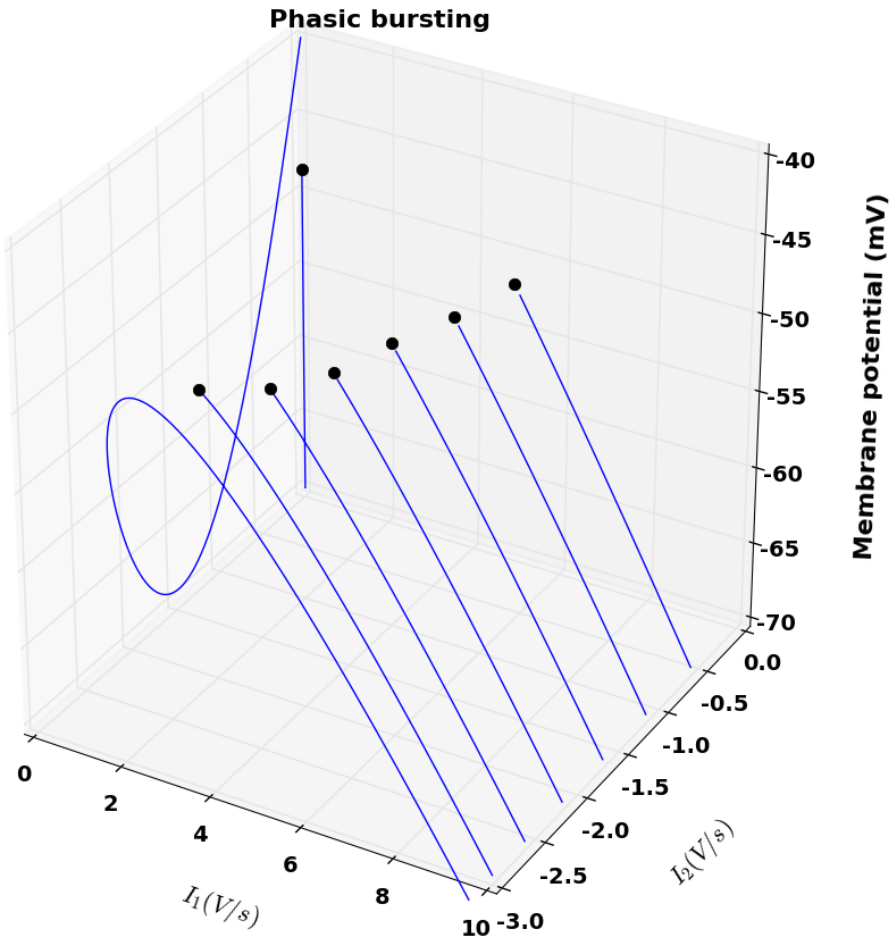

Figure C3: manuscript Figure 3

Acknowledgements

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Citing this document

Iain Davies (2020). CODECHECK Certificate 2020-006. Zenodo. https://doi.org/10.5281/zenodo.3948353

About CODECHECK

This certificate confirms that the codechecker could independently reproduce the results of a computational analysis given the data and code from a third party. A CODECHECK does not check whether the original computation analysis is correct. However, as all materials required for the reproduction are freely available by following the links in this document, the reader can then study for themselves the code and data.

About this document

This document was created using R Markdown using the `codecheck` R package. `make codecheck.pdf` will regenerate the report file.

```
sessionInfo()
```

```
## R version 3.6.3 (2020-02-29)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Ubuntu 16.04.5 LTS
##
## Matrix products: default
## BLAS:   /usr/lib/openblas-base/libblas.so.3
## LAPACK: /usr/lib/libopenblasp-r0.2.18.so
##
## locale:
##  [1] LC_CTYPE=en_GB.UTF-8       LC_NUMERIC=C
##  [3] LC_TIME=en_GB.UTF-8        LC_COLLATE=en_GB.UTF-8
##  [5] LC_MONETARY=en_GB.UTF-8    LC_MESSAGES=en_GB.UTF-8
##  [7] LC_PAPER=en_GB.UTF-8       LC_NAME=C
##  [9] LC_ADDRESS=C               LC_TELEPHONE=C
## [11] LC_MEASUREMENT=en_GB.UTF-8 LC_IDENTIFICATION=C
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets
## [6] methods   base
##
## other attached packages:
##  [1] readr_1.3.1          tibble_3.0.2
##  [3] xtable_1.8-4         yaml_2.2.1
##  [5] rprojroot_1.3-2      knitr_1.29
##  [7] codecheck_0.0.0.9005 parsedate_1.2.0
##  [9] R.cache_0.14.0       gh_1.1.0
##
```

```
## loaded via a namespace (and not attached):
##  [1] Rcpp_1.0.1        magrittr_1.5      hms_0.4.2
##  [4] R6_2.4.1          rlang_0.4.6       fansi_0.4.1
##  [7] highr_0.8         stringr_1.4.0     httr_1.4.1
## [10] tools_3.6.3       xfun_0.15         R.oo_1.23.0
## [13] cli_2.0.2         ellipsis_0.3.1    htmltools_0.5.0
## [16] assertthat_0.2.1  digest_0.6.25     lifecycle_0.2.0
## [19] crayon_1.3.4      vctrs_0.3.1       R.utils_2.9.2
## [22] glue_1.4.1        evaluate_0.14     rmarkdown_2.3
## [25] stringi_1.4.6     pillar_1.4.4      compiler_3.6.3
## [28] backports_1.1.4   R.methodsS3_1.8.0 jsonlite_1.7.0
## [31] pkgconfig_2.0.3
```