

Reproducibility of computational research with *Sumatra*

Presented by

Felix Z. Hoffmann

@Felix11H

felix11h.github.io/

Resources and links

Sumatra:

neuralensemble.org/sumatra/

Wikimedia Open Science Fellows
Program:

wikimedia.de/Fellowprogramm

Slides

GitHub:

git.io/vFEbX

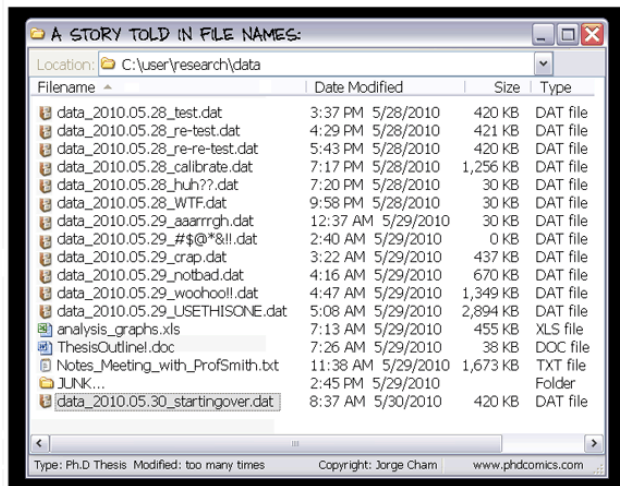
GSoC project organization

International Neuroinformatics
Coordinating Facility (INCF)

incf.org



Reproducibility is a problem in computational research...



"Piled Higher and Deeper" by Jorge Cham
www.phdcomics.com

Reproducibility is a problem in computational research...

“Why did I do that?”

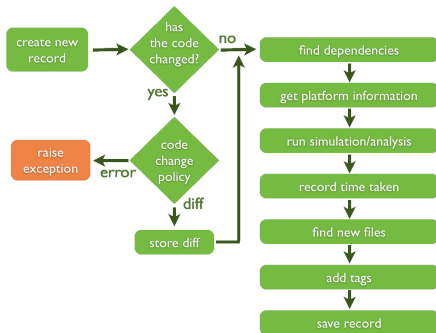
Reproducibility is a problem in computational research...

“Why did I do that?”

“It worked yesterday.”

... a solution.

Sumatra



*“An automated
electronic lab
notebook for
computational
research”*

Sumatra: Computational_Results: List of records - Mozilla Firefox

anisotropic-connectivity x Sumatra: Computational_ x +

127.0.0.1:8000/Computational_Results/

Computational_Results Search Search Settings

New record Computational_Results

1 - 10 of 206

| RepositoryLabel | Reason | Outcome | Duration | Processes | Date | Time | Version |
|---|---------------------------|---------|----------|-----------|------------|----------|-----------------------|
| research/33e77b1d_present | perin 12 counts | | 6.86s | 1 | 21/04/2015 | 18:28:24 | 682a2 |
| research/33e77b1d | perin 12 counts | | 7.23s | 1 | 21/04/2015 | 18:27:35 | 682a2 |
| research/ecc48ba4 | presentation | | 4.38s | 1 | 21/04/2015 | 18:24:26 | a9709 |
| research/9f9452a2_plos | song motifs 1-16 | | 5.29s | 1 | 19/04/2015 | 16:53:31 | b0688 |
| research/85c70a9f_1v1 | perin 8 counts trial test | | 7.14s | 1 | 18/04/2015 | 18:51:25 | 6378c |
| research/85c70a9f_2v2 | perin 8 counts trial test | | 5.97s | 1 | 18/04/2015 | 17:45:12 | 65227 |
| research/9699018e_2v2 | perin 8 counts trial test | | 5.56s | 1 | 18/04/2015 | 17:40:22 | 35382 |
| research/9699018e_1v1 | perin 8 counts trial test | | 5.78s | 1 | 18/04/2015 | 17:40:01 | 35382 |
| research/21706644 | perin 6 counts | | 5.80s | 1 | 17/04/2015 | 20:42:14 | 2b4d7 |
| research/7c211e09 | perin 8 counts | | 6.05s | 1 | 17/04/2015 | 18:58:37 | d1012 |

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|---------------------------|---------------------------|---------|----------|---------------|------------|----------------|
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| research 33e77b1d | perin 12 counts | | 7.23s | 1 | 21/04/2015 | 18:27:35 682a2 |
| research ecc48ba4 | presentation | | 4.38s | 1 | 21/04/2015 | 18:24:26 a9709 |
| research 9f9452a2_plos | song motifs 1-16 | | 5.29s | 1 | 19/04/2015 | 16:53:31 b0888 |
| research 85c70a9f_1v1 | perin 8 counts trial test | | 7.14s | 1 | 18/04/2015 | 18:51:25 6378c |
| research 85c70a9f_2v2 | perin 8 counts trial test | | 5.97s | 1 | 18/04/2015 | 17:45:12 63227 |
| research 9699018e_2v2 | perin 8 counts trial test | | 5.56s | 1 | 18/04/2015 | 17:40:22 35382 |
| research 9699018e_1v1 | perin 8 counts trial test | | 5.78s | 1 | 18/04/2015 | 17:40:01 35382 |
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Sumatra: Computational_Results: List of records - Mozilla Firefox

anisotropic-connectivity x Sumatra: Computational_ x +

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Computational_Results Search Search Settings

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| research 95c70a9f_1v1 | perin 8 counts trial test | | 7.14s | 1 | 18/04/2015 | 18:51:25 | 6378c |
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| research 9699018e_2v2 | perin 8 counts trial test | | 5.56s | 1 | 18/04/2015 | 17:40:22 | 35382 |
| research 9699018e_1v1 | perin 8 counts trial test | | 5.76s | 1 | 18/04/2015 | 17:40:01 | 35382 |
| research 2170664 | perin 6 counts | | 5.80s | 1 | 17/04/2015 | 20:42:14 | 2b4d7 |
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Search

Search

Settings

New record

Computational_Results

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Sumatra: Test: List of records - Mozilla Firefox

anisotropic-connectivity x Sumatra: Test: List of reco x +

127.0.0.1:8000/Test/

TEST Switch to Data view Settings

Search:

| label | tag | reason | outcome | Input data | output data | duration | time | exec. | main | version |
|-------|----------------|------------------------|---------|-----------------------------------|------------------------------------|----------|------------------------|-----------------|---------------------------------|---------|
| 3eee | data, test, | choose highest data | | 376f.p, 5b74.p, ex_ img.png | 3eee.p | 0.07s | 18/08/2014 10:20:46 | Python 2.7.3 | comp/choose_ highest_data.py | 7d95f |
| 5b74 | data, test, | choose highest data | | 376f.p, 8b64_0.p, 445b_1.p | 5b74.p | 0.07s | 18/08/2014 09:59:19 | Python 2.7.3 | comp/choose_ highest_data.py | 7d95f |
| 376f | data, test, | choose highest data | | 8b64_0.p, 445b_2.p | 376f.p | 0.07s | 18/08/2014 09:56:49 | Python 2.7.3 | comp/choose_ highest_data.py | 7d95f |
| 445b | data, test, | generate test data | | | 445b_0.p, 445b_1.p, 445b_2.p | 0.06s | 18/08/2014 09:55:11 | Python 2.7.3 | comp/ generate_ data.py | 7d95f |

Showing 1 to 4 of 4 entries

Previous 1 Next

Sumatra: Test: List of records - Mozilla Firefox

anisotropic-connectivity x Sumatra: Test: List of reco x +

127.0.0.1:8000/Test/

TEST Switch to Data view Settings

Search:

| label | tag | reason | outcome | Input data | output data | duration | time | exec. | main | version |
|-------|-------------|---------------------|---------|----------------------------|------------------------------|----------|---------------------|--------------|-----------------------------|---------|
| 3eee | data, test, | choose highest data | | 37bf.p, 5b74.p, ex_img.png | 3eee.p | 0.07s | 18/08/2014 10:20:46 | Python 2.7.3 | comp/choose_highest_data.py | 7d85f |
| 5b74 | data, test, | choose highest data | | 37bf.p, 8b64_0.p, 445b_1.p | 5b74.p | 0.07s | 18/08/2014 09:59:19 | Python 2.7.3 | comp/choose_highest_data.py | 7d85f |
| 37bf | data, test, | choose highest data | | 8b64_0.p, 445b_2.p | 37bf.p | 0.07s | 18/08/2014 09:56:49 | Python 2.7.3 | comp/choose_highest_data.py | 7d85f |
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Sumatra: Data: List of records - Mozilla Firefox

anisotropic-connectivity x Sumatra: Data: List of records x +

127.0.0.1:8000/Data/ Search

TEST Switch to Record view Settings

Search:

| filename | path | digest | size | time | output of | Input to |
|------------|-----------------|--------------|----------|---------------------|-----------|------------|
| 3eee.p | 3eee.p | 375ad589c... | 56 bytes | 18/08/2014 10:20:46 | 3eee | |
| 5b74.p | 5b74.p | 375ad589c... | 56 bytes | 18/08/2014 09:59:19 | 5b74 | 3eee |
| 376f.p | 376f.p | e9c874024... | 56 bytes | 18/08/2014 09:56:49 | 376f | 3eee, 5b74 |
| 445b_0.p | subdir/445b_0.p | fe5ced92b... | 56 bytes | 18/08/2014 09:55:11 | 445b | |
| 445b_1.p | subdir/445b_1.p | f6bda95b7... | 56 bytes | 18/08/2014 09:55:11 | 445b | 5b74 |
| 445b_2.p | subdir/445b_2.p | 5eb1c93b6... | 55 bytes | 18/08/2014 09:55:11 | 445b | 376f |
| 8b64_0.p | 8b64_0.p | 99806092b... | 55 bytes | | | 5b74, 376f |
| ex_img.png | ex_img.png | d71cb128b... | 2.8 KB | | | 3eee |

Showing 1 to 8 of 8 entries Previous 1 Next

0.7.0-dev

Sumatra: Data: List of records - Mozilla Firefox

anisotropic-connectivity x Sumatra: Data: List of rec x +

127.0.0.1:8000/Data/

TEST Switch to Record view Settings

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| filename | path | digest | size | time | output of | Input to |
|------------|-----------------|--------------|----------|---------------------|-----------|------------|
| 3eee.p | 3eee.p | 375ad589c... | 56 bytes | 18/08/2014 10:20:46 | 3eee | |
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0.7.0-dev

Sumatra: Data: List of records - Mozilla Firefox

anisotropic-connectivity x Sumatra: Data: List of rec: x +

127.0.0.1:8000/Data/

TEST Switch to Record view Settings

Search:

| filename | path | digest | size | time | output of | Input to |
|------------|-----------------|--------------|----------|---------------------|-----------|------------|
| 3eee.p | 3eee.p | 375ad589c... | 56 bytes | 18/08/2014 10:20:46 | 3eee | |
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0.7.0-dev

Sumatra: Data: List of records - Mozilla Firefox

anisotropic-connectivity x Sumatra: Data: List of rec x +

127.0.0.1:8000/Data/

TEST Switch to Record view Settings

Search:

| filename | path | digest | size | time | output of | input to |
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| 3eee.p | 3eee.p | 375ad589c... | 56 bytes | 18/08/2014 10:20:46 | 3eee | |
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0.7.0-dev

Sumatra: Data: List of records - Mozilla Firefox

anisotropic-connectivity x Sumatra: Data: List of records x +

127.0.0.1:8000/Data/ Search

TEST Switch to Record view Settings

Search:

| filename | path | digest | size | time | output of | Input to |
|------------|-----------------|--------------|----------|---------------------|-----------|------------|
| 3eee.p | 3eee.p | 375ad589c... | 56 bytes | 18/08/2014 10:20:46 | 3eee | |
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| 376f.p | 376f.p | e9c874024... | 56 bytes | 18/08/2014 09:56:49 | 376f | 3eee, 5b74 |
| 445b_0.p | subdir/445b_0.p | fe5ced92b... | 56 bytes | 18/08/2014 09:53:11 | 445b | |
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0.7.0-dev

After GSoC



FORCE2015

Research Communications & e-Scholarship Conference

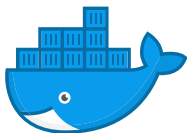
12 - 13 JANUARY, UNIVERSITY OF OXFORD

www.force2015.org

After GSoC



After GSoC



docker

+

Sumatra

=

computational reproducibility

After GSoC



docker

+

Sumatra

=

computational reproducibility

Let's talk!

Thank you!

Presented by

Felix Z. Hoffmann
@Felix11H
felix11h.github.io/

Resources and links

Sumatra:
neuralensemble.org/sumatra/
Wikimedia Open Science Fellows
Program:
wikimedia.de/Fellowprogramm

Slides

GitHub:
git.io/vFEbX

GSoC project organization

International Neuroinformatics
Coordinating Facility (INCF)
incf.org

