pyLattice Documentation

Release 0.1.1

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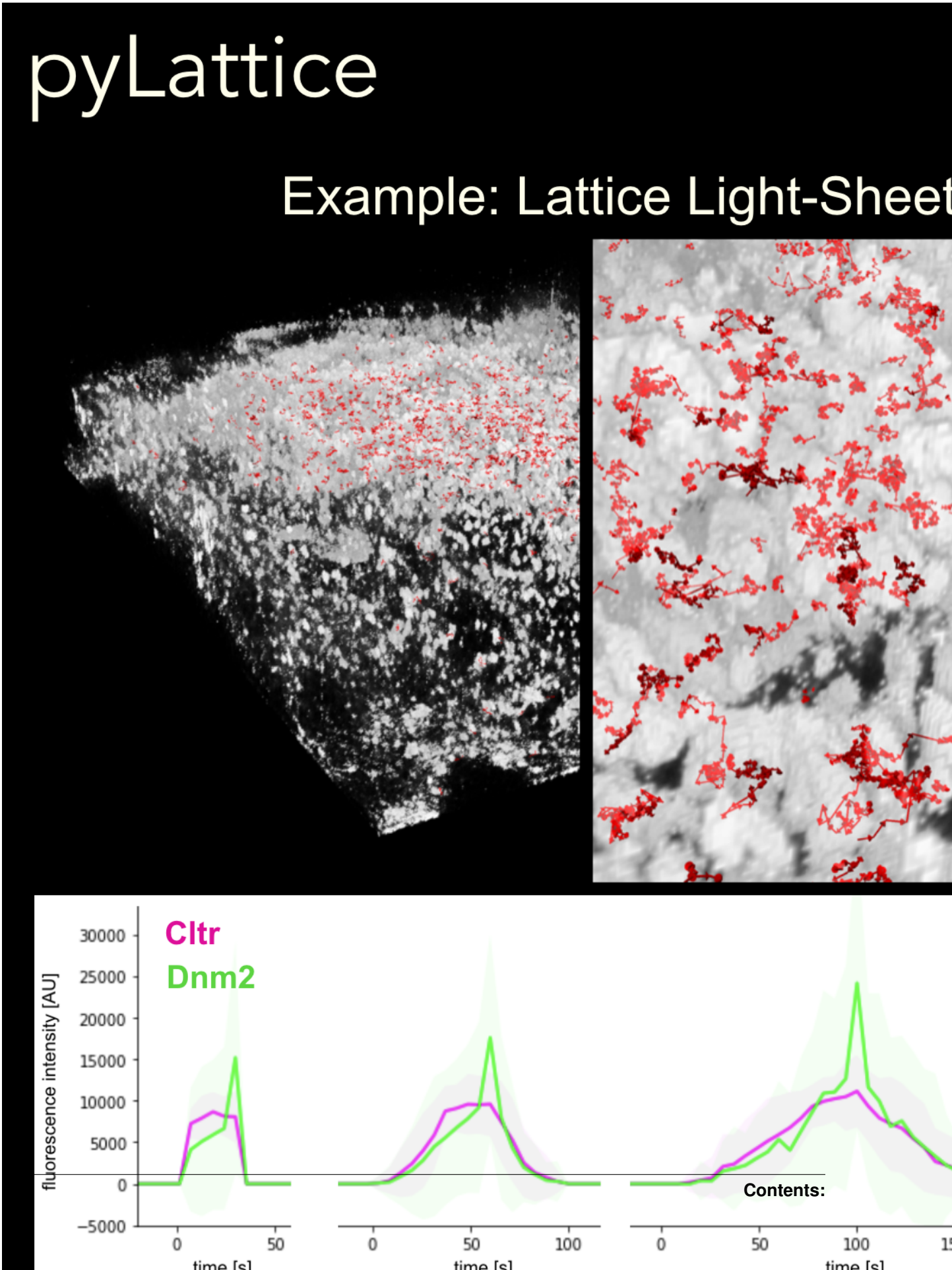
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A python library for advanced lattice light-sheet image analysis.

Welcome!

Visit pyLattice on Github


pyLattice
Example: Lattice Light-Sheet
Cltr
Dnm2
fluorescence intensity [AU]
30000
25000
20000
15000
10000
5000
0
−5000
0
50
time [s]
0
50
100
time [s]
0
50
100
time [s]
Contents:

CHAPTER 1

Installation

clone or download the repository

```
pip install pylattice
pip install -r requirements.txt
cd src/jupyter
jupyter notebook
```

You can find the package on pypi.

in browser open

```
src/jupyter/latticeFrame_showFrame.ipynb
```

CHAPTER 2

Test data

A small test data set can be found here: https://www.dropbox.com/sh/znznvp1lmvwfykp/AADzJB456aFHll1bYCPzdQhNa?dl=0

CHAPTER 3

Manual

Please read the manual to get started.

CHAPTER 4

Tutorials

Please find tutorials to pyLattice here

CHAPTER 5

FAQ

[Lattice Light-Sheet Microscopy](https://en.wikipedia.org/wiki/Lattice_light-sheet_microscopy)

CHAPTER 6

Cite

Please cite our work if you find pyLattice useful:

- pyLattice: https://doi.org/10.1091/mbc.E18-06-0375
- pyLattice deep_learning: https://doi.org/10.1109/BIBM47256.2019.8983012

CHAPTER 7

Contribute

Please help us to make LLSM imaging more accessible to the community! Fork the repo, add code and create a pull request. Here you can find our *Contributor Guidelines*.: https://docs.google.com/document/d/1Gd5Fr0_sTnez1NEBM7xfisXZ2jR5IbkoLws6EY2Cg2Y/edit?usp=sharing

CHAPTER 8

References

- scikit http://scikit-image.org
- ChimeraX https://www.cgl.ucsf.edu/chimerax/
- llsm tools https://github.com/francois-a/llsmtools
- utrack https://www.utsouthwestern.edu/labs/danuser/software/#utrack_ancs
- Joh Schöneberg http://www.schoeneberglab.org
- The Betzig Lab https://www.janelia.org/lab/betzig-lab
- The Drubin/Barnes Lab https://drubinbarneslab.berkeley.edu

8.1 Installation

clone or download the repository

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8.1.2 Matlab on Macs

If matlab throws errors like this:

```
Invalid MEX-file
'/Users/johannesschoeneberg/git/JohSchoeneberg/pyLattice/src/matlab/trackingModule/
↪dependencies/u-track/software/mex/createDistanceMatrix.mexmaci64':
dlopen(/Users/johannesschoeneberg/git/JohSchoeneberg/pyLattice/src/matlab/
↪trackingModule/dependencies/u-track/software/mex/createDistanceMatrix.mexmaci64,
6): Library not loaded: @loader_path/libmex.dylib
Referenced from:
/Users/johannesschoeneberg/git/JohSchoeneberg/pyLattice/src/matlab/trackingModule/
↪dependencies/u-track/software/mex/createDistanceMatrix.mexmaci64
Reason: image not found.
```

The solution can be found here:

https://stackoverflow.com/questions/48458660/library-not-loaded-loader-path-libmex-dylib-in-matlab

First, find out your matlab version:

```
find /Applications/ -maxdepth 1 -type d -name 'MAT*'
```

In my case this is:

```
MATLAB_R2017b.app
```

In the subsequent steps, the 2017b matlab version is used. If you have a different version, replace `MATLAB_R2017b.app` with your version below.

You have to add the libraries to your matlab startup script:

```
/Applications/MATLAB_R2017b.app/bin/.matlab7rc.sh.
```

Add:

```
DYLD_LIBRARY_PATH="/Applications/MATLAB_R2017b.app/bin/maci64:/Applications/MATLAB_
↪R2017b.app/sys/os/maci64"
```

Then startup matlab from the command line:

```
/Applications/MATLAB_R2017b.app/bin/matlab
```

8.2 Indices and tables

- genindex
- modindex
- search