PyLattice

V0.8

2018-04-26

Joh Schöneberg

User Manual

3D Particle Tracking

Download the git repository to your computer

1. Adjust Input Parameters

Navigate to pyLattice/input
Open _inputParameters.csv

Change the input and output folders according to your system (top two lines)

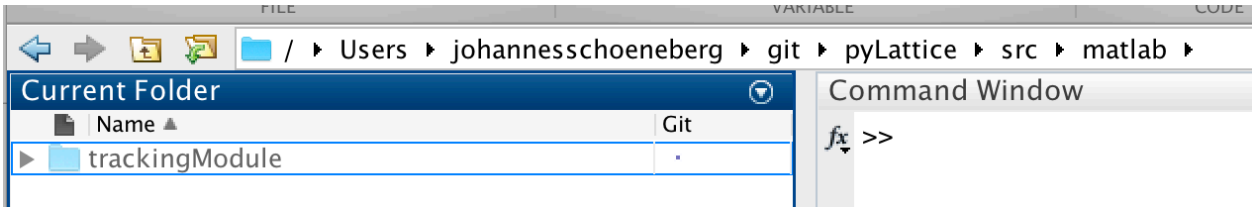
_inputParameters.csv — input (git: createFirstWorkingVersion)

```
inputDataFolder, /Users/johannesschoeneberg/git/pyLattice/input/imaging_data
outputDataFolder, /Users/johannesschoeneberg/git/pyLattice/input/imaging_data/output

movieLength, 70
allowedMaxNumDetectionsPerFrame, 3000
framerate_msec, 5689

detectionFilename, Detection3D.mat
trackingFilename, trackedFeatures.mat
trackingCsvFilename, trackedFeatures.csv
trackingFilenameProcessed, trackedFeaturesProcessed.mat
trackingCsvFilenameProcessed, trackedFeaturesProcessed.csv
lifetimeFilename, lifetimeData.mat



master_sigma_detectionLoG, 1.3
master_outputDataFolder, output_560
master_uniqueFilenameString, _560_
master_trackColor, purple
master_trackingBildFilename, tracks.bild
master_trackingProcessedBildFilename, tracksProcessed.bild

slave_sigma_detectionLoG, 1.3
slave_outputDataFolder, output_488
slave_uniqueFilenameString, _488_
slave_trackColor, green
slave_trackingBildFilename, tracks.bild
slave_trackingProcessedBildFilename, tracksProcessed.bild
```

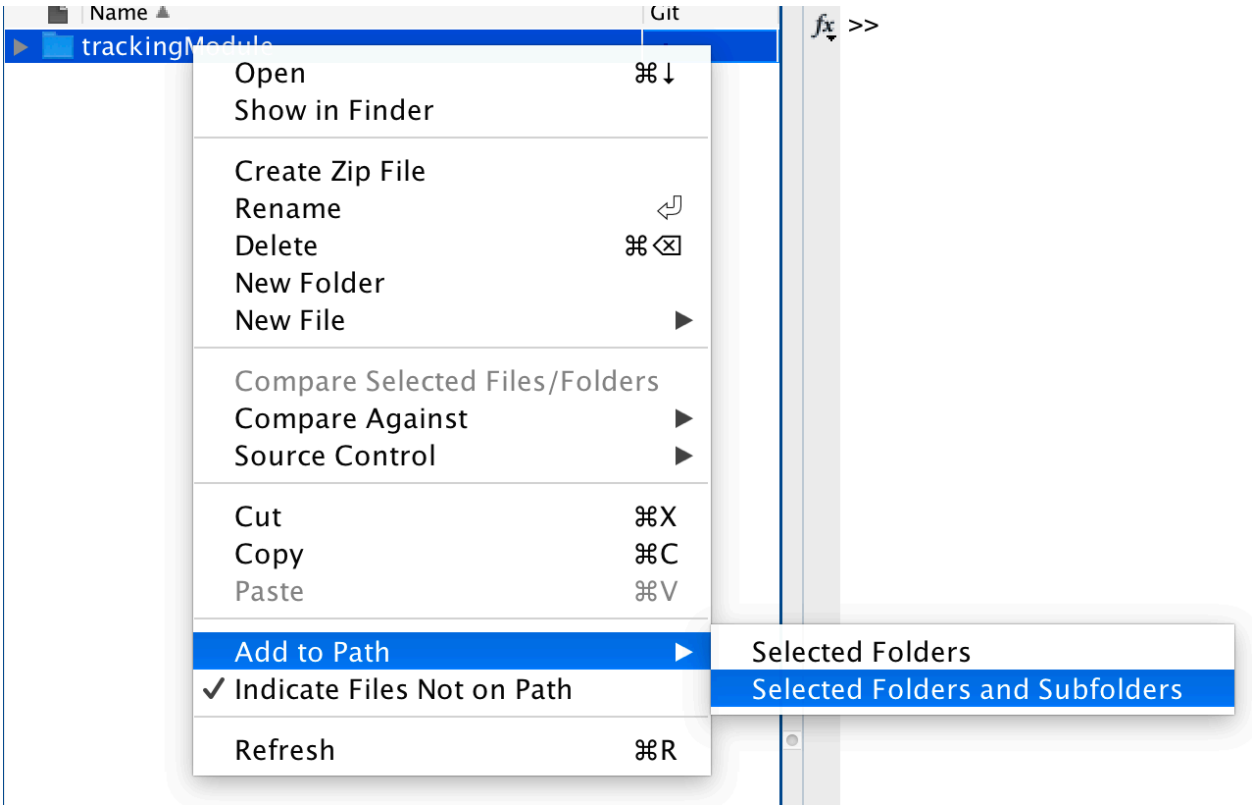
2. Run the Matlab Tracking Module

Open Matlab.

Navigate to pyLattice/src/matlab/trackingModule.



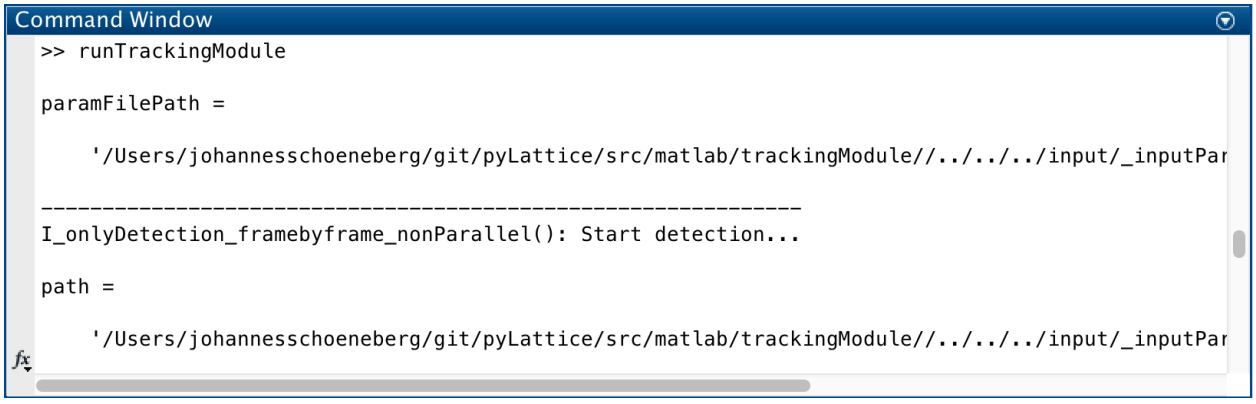
Add it to your path by rightclick -> Add to Path -> Selected Folders and Subfolders :



Open the trackingModule folder and open 'runTrackingModule.m'

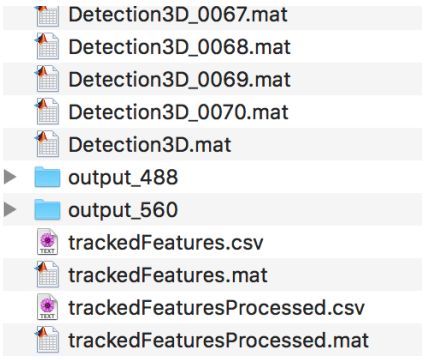
Hit 'Run'.

The Command window should now display the progress doing the tracking:



After a little while (couple of minutes) the tracking module should terminate.
The results of the tracking can be found in the output folder that you specified in step 1.

You should have the following files in your output folder:



The trackedFeaturesProcessed.csv is the final output of the tracking module that we will use for further processing.

3. Run Track Processing and Analysis

The python analysis tools are located in PyLattice/src/python/

3.1 Plot all Tracks longer than a certain length in 3D

Run: detectedTracksProcessed_plotAll_3D.ipynb, the result should look like this: