Frazier-PipeLine Documentation

Release 0.0.1

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FRAZIER PIPELINE

Pipeline for submitting solubility simulations. Bonus output may include Unsaturated Mayer Bond Order amongst other things.

1.1 Installing

Currently installation involves first installing clancelot:

cd ~; git clone git@github.com:clancylab/clancelot2.0.git

And then cloning this project:

cd ~; git clone git@github.com:hherbol/frazier-pipeline.git

Note, you'll also have to append the frazier-pipeline/pys folder to your PYTHONPATH variable.

echo 'nexport PYTHONPATH="/PATH/TO/FRAZIER/PIPELINE/pys:$PYTHONPATH"' >> ~/.zshrc

1.2 Documentation

Documentation is necessary, and the following steps MUST be followed during contribution of new code:

Setup

1. Download Sphinx. This can be done simply if you have pip installed via *pip install -U Sphinx*
2. Wherever you have *frazier-pipeline* installed, you want another folder called *frazier-pipeline-docs* (NOT as a subfolder of frazier-pipeline).

   cd ~; mkdir frazier-pipeline-docs; cd frazier-pipeline-docs; git clone -b gh-pages git@github.com:hherbol/frazier-pipeline.git html

3. Forever more just ignore that directory (don't delete it though)

Adding Documentation

Documentation is done using ReStructuredText format docstrings, the Sphinx python package, and indices with autodoc extensions. To add more documentation, first add the file to be included in *docs/source/conf.py* under *os.path.abspath('example/dir/to/script.py')*. Secondly, ensure that you have proper docstrings in the python file, and finally run *make full* to re-generate the documentation and commit it to your local branch, as well as the git *gh-pages* branch.

For anymore information on documentation, the tutorial follwed can be found here.

1.3 Using FPL

Once installed, FPL can be used to automate some work. The following is an example use of how to (1) generate a system of a solute with solvent, (2) equilibrate in lammps, (3) equilibrate with less solvents in lammps, and (4) equilibrate in DFT using Orca.

```
import os
import fpl
from fpl_lmp_large import job as lmp_large_job

import time, datetime

####################
solute = "pb2+"
solvent = "THTO"
run_name = "%s_%s" % (solvent, solute)

# Generate initial object
fpl_obj = fpl.fpl_job(run_name, solvent, solute)

# Set simulation parameters for system here
fpl_obj.num_solvents=8

# Generate system
fpl_obj.generate_system()

# Set simulation parameters for lammps here
fpl_obj.queue=None
fpl_obj.procs=1

# Add the task here
fpl_obj.add_task(
        lmp_large_job(fpl_obj)
        )

fpl_obj.start()

####################
```

CHAPTER

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