Running minAone optimization code

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Last updated 25 Jul 2022

Usage

`equations.txt` → python_scripts directory

1. Setup python dependencies (sympy)

   `conda create --name anaconda_env anaconda`

   `conda activate anaconda-env`

2. Collect all your data files based on `specs.txt`

3. `python original_minaone.py` → Makefile

4. `make` → neutrinos_cpp executable

5. `./neutrinos.cpp` OR `submit.sbatch` → .dat files (a LOT for 8-beam; ~256MB), ipopt.out

Troubleshooting a Segfault:

- Are all the data files correctly labeled in `specs.txt`? Are they all in the directory?

- Are all data files the right/same length? (Use `wc`)

- Special characters can be viewed with `vim -b FILENAME`

  - trailing whitespace " " matters

  - linebreak-likes "^M" might matter

- If minAone.py runs, equations.txt is OK

- If neutrinos_cpp runs, specs.txt is OK

Troubleshooting other issues/dependencies

```
==> WARNING: A newer version of conda exists. <==
  current version: 4.6.12
  latest version: 4.13.0

Please update conda by running

    $ conda update -n base -c defaults conda
```

Jupyter notebook tunnel:

On remote, run `jupyter notebook --no-browser --port=NNNN`

Prerequisite: `module add anaconda`

On local, run `ssh -t -t USERNAME @hpc-logon.nyit.edu  -L NNNN:localhost:NNNN ssh node002 -L NNNN:localhost:NNNN`

you ran `ssh -t -t  swong25@10.10.32.70  -L 6969:localhost:6969 ssh node002 -L 8892:localhost:6969`

GitHub on the cluster

prequisites:

- SSH key (haven't figured out how that works yet)

- OR Personal Access Token

  `git clone <URL>`

  `git add FILES; git commit -m "MESSAGE"`

  `git push origin master`