HTCondor Python Bindings Tutorial

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HTCondor Week 2019

HTCondor Clients in 2012

Command Line Clients

Fully Featured!

Requires fork/exec and process handling

Outputs in multiple formats

Something Missing In The Middle

SOAP Clients

Features! (Some)

Language agnostic (everyone hates XML equally?)

Caveats with respect to scalability, security.

Design Philosophy

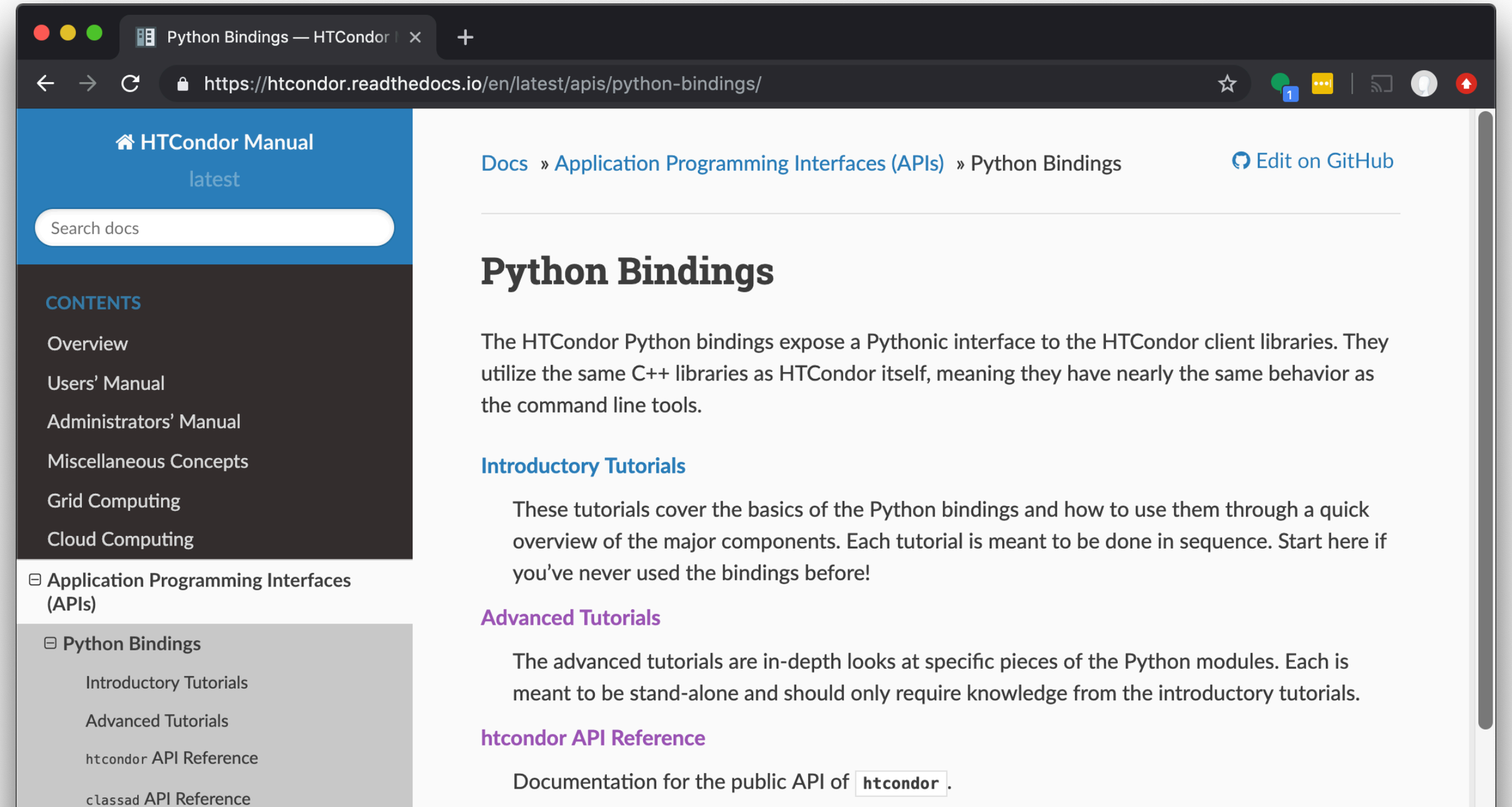
- **ClassAds**: Everything based on ClassAds; make these the “core” of the bindings.
- **pythonic**: Semantics and APIs should feel natural to a python programmer.
    - Use iterators, exceptions, guards. ClassAds behave as much like a dict as reasonable.
- **Backward compatible**: APIs are here to stay for as long as possible.
    - When we absolutely must, use standard python `DeprecationWarning` techniques.
    - Yes, this means that we keep even design warts for far longer than we’d like!
- **Native code**: Call same HTCondor library code as CLI; identical in performance.
- **Complete**: If you can do it with the command line tools, you should be able to do it with python.

Pythonic!

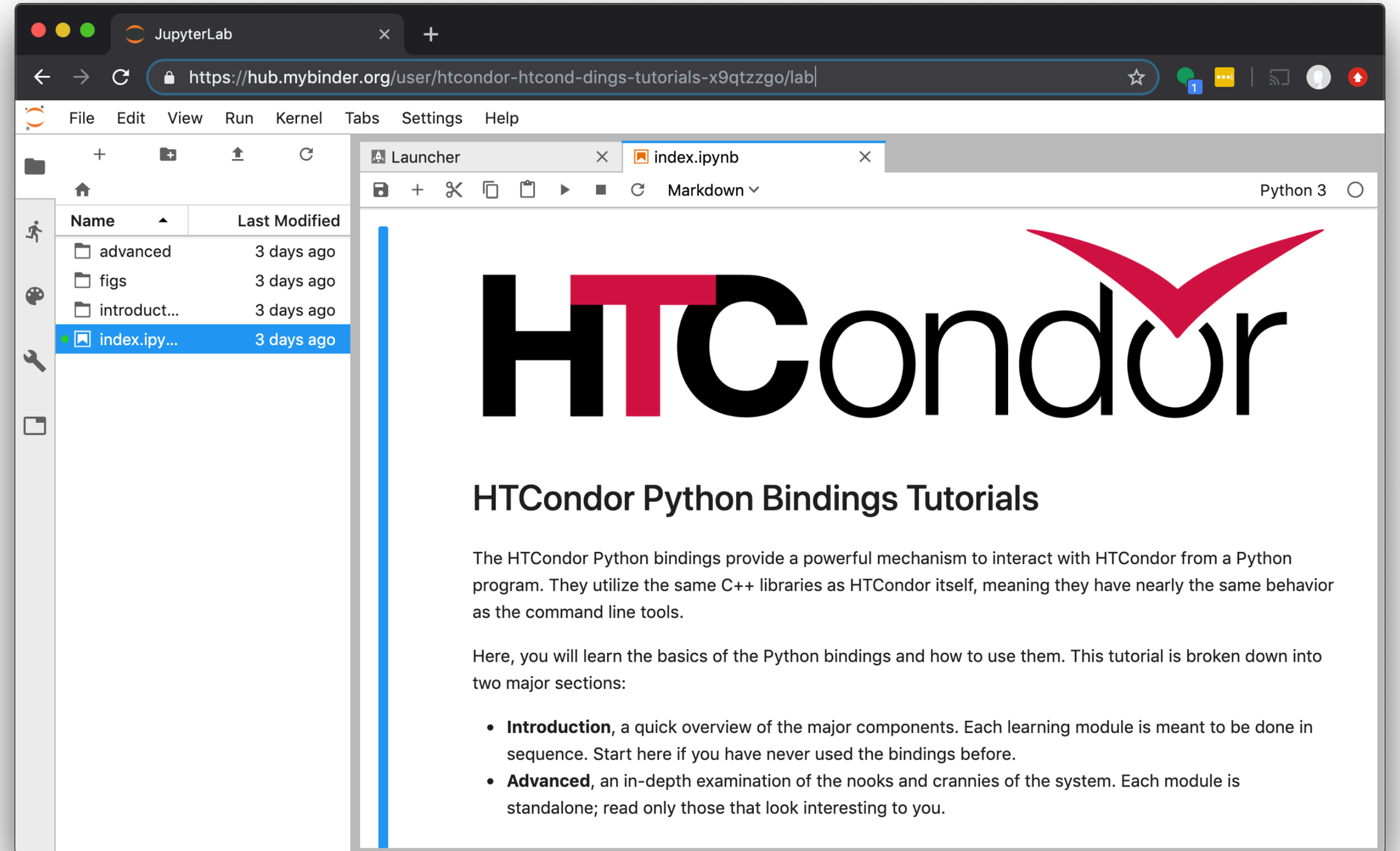
- Since *pythonic* is in our design philosophy, I decided the education should use the tools favored by the python community:
    - Sphinx-based documentation. Hosted on ReadTheDocs; looks / feels / smells like python documentation.
        - *Hey, this is what HTCondor just adopted!*
- Jupyter-based tutorials. Login with a university credential; spawns a Docker container with a private HTCondor instance. Interact via your browser.

Sphinx Docs

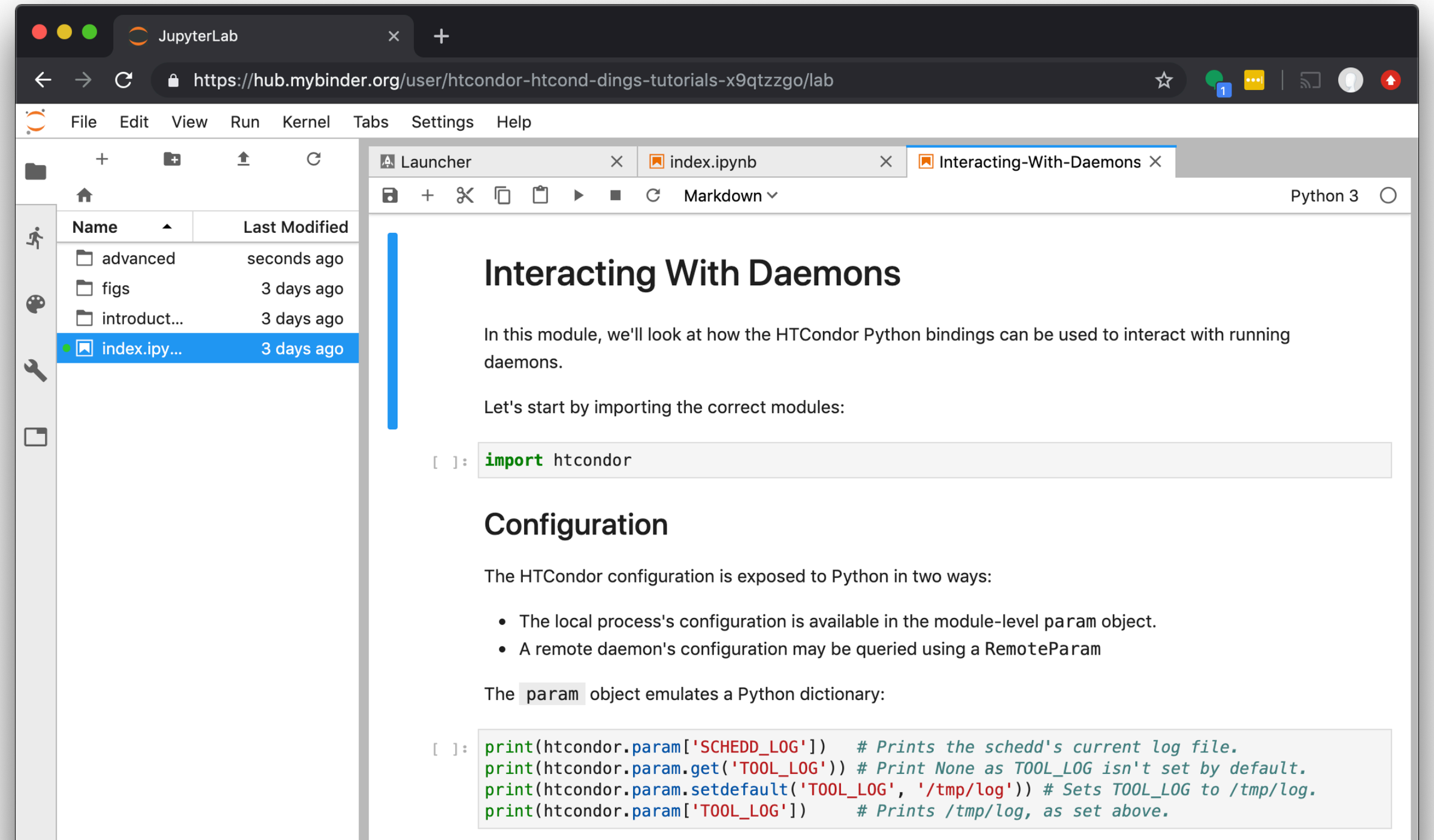
https://htcondor.readthedocs.io/en/latest/apis/python-bindings



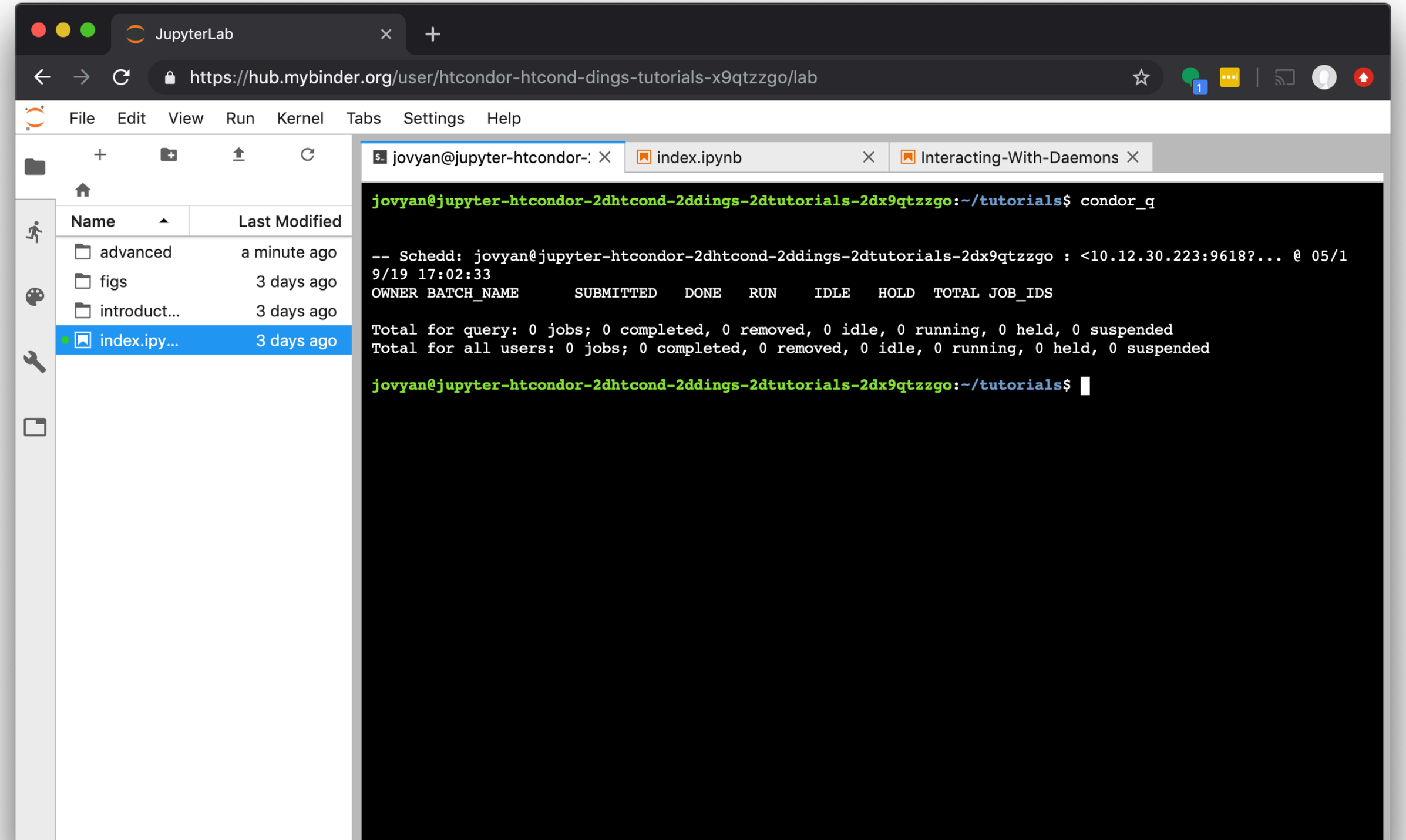
Jupyter-based Tutorials



Notebook View



Terminal View



You can help!

- The contents of the tutorials and documentation are kept on GitHub:
  - https://github.com/htcondor/htcondor-python-bindings-tutorials
    - Note the new location for 2019! JupyterLab & Binder integration recently overhauled by Josh Karpel.
- Find a bug? Spot some missing content?
  - Simply send a pull request; Travis-CI will test and update the static content once merged.

Let’s Proceed!

http://bit.ly/htcpy-stable