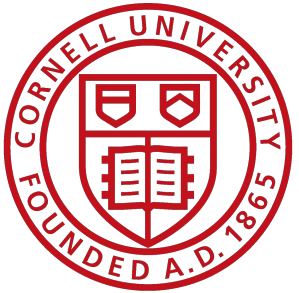

Installations & Libraries

Anaconda Installation

Mac Installation

- Install Xcode and command line tools.
  - Download link : https://itunes.apple.com/us/app/xcode/id497799835?mt=12
  - In Terminal app, run: `xcode-select --install`to install command line tools.
- Download the installer:
  - Anaconda installer for macOS. https://www.anaconda.com/products/individual (Recommended to install anaconda, this will come preinstalled with many useful packages.)
- Install:
  - Miniconda---In your terminal window, run: `bash Miniconda3-latest-MacOSX-x86_64.sh`
  - Anaconda---Double-click the .pkg file.
- Follow the prompts on the installer screens.
- To make the changes take effect, close and then re-open your terminal window.
- Test your installation. In your terminal window or Anaconda Prompt, run the command `conda list`. A list of installed packages appears if it has been installed correctly.

PC Installation

- Download the installer:
  - Anaconda installer for Windows. https://www.anaconda.com/products/individual (Recommended to install anaconda, this will come preinstalled with many useful packages.)
- Double-click the .exe file.
- Follow the instructions on the screen.
- When installation is finished, from the Start menu, open the Anaconda Prompt.
- Test your installation. In your terminal window or Anaconda Prompt, run the command `conda list`. A list of installed packages appears if it has been installed correctly.

Tutorial 0: Python and Jupyter Notebooks 101

Required installations:

- hyperspy: `conda install hyperspy -c conda-forge`
- tifffile: `conda install -c conda-forge tifffile`

Tutorial 3: Image and Diffraction Simulations

Required installations:

- MuSTEM: https://github.com/HamishGBrown/MuSTEM
  - If you have Windows: download the precompiled executable and you're done. Run it as shown in the notebook.
  - If you have Mac/Linux: Download Wine: https://www.winehq.org/
    - Follow the instructions to download Wine and the prerequisites listed on Wine's download page.
    - Download MuSTEM (disclaimer: have only tested Wine on CPU version of MuSTEM).
    - Find the executable file (see the first cell of the notebook for instructions if you have trouble finding it).
    - Run MuSTEM from the command line with "wine nameofexecutable.exe" . You may be prompted with instructions to install additional dependencies; follow the instructions.
    - You could also try compiling it yourself following the instructions on the github page. However, when I tried this on a 2013 Mac Pro, I ran into a memory and threads error that couldn't be resolved, which limited the size of the simulation that I could compute.
- Vesta (optional): https://jp-minerals.org/vesta/en/download.html

Tutorial 4: EELS data analysis

Required installations:

- hyperspy: `conda install hyperspy -c conda-forge`
- tifffile: `conda install -c conda-forge tifffile`
- tqdm: `conda install -c conda-forge tqdm`

Tutorial 5: 4D-STEM data analysis

Required installations:

- tqdm: `conda install -c conda-forge tqdm`

Tutorial 6: Ptychography

Required installations:

- pyfftw: `conda install -c conda-forge pyfftw`
- skimage: `conda install scikit-image`

Tutorial 7: Image registration and atom tracking

Required installations:

- photutils: `conda install -c conda-forge photutils`
- tifffile: `conda install -c conda-forge tifffile`

- rigidregistration from https://github.com/bsavitzky/rigidRegistration