Deep Learning in Medicine

BMSC-GA 4493, BMIN-GA 3007, Spring 2021

Lab 1: PyTorch and Packages Setup

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In this lab, you will first work in groups to walk through the steps for setting up the Python environment for this course (30 min). Then, I will show basic demo about Jupyter Notebook/ Google Colab (10-15min). Finally, I will introduce basic usage of PyTorch, which you are expected to use throughout the semester. Knowing and practicing PyTorch is critical for this course. Here are some additional resources you may find useful:

1. PyTorch documentations can be found here.
2. Youtube series for PyTorch can be found here.

Package Installation

Please follow the steps below to install Python (v3.7), PyTorch (v1.4) and other relevant packages.

1. If you do not have Anaconda, download the Anaconda installer that works for your operating system here. You can check your installation by typing `conda --help` in your terminal.
2. For macOS and Linux, open Terminal. For Windows, open Anaconda Prompt from Start.
3. I recommend creating a conda environment with Python >= 3.6. You can find the documentations here.
   `conda create -n dl4med python=3.7`
4. Activate the environment
   `conda activate dl4med`
5. Install PyTorch (follow the CPU command if you are not sure whether your machine has CUDA)
   CPU: `conda install pytorch torchvision -c pytorch`
   GPU: `conda install pytorch torchvision cudatoolkit=10.1 -c pytorch`
6. Install additional packages, including but not limited to the following:
   `conda install jupyter pandas scikit-learn scipy matplotlib`

Github, Jupyter Notebook, PyTorch

1. Clone the course github repository
   Command line: `git clone https://github.com/nyumc-dl/BMSC-GA-4493-Spring2021.git` **OR**
   GUI github desktop: download and install -> open the app -> "current repository" -> "add" -> "clone repository" -> "url" -> paste the https link above
2. Open a Jupyter Notebook from the course directory; type in terminal: `jupyter notebook`; open `jupyter_demo.ipynb` and `Lab1_pytorch_basics.ipynb`
3. Demo for jupyter notebook/Google Colab
4. Demo for pytorch