Setup Instructions

Probabilistic Deep Learning 2024

1 Python

Downloading and Installing Miniconda:

1. Go to https://docs.conda.io/en/latest/miniconda.html
2. Scroll down to download the Latest Miniconda installer for your system.
3. When the download has finished, start the installer.
4. Keep the default options selected during the installation.
5. After the installation, locate Anaconda Prompt on your machine. Stick it to your taskbar for easy access and start it.

Creating and Managing a Virtual Environment:

1. **Creating a Virtual Environment:**
   - In the Anaconda/Miniconda Prompt, type and execute the following command: `conda create -n <env_name> python=3.10 pip`
   - Replace `<env_name>` with your chosen name for the virtual environment.
   - This command creates a virtual environment with Python 3.10 and pip.
   - Use pip to install additional Python packages.
   - During creation, you'll be asked to confirm the installation of some packages. Type 'y' to proceed.
2. **Activating the Virtual Environment:**
   - Activate the environment with: `conda activate <env_name>`
   - Remember to activate the virtual environment whenever you work with it.
3. **Additional Environment Commands:**
   - To deactivate the environment: `conda deactivate`
   - To list all environments: `conda env list`
   - Remove an environment: `conda env remove --name <env_name>`

2 PyTorch

1. Visit the PyTorch official website's Get Started section at https://pytorch.org/get-started/locally/.
2. Select the appropriate configuration for your system (e.g., OS, CUDA version/CPU).
3. Copy the installation command provided on the website.
4. In the Anaconda Prompt, with your virtual environment activated, paste and execute the copied command. It will look something like this:
   `conda install pytorch torchvision torchaudio cudatoolkit=11.3 -c pytorch`

Verifying Installation:

To verify that PyTorch has been installed correctly, you can run a short Python script to check the version:

- Start Python in your environment: `python`
- Run the following commands:

```
import torch
print(torch.__version__)
```

- If PyTorch is installed, this will print the version number.

3 Installing Additional Python Packages

After setting up PyTorch in your virtual environment, you might need to install additional Python packages for your projects. Here's how you can do it:

1. Ensure that your virtual environment is activated:
    - Activate the environment: `conda activate <env_name>`
2. To install a package, use either the `conda` or `pip` command. Generally, it is recommended to try installing with `conda` first, as it handles package dependencies more effectively. If the package is not available via `conda`, use `pip`.
3. For installing with `conda`:
    - Use the command: `conda install <package_name>`
4. For installing with `pip`:
    - Use the command: `pip install <package_name>`
5. Replace `<package_name>` with the name of the package you wish to install.
6. After installation, you can check if the package is installed correctly by trying to import it in a Python session.

Updating and Removing Packages

- To update a package, use: `conda update <package_name>` or `pip install --upgrade <package_name>`
- To remove a package, use: `conda remove <package_name>` or `pip uninstall <package_name>`

4 Jupyter Notebook

Finally, we are going to install Jupyter Notebook. These instructions will guide you through installing and using Jupyter Notebook in your Python virtual environment.

Installation of Jupyter Notebook

1. With your virtual environment still active, install Jupyter Notebook by executing the command:
   `pip install notebook`

Opening Jupyter Notebook

1. To open Jupyter Notebook, run:
   `jupyter notebook`
2. This command will open a new tab in your web browser showing your current working directory, where you can navigate to a folder or start a new notebook.

Creating and Managing Notebooks

1. To create a new notebook:
   - Click the "New" button in the top right corner of the Jupyter page.
   - Select "Python 3 (ipykernel)" to open a new Python Jupyter Notebook (.ipynb).
2. You can edit, name, and close the opened Jupyter Notebook as needed.
3. Save your work using the save icon in the top left corner.

5 Final Check

Verifying the Setup

To confirm that you have successfully set up everything required for this course, follow these steps:

1. Activate your virtual environment.
2. Check your Python version by executing:
   `python -V`
   It should display Python 3.10.
3. Open Jupyter Notebook:
   `jupyter notebook`
4. In a Jupyter Notebook, run the following commands to verify the installation of necessary packages:
   - `import torch`
   - `import torchvision`
5. If all these steps run without any errors, your environment is correctly set up and ready for the practical exercises.