Using Conda for Machine Learning

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The best tutorial is [Getting started with conda](#).

Ignore this document if you get all you need.

Conda

- A system to manage packages and environments

- Create virtual environment

- Install and Update packages in each environment

- Share environment

Install Conda

- Obtain Conda by installing Anaconda or Miniconda

- **Anaconda**: Conda + Python + more than 1000 packages for data science, needs 3Gb space

- **Miniconda**: Conda + Python + some useful packages, needs 400Mb space

- [Install Anaconda in Windows, Linux and macOS](#)

- [Install Miniconda in Windows, Linux and macOS](#)

Start with Anaconda

- **Start**

  1. In Windows, open Anaconda prompt：

  start → Anaconda → Anaconda prompt

  2. In Linux or macOS:

  Open terminal

- **Verify Installation**, input command:

  conda list

  It lists all installed packages in root environment.

Create Environment

- When to create?

  1. You need some packages but Anaconda doesn't have, such as libraries for deep learning.

  2. You have multiple projects that use the same package with different version.

  3. If you need to share environment to others for reproducing your research.

  Otherwise, use the root environment of Anaconda.

Create Environment

- Command for creating environment:

  conda create --name *env_name* python=3

  It creates a environment with Python 3.

  Set ***env_name*** as you like.

- Activate environment:

  In Windows:

  activate *env_name*

  In Linux and macOS:

  source activate *env_name*

Install Packages

- Install using conda

  conda install *pkg_name*

  Sometimes, you need to select a channel.

  conda install -c *$channel$ pkg_name*

  Search package in Anaconda Cloud to get the command for installation.

- Install using pip

  pip install *pkg_name*

  Search package in PyPI.

Install Packages

- Some sample commands to install packages which are useful for the course **PRML**.

  conda install numpy   conda install scipy

  conda install pandas   conda install matplotlib

  pip install scikit-learn   pip install jupyter

  pip install tensorflow (better to install from source)

  pip install pytorch (better to install from source)

  pip install keras

Quit to Root Environment

- The root environment names "base".

- In Windows, input command in Anaconda prompt:

  activate base

- In Linux and macOS, command to return "root":

  source deactivate

Share Environment

- Activate the environment you want to share.

- Input command:

  conda env export > environment.yml

- It generates a .yml file in the working directory.

- .yml file contains information of your environment.

- Or you can create .yml manually.

Install A Shared Environment

- You got a .yml file from others.

- In root environment, type command in terminal:

  conda env create -f environment.yml

  NOTE: This command may not work in Windows.

- Activate it. The name of shared environment can be found in .yml file.

Remove Environment

- At first, back to root environment.

- Input command in terminal:

  conda remove --name *env_name* --all

- Verify by the command:

  conda info --envs

- The removed environment doesn't appear in the list.

More Reading

- [Conda cheat sheet.](#)

- [User guide for different tasks.](#)

- [Official Tutorial of Conda.](#)