
Machine Learning: Activity 1

High Dimensional Data

Objectives

Install toolkits for machine learning development for CS 480. These instructions are specifically designed for the virtual machine image created and maintained by JMU's Unix User's Group (UUG).

1 Get and Install the Virtual Machine Image

- Download and install the VirtualBox software for your platform (<https://www.virtualbox.org>)
- Download the virtual machine image from the JMU's Unix User Group (UUG) site: <https://w3.cs.jmu.edu/uug/>. The file you want is *image-fa19a.ova* and is rather large (1.5 GB).
- Start VirtualBox
- Select *File*, then *Import Appliance...*, select the file you download (*image-fa19a.ova*) and create then machine
- Start the machine by double clicking on the name (JMU Linux Mint Fa19) on the left side of your VirtualBox window

You will then need to proceed through the Linux OS configuration screens.

- Select *English* and then continue
- Take the default keyboard (English (US) and press *Continue*
- Take *New York* as the default timezone, and press *Continue*
- Select Your name (Use **your** e-id for this. So, for example, I used *molloykp*). This will auto populate the next 3 fields.
- Select a password and then press *Continue*

The system will then execute a few configuration scripts (this took about 2 minutes on my laptop). At the conclusion of this process, I will able to login to the machine using my username and password.

2 Install ToolSets

The remaining steps will be executed in a terminal window. To start a terminal window, click on the black screen icon, located in the bottom left corner (for me, it is the 4th small icon from the left).

- **sudo apt-get update**. This will ask for your password to proceed. This command updates the local database that contains which packages are available for your environment.
- `sudo apt-get install python3-distutils`
- `sudo apt install python3-pip`
- `sudo apt install python3-dev`
- `pip3 install numpy==1.16.4`
- `pip3 install wheel`
- `pip3 install matplotlib`

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- pip3 install pandas
 - pip3 install scikit-learn
 - pip3 install tensorflow
 - pip3 install keras

3 Install PyCharm

- Register for a free version of PyCharm professional. Visit <https://www.jetbrains.com/student/>. It took less than 5 minutes for my license to get approved.
- After being approved, create your JetBrains account. You will need this to register your copy of PyCharm.
- Download the **PROFESSIONAL** version of pycharm from <https://www.jetbrains.com/pycharm/download>. At the welcome screen, select *activate new license with: JetBrains account*