Deep Learning using Python:

I found some great starting points that I've decided to follow:

[Using convolutional neural nets to detect facial keypoints tutorial](http://danielnouri.org/notes/2014/12/17/using-convolutional-neural-nets-to-detect-facial-keypoints-tutorial): <http://danielnouri.org/notes/2014/12/17/using-convolutional-neural-nets-to-detect-facial-keypoints-tutorial/>

Since a GPU is required for using these technique, the following link guides how to use an AWS (amazon web service) and set the image for using the running packages.

<https://www.kaggle.com/c/facial-keypoints-detection/details/deep-learning-tutorial>

Working with AWS:

This was my first experience with using amazon's web services, so I will mention the main obstacles on the way:

1. The image in the link is now called ami-b141a2f5.
2. In order to find it make sure to set the region in the above ribbon to N. California.
3. Following the instructions from the link above, I still had to install/update some packages myself, so here is a what I eventually ran in order to set the environment:
   1. git clone https://github.com/wendykan/AWSGPU\_DeepLearning.git
   2. chmod 777 -R AWSGPU\_DeepLearning/
   3. sudo apt-get install libfreetype6-dev
   4. sudo apt-get install libpng12-dev
   5. wget https://bootstrap.pypa.io/ez\_setup.py -O - | sudo python
   6. ./AWSGPU\_DeepLearning/setup.sh
   7. pip install -r https://raw.githubusercontent.com/dnouri/kfkd-tutorial/master/requirements.txt
4. From the home directory, add the following ~/.theanorc file that configures Theano to use the machine's GPU"
   1. vi .theanorc
   2. Type I for insert, then paste the following text:

[global]

floatX = float32

device = gpu0

[nvcc]

fastmath = True

[mode]

optimizer\_excluding=conv\_gemm

* 1. Type esc+: wq to exit and save vi
  2. sudo ldconfig /usr/local/cuda/lib64

Working with Ubuntu:

1. Most installations only succeeded from root directory using sudo prefix
2. To search for packages:

apt-cache search <string>

e.g:

apt-cache search png | grep dev

libpng12-dev

libpng3

1. Running python (from root directory):
   1. Run a command: sudo python -c "X, y = load()"
   2. Run a file: sudo python /home/ubuntu/AWSGPU\_DeepLearning/ex\_load.py
   3. Run using Ipython: Ipython  
      then type %autoindent to set off indentation and be able to paste blocks of code
2. Split large files (to 10000 lines per file, for example):   
   split -l/N 10000 orig\_file.txt new