

July 7

I. Quick lecture

- what is data science, computer vision, natural language processing, probability & inference
- R, generally more math/stats
- python, generally more comp sci, leveraging computation power, using neural nets / linear algebra)
- Statistical model development: specify - train / estimate - predict

II. Response (Upload your response to your, public facing, GitHub pages site. Likewise, upload your script to your private repository. Please individually name each script, based on today's date. Please also do so for subsequent scripts).

- (1) In Laurence Maroney's video, What is ML, he compares traditional programming with machine learning and argues that the main difference between the two is a reorientation of the rules, data and answers. According to Maroney, what is the difference between traditional programming and machine learning?
- (2) With the first basic script that Maroney used to predict a value output from the model he estimated (he initially started with 10 that predicted ~31. Modify the predict function to produce the output for the value 7. Do this twice and provide both answers. Are they the same? Are they different? Why is this so?
- (3) Using the script you produced to predict housing price, take the provided six houses and train a neural net model that estimates the relationship between them. Based on this model, which of the six homes present a good deal? Which one is the worst deal? Justify your answer.

III. Follow-up: using a package manager and global python environment

(1) Using GitHub Desktop

- (1) Create new repo

(2) Install python version

- (1) Mac - <https://opensource.com/article/19/5/python-3-default-mac#what-to-do>

- (2) Windows - <https://chocolatey.org/packages/pyenv-win>

- (1) <https://pypi.org/project/pyenv-win/>

- (2) pyenv install 3.8.3

(3) Setting project interpreter in pycharm

- (1) https://vcrmartinez.com/2017/08/04/Integrating_PyCharm_with_Pyenv

- (2) Use "which python" & "python -V" to capture path and confirm version

(4) Installing tensorflow

- (1) <https://www.tensorflow.org/install>

- (1) pip install --upgrade pip

- (2) pip install tensorflow
- (3) Don't worry about Docker right now

IV. Complete exercise:

Introduce, ML basics with Keras - basic image classification

<https://www.tensorflow.org/tutorials/keras/classification>

Also for tomorrow: Lecture 2 - First steps in Computer Vision by Laurence Maroney (see syllabus)