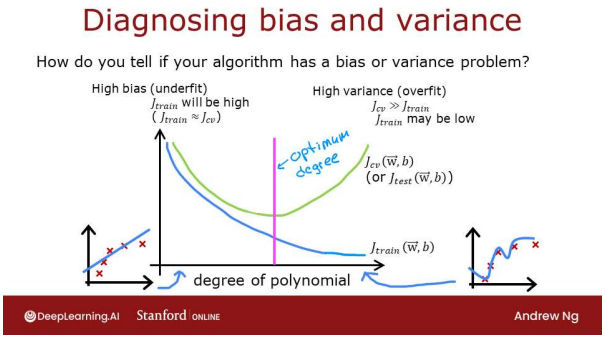
Practice Lab: Advice for Applying Machine Learning

In this lab, you will explore techniques to evaluate and improve your machine learning models.

Outline



1 - Packages

First, let's run the cell below to import all the packages that you will need during this assignment.

- numpy (https://numpy.org/) is the fundamental package for scientific computing Python.
- matplotlib (http://matplotlib.org) is a popular library to plot graphs in Python.
- scikitlearn (https://scikit-learn.org/stable/) is a basic library for data mining
- tensorflow (https://www.tensorflow.org/) a popular platform for machine learning.

In [1]:
```
import numpy as np
%matplotlib widget
import matplotlib.pyplot as plt
from sklearn.linear_model import LinearRegression, Ridge
from sklearn.preprocessing import StandardScaler, PolynomialFeatures
from sklearn.model_selection import train_test_split
from sklearn.metrics import mean_squared_error
import tensorflow as tf
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense
from tensorflow.keras.activations import relu,linear
from tensorflow.keras.losses import SparseCategoricalCrossentropy
from tensorflow.keras.optimizers import Adam

import logging
logging.getLogger("tensorflow").setLevel(logging.ERROR)

from public_tests_a1 import *

tf.keras.backend.set_floatx('float64')
from assigment_utils import *

tf.autograph.set_verbosity(0)
```

2 - Evaluating a Learning Algorithm (Polynomial Regression)