# Machine Learning (2016.10.10)

* Neural Network Solution
  + If positive, neuron is on, if not not on
* Universal Approximators
* Decision Boundary
  + Red line 🡪 decision boundary it can draw
* How to make prediction
  + Vector x to neural system.
  + Back Propagation
* Classification
  + Cross entropy
  + Error function to minimize 🡪 minimize cross entropy error function
  + Regression
    - Easy 🡪 just squared the difference
* Combined Model
  + Equation:
  + H is some kind of activation function in network
* How to Train the model?
  + How to take gradient?
  + No longer has optimization
* Computing the gradient
  + Back propagation
    - If thee is one y and x connected, easy to find. Just x and y and weight
  + Take derivative of outer function and then take derivative of inner function
  + Minimizing output we need to minimize perceptron therefore we will at the end get minimize y output