



Neural Network Python Implementation

- ▶ **Preliminaries:** Dataset load/generation
 - ▶ 2 classes: Red/Blue
- ▶ **Neural Network (NN) Implementation Steps:**
 - ▶ 3-Layer NN:
 - ▶ 1 Input Layer: Number of nodes defined by the dimensionality of the data
 - ▶ 1 Hidden Layer: Arbitrary selection (tuning, experience, heuristics and rules)
 - ▶ 1 Output Layer: Number of nodes defined by the number of classes to be identified
 - ▶ Activation Function for the Hidden Layer: a nonlinear activation function is what allows us to fit nonlinear hypothesis.
 - ▶ How is the NN making predictions?
 - ▶ Through forward propagation
 - ▶ How is the NN learning parameters?
 - ▶ Employ error function that represents how far away is the set of parameter from explaining the data.
 - ▶ Solve the “parameter fit” optimization problem using a solver, e.g. gradient descent.