机器学习经验总结和资源

# 数据预处理

## 数据转换

### log转换

### 标准化转换

### 衍生特征

# 深度学习

## 参数设置

### 参考资源（出处）

Deep Learning with Tensorflow (2nd)[ <https://www.packtpub.com/big-data-and-business-intelligence/deep-learning-tensorflow-second-edition>]

### 网络架构参数

Deep Learning with Tensorflow (2nd)[ <https://www.packtpub.com/big-data-and-business-intelligence/deep-learning-tensorflow-second-edition>]

**setting the hidden layer configuration using just two rules:**

* The number of hidden layers equals one
* The number of neurons in that layer is the mean of the neurons in the input and output layers

#### --层数：N（l）=N(s)/{a\*[N（i）+N（o）]

---N（i）：输入层神经元数量

---N（o）：输出层神经元数量（如果有n个类别，则为n）

---N（s）：训练样本数

#### --每层的神经元数:N(n)= [N（i）+N（o）]/2

### 初始化

#### Weight初始化：不能全部初始化为0

#### Bias初始化：首先考虑全为0，或者比较小的值0.01

### 优化器

#### AdamOptimizer

most of the cases, we can utilize Adam, it works well and without having to think much about learning rates and so on.

#### RMSPropOptimizer

The suggested setting value of the decay parameter is 0.9, while a good default value for the learning rate is 0.001:

optimizer = tf.train.RMSPropOptimizer( 0.001, 0.9). minimize( cost\_op)

#### MomentumOptimizer

Researchers also recommend using Momentum optimizer while training a deep network such as CNN.

#### 同时参考

一文看懂各种神经网络优化算法：从梯度下降到Adam方法

<https://zhuanlan.zhihu.com/p/27449596?utm_source=weibo&utm_medium=social>