ML Strategy

Orthogonilzation 正交化

（调节旋扭为类比）

→ 弄好车的 旋扭，分成
　　方向着和进档

Fit training set well on cost function
↓
Fit div set well on cost function
↓
Fit test set well on cost function
↓
performs well in real world.

Ideals：

① collect more data
② collect more diverse training set
③ train algorithm longer with gradient discent
④ try Adam instead of gradient descent
⑤ try bigger network
⑥ try smaller network

- try drop out
- Add I_2 regularization
- Network Architecture
- Activation functions
- hidden units
...

Single number evaluation matric

观察查准率和查全率
　　　　　 P   R

$$\frac{2}{\frac{1}{P} + \frac{1}{R}}$$

Satisficing and optimizing metrics

「满足和优化指标」

1. 优化指标（cost function）
2. 考察多个样本

	True	False	(逻辑对比)
Positive			
Negative			

（数据/漏报）

Train / dev / test distributions

训练/开发/测试集都分
_____

上述大小

7：3 / 6：2：2
大数据：98：1：1
$$Error = \frac{1}{m_{dev}} \sum_{i=1}^{m_{dev}} I \{y_{pred}^{(i)} \neq y^{(i)}\}$$
$$= \frac{1}{m} \sum_{i=1}^{m} w^{(i)} I \{y_{pred}^{(i)} \neq y^{(i)}\}$$
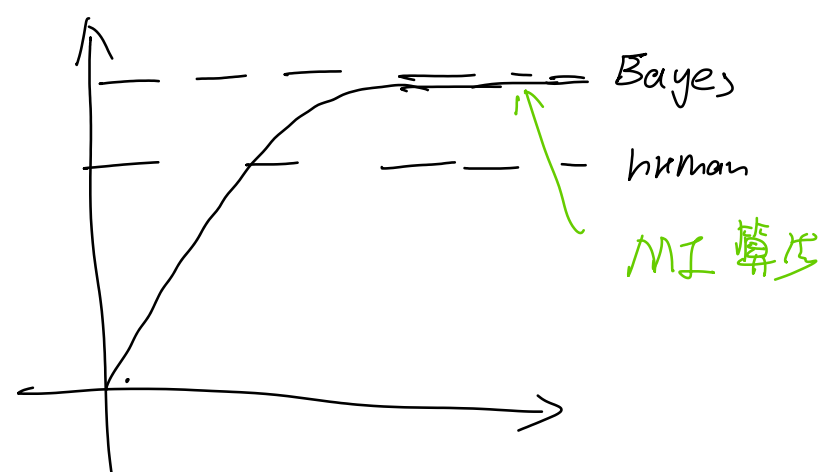
$w^{(i)} = \begin{cases} 1 & 为色情照片 \\ 0 & 不为色情 \end{cases}$

A：98%，但会误判色情图片为猫
B：95%，不会误判 ......

从猫照片中判断是否 ...

When to change dev / test sets and metrics

Bayes
human
ML 精化

Avoidable bias

Training error 8%
Dev error 10%
人类水平错误率估计 → 近似为贝叶斯错误率