deeplearning.ai

Setting up
your goal

When to change dev/test sets and metrics

Cat dataset examples

$$\text{Error}: \frac{1}{m_{dev}} \sum_{i=1}^{m_{dev}} I\{\hat{y}^{(i)} \neq y^{(i)}\}$$

0/1

Cat classifier

If you have put your goal
↳ either metric has been wrongly defined
↳ OR dev set data distribution is incorrect
then you need to change your goal

Metric: classification error

Algorithm A: 3% error

Algorithm B: 5% error

App goes through Internal DB of Images & spits out cat Images to show to users

"A" seems better, but say Algo A, in addition to spitting out cat Images, also classifies some naked women as cats & shows it to the user base ⇒ Bad for the company
- But say "B" doesn't ever show porn Images
⇒ B is a Better Algo

Now, we can say our metric for Algo selection is wrongly defined, we blindly choose lower classification error, but "B" is better for production usage

⇒ New Error Metric $\frac{1}{m_{dev}} \sum_{i=1}^{m_{dev}} w^{(i)} I\{\hat{y}^{(i)} \neq y^{(i)}\}$

where $w^{(i)} = \begin{cases} 1 & \text{if } x^{(i)} \text{ is non porn} \\ 100 & \text{if } x^{(i)} \text{ is porn} \end{cases}$

Andrew Ng

Orthogonalization for cat pictures: anti-porn

1. So far we've only discussed how to define a metric to evaluate classifiers. (Place the target)

2. Worry separately about how to do well on this metric. (Aim & shoot at the target)

Another example

Algorithm A: 3% error

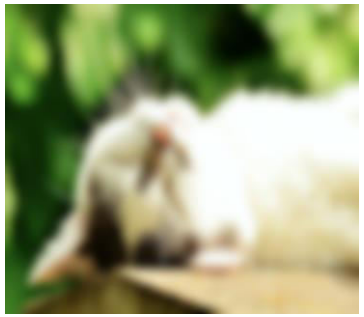
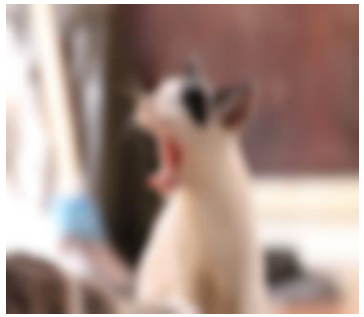
Algorithm B: 5% error (B is worse than A objectively)

However in the real world B performs better than A (say)
- then you need to change your metric to pick your model
+
change dev/set to include blurry images

Dev/test



User images


If doing well on your metric + dev/test set does not correspond to doing well on your application, change your metric and/or dev/test set.