

Week 11

Photo OCR

- Problem description
 - Sliding windows
 - Data and artificial data
 - Ceiling Analysis
-

I. Photo OCR

1. Problem description

- Steps:
 - Image
 - Text detection
 - Character segmentation
 - Character recognition

2. Sliding windows

- Sliding window detection
 - Take a picture
 - Choose a window size (patch image)
 - Slide using a step horizontally and vertically
 - Change size and steps

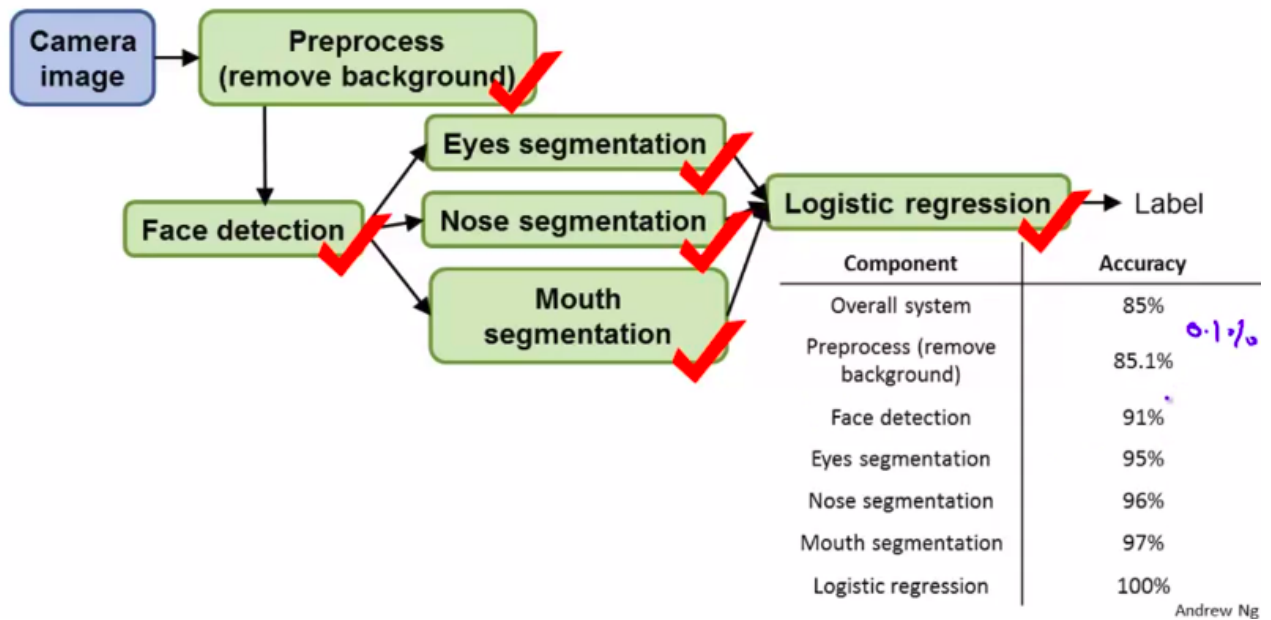
3. Getting Lots of Data and Artificial Data

- Original sources image or audio
 - Add noise, distortion randomly
- Make sure to have lower bias before expending the effort

4. Ceiling Analysis

- Estimate error/ accuracy on each step of detection

Another ceiling analysis example



II. Summary

Summary: Main topics

- Supervised Learning $(x^{(i)}, y^{(i)})$
 - Linear regression, logistic regression, neural networks, SVMs
- Unsupervised Learning $x^{(i)}$
 - K-means, PCA, Anomaly detection
- Special applications/special topics
 - Recommender systems, large scale machine learning.

Advice on building a machine learning system

- Bias/variance, regularization; deciding what to work on next: evaluation of learning algorithms, learning curves, error analysis, ceiling analysis.

You passed this course! Your grade is 93.30%.