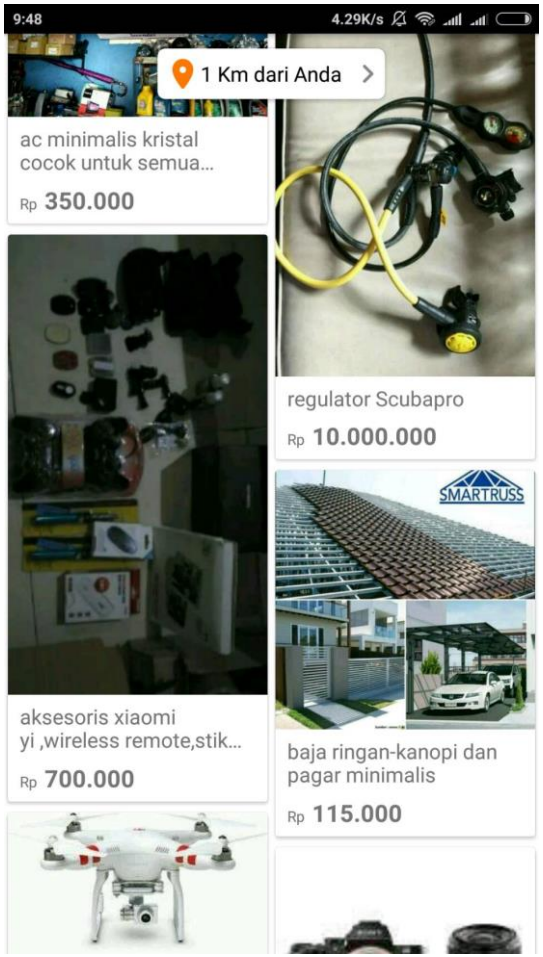
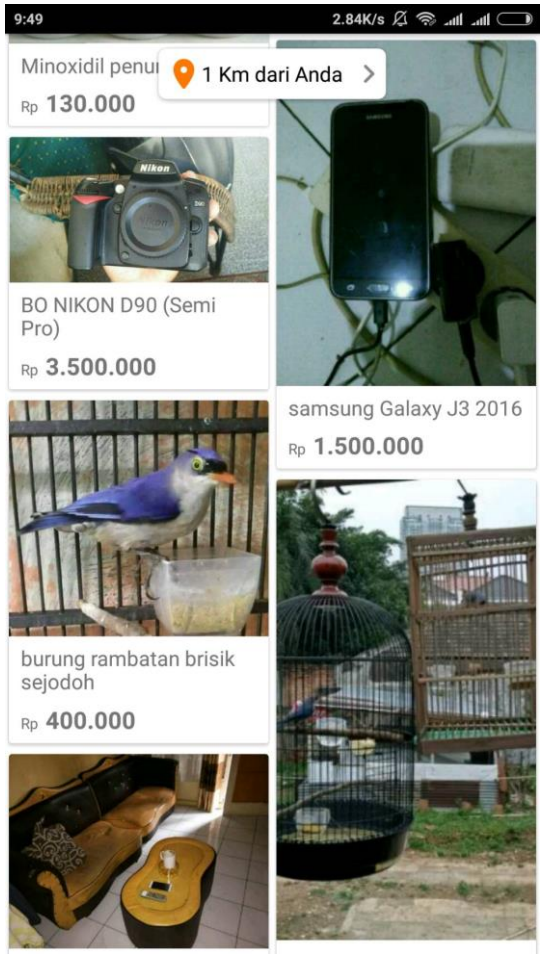
Indonesia

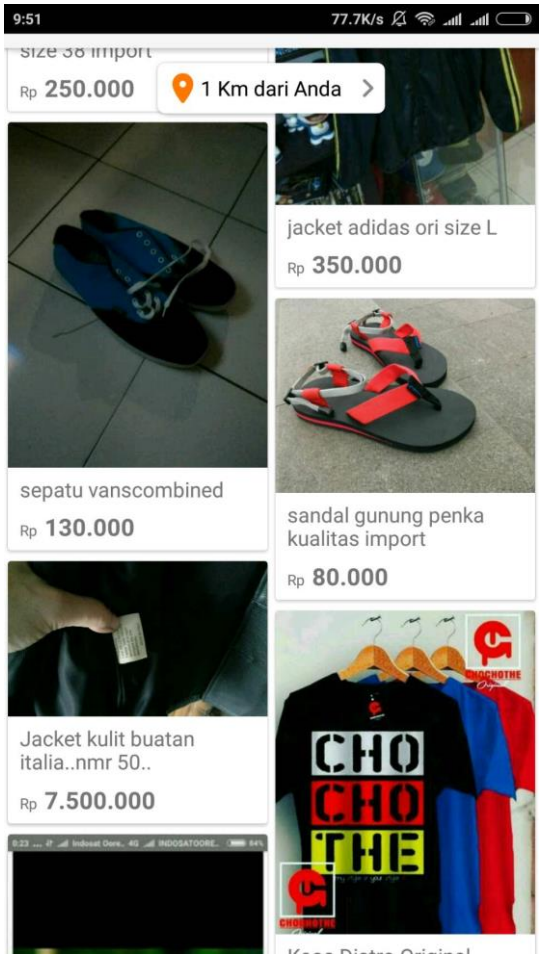
Image Quality Detection with Machine Learning

Hervind – Junior Data Scientist

2017-08-05



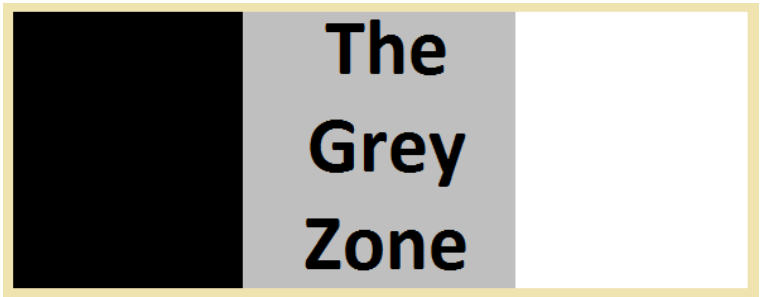




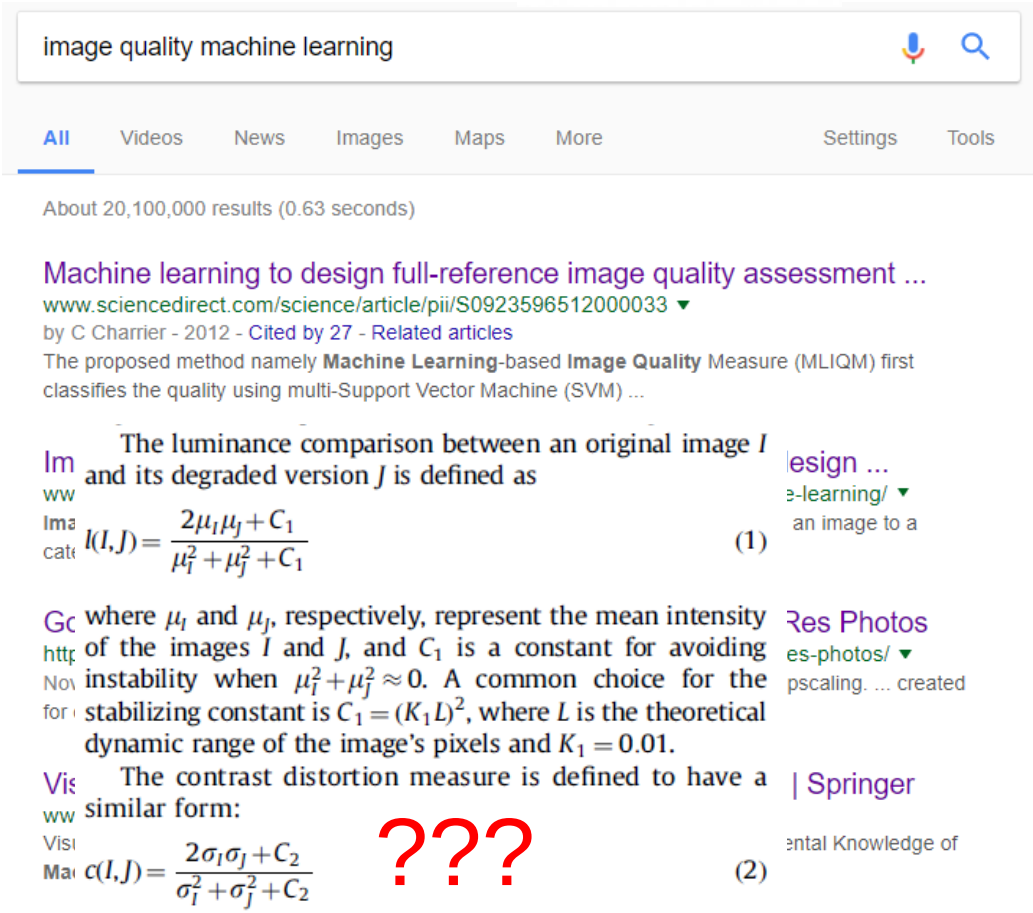
The goal is help our user

OLX Global Innovation Awards 2017

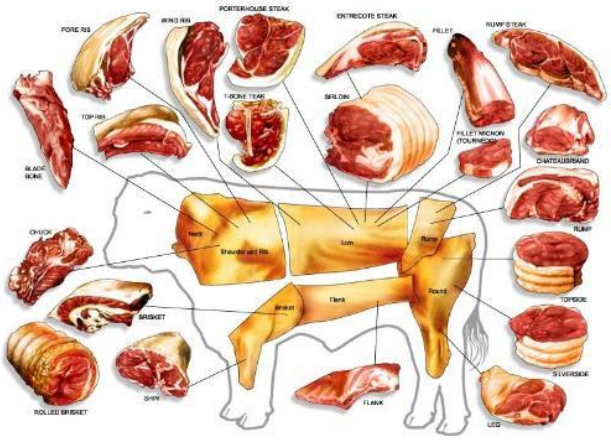
Quality is subjective



HOW?



Cooking and Machine learning



Samples
(instances, observations)

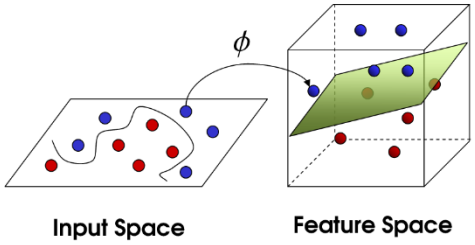
	Sepal length	Sepal width	Petal length	Petal width	Class label
1	5.1	3.5	1.4	0.2	Setosa
2	4.9	3.0	1.4	0.2	Setosa
...					
50	6.4	3.5	4.5	1.2	Versicolor
...					
150	5.9	3.0	5.0	1.8	Virginica

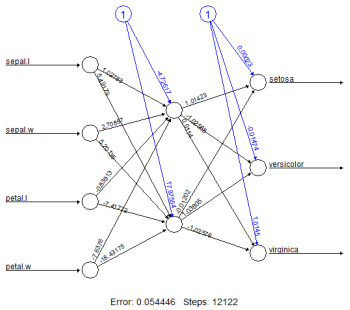
Petal

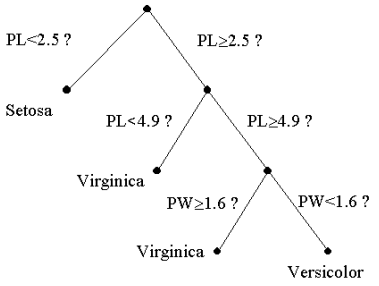
Sepal

Features
(attributes, measurements, dimensions)

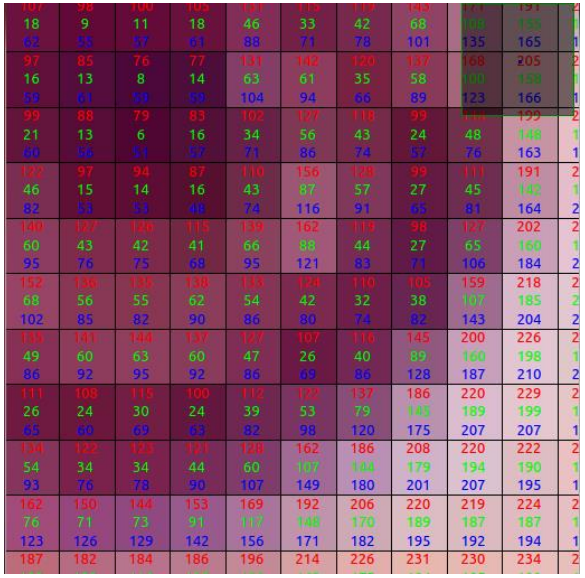
Class labels
(targets)







What can we do with Image respect to its quality



Blurness

Distinct Pixel Rate

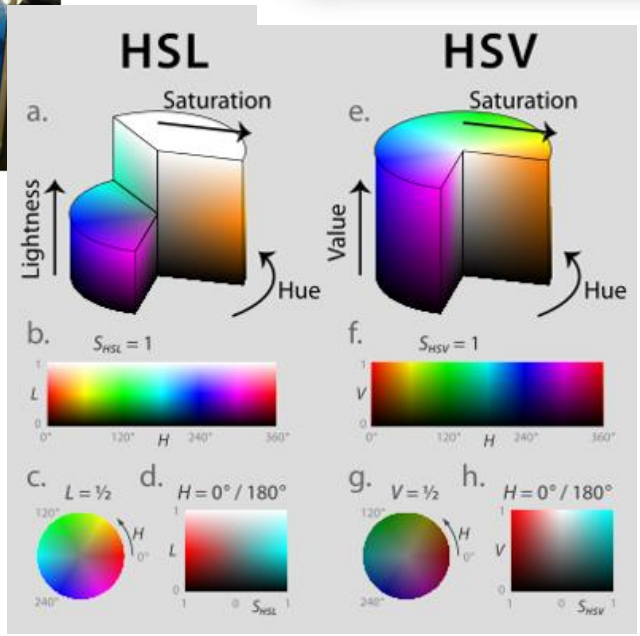
1.85%

16.30%

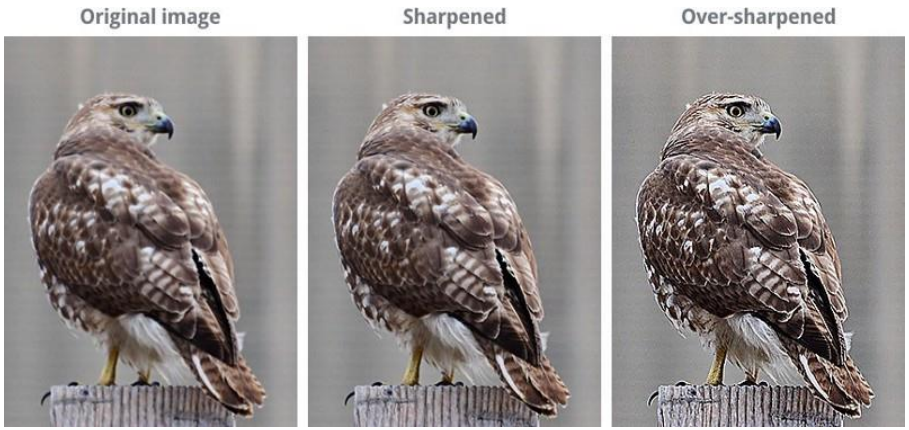
3.15%

33.07%

Saturation



Sharpness



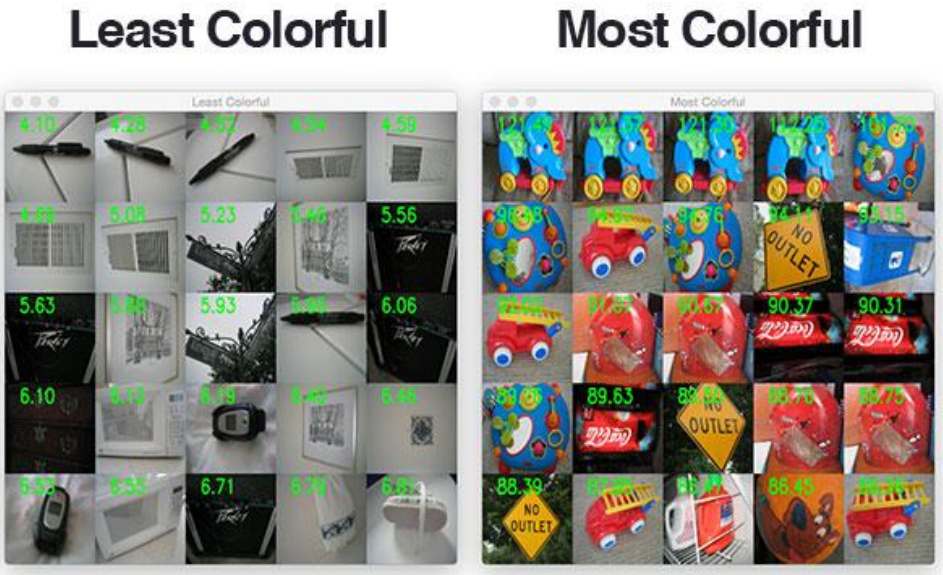
colorfulness

$$\sigma_{rgyb} = \sqrt{\sigma_{rg}^2 + \sigma_{yb}^2}$$

$$\mu_{rgyb} = \sqrt{\mu_{rg}^2 + \mu_{yb}^2}$$

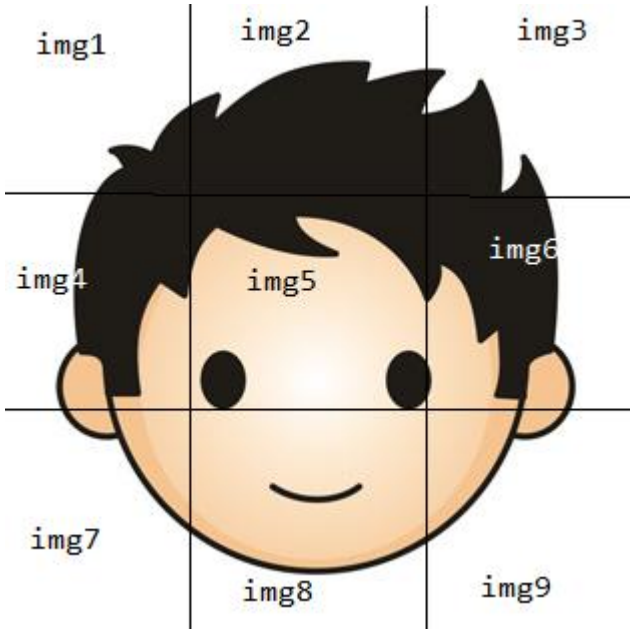
$$C = \sigma_{rgyb} + 0.3 * \mu_{rgyb}$$

Don’t worry, python script for this is on my GitHub



It Is Not Fair to Judge from Whole Image

consider this picture



The Result

Model:
Gradient Boosting Classifier

False Positive

False Negative

The most exciting phrase to hear in science, the one that heralds new discoveries, is not "Eureka!" (I found it!) but "That's funny ..."

— Isaac Asimov

SIMULATION ?

Refference

- C. Charrier, O. Lezoray, G. Leburn, Machine learning to design full-reference image quality assessment algorithm: Signal Processing: Image Communication, 2012, pp. 209-219.
- A. Bouzerdoum, A. Havstad, A. Beghdadi, Image quality assessment using a neural network approach, in: Fourth IEEE International Symposium on Signal Processing and Information Technology, 2004, pp. 330–333.
- http://www.pyimagesearch.com/2015/09/07/blur-detection-with-opencv/
- http://www.pyimagesearch.com/2017/06/05/computing-image-colorfulness-with-opencv-and-python/
- https://medium.com/@hervindphilipe/can-machine-predict-the-quality-of-image-5e8d63163308

Python script for image quality metrices:
https://github.com/hervindphil/image_quality/

hervindruid@gmail.com

hervindphil