Classification of Photographs based on Perceived Aesthetic Quality

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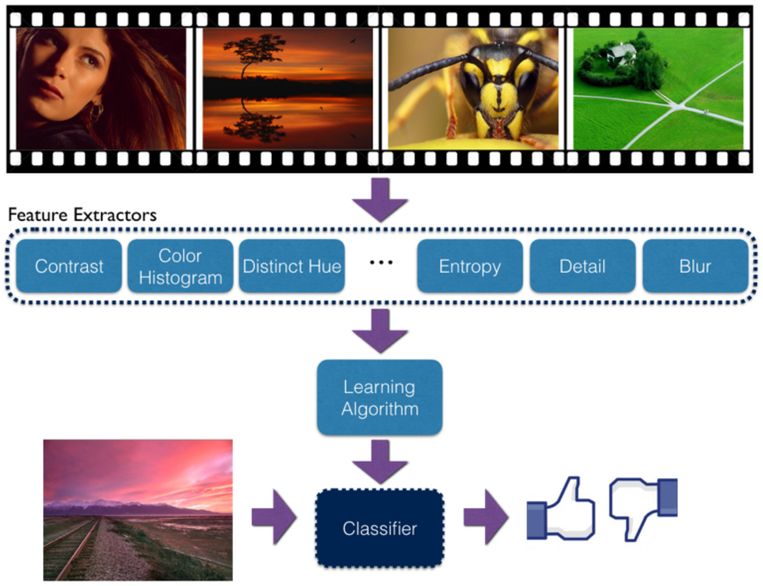
Aesthetic Classification



Feature Extraction

Hue: count # of distinct hues
Saturation: compute average saturation
Contrast: variance of pixel intensity

Entropy: measure of simplicity
Blur: variance of the Laplacian
Detail: ratio of subject edges to pixels

Spatial Correlation of Features

Extract features from each tile in partitioned image. Allow machine learning algorithm to infer relationships between the tiles.

Methodology

Dataset

Scraped 2300 images from photo.net, each photograph rated between 1 and 7. We only consider photographs rated below 4.3 or above 6.

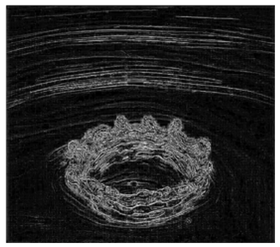
Classifier Tuning

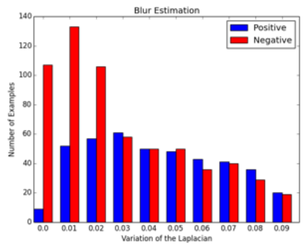
Selected regularization, gamma, and kernel parameters of SVM via grid search.

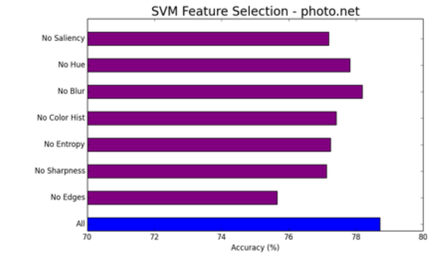
K-fold Cross Validation

Performance was measured using 10-fold cross validation. Balanced number of positive/negative examples used.

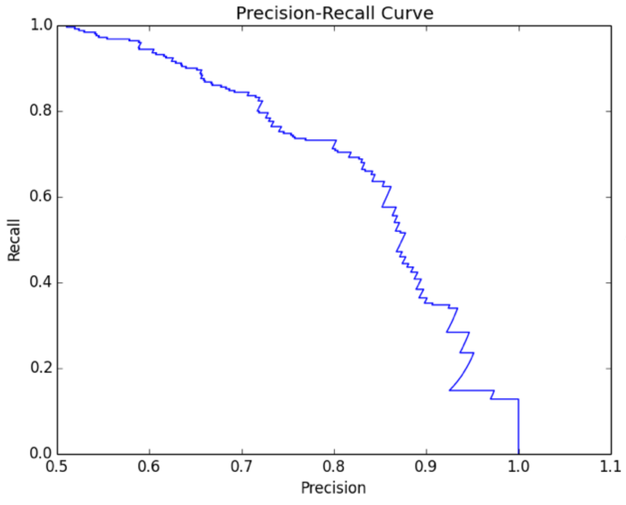
Feature Selection







Experimental Results



Actual Label / **Predicted Label**

	1	0
1	True Positives 80.12%	False Negatives 19.88%
0	False Positives 18.35%	True Negatives 81.65%

GBRT: 200 predictors, η=0.9
10-fold Cross Validation Success 80.88%