1. ImageNet Classification with Deep Convolutional Neural Networks

Contribution:

Trained a 5-convolutional and 3-fully-connected layer CNN which achieved the best results in ILSVRC-2010 and ILSVRC-2012 competition.

The network contains a number of new and unusual features which improve its performance and reduce its training time.

Used several effective techniques for preventing overfitting, such as data augmentation and dropout.

strengths and weaknesses:

Strengths: Provide a high-performance architecture for CNN.
Use ReLu to to increase the calculation efficiency.
Use optimized multiple GPUS framework to train data faster
Use overlapping Pooling to extract more feature from previous layer.
Use data augmentation and dropout to reduce overfitting.

Weakness:
The architecture requires the input image size is fixed and the image is static. In order to meet this requirement, we need to crop the input image where we may lose important data from it.
This is still unclear for me to understand how the number of con layers is determined.

2. Rapid Object Detection using a Boosted Cascade of Simple Features

Contribution:

The introduction of a new image representation called the Internal Image which allows the features used by our detector to be computed very quickly.

Introduce AdaBoost, which selects a small number of critical visual features from a larger set and yields efficient classifiers.

Create a method for combining increasingly more complex classifiers in a ‘cascade ’.

strengths and weaknesses:

Strengths:
The way this paper brings together in term of algorithms, representation can by easily used in other application in computer vision and image processing.

Weaknesses
As the writer says, the paper set a lot of prerequisite for dataset, such as illumination, scale, pose and camera variation which are expensive to get.