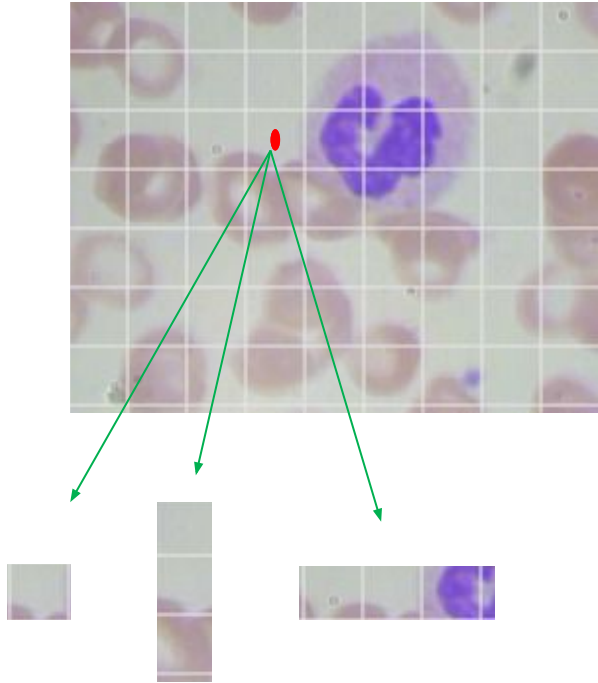


Problems with Naive Approach

Problems with Naive Approach 4

Problems:

- High Computation

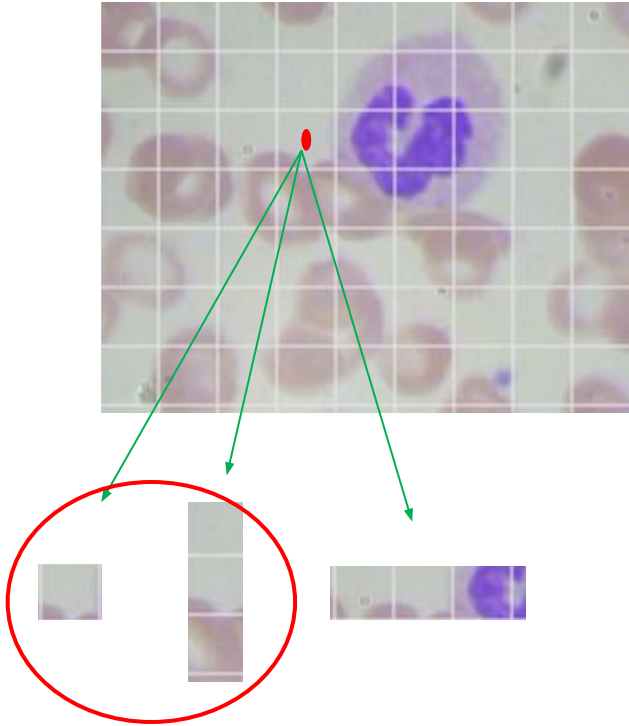


Analytics
Vidhya

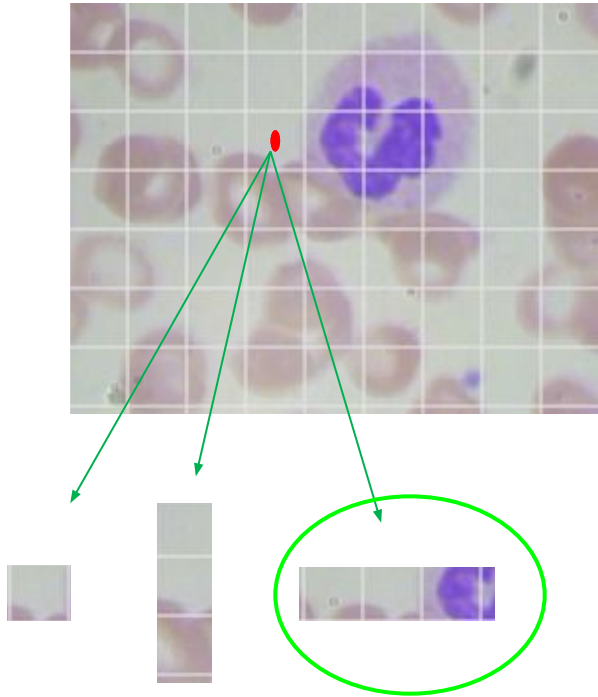
Problems with Naive Approach 4

Problems:

- High Computation
- Classify Blank Patches



Problems with Naive Approach 4



Problems:

- High Computation
- Classify Blank Patches

Solution:

Classify Selected Patches

Region Based Convolutional Neural Network (R-CNN)



Region Based Convolutional Neural Network (R-CNN)

Rich feature hierarchies for accurate object detection and semantic segmentation

Tech report (v5)

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Abstract

Object detection performance, as measured on the canonical PASCAL VOC dataset, has plateaued in the last few years. The best-performing methods are complex ensemble systems that typically combine multiple low-level image features with high-level context. In this paper, we propose a simple and scalable detection algorithm that improves mean average precision (mAP) by more than 30% relative to the previous best result on VOC 2012—achieving a mAP of 53.3%. Our approach combines two key insights: (1) one can apply high-capacity convolutional neural net-

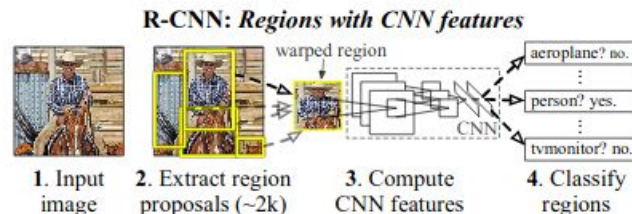


Figure 1: Object detection system overview. Our system (1) takes an input image, (2) extracts around 2000 bottom-up region proposals, (3) computes features for each proposal using a large convolutional neural network (CNN), and then (4) classifies each region using class-specific linear SVMs. R-CNN achieves a mean

Region Based Convolutional Neural Network (R-CNN)

Generate Region Proposals



Region Based Convolutional Neural Network (R-CNN)

Generate Region Proposals

- Selected regions which “may” have the object



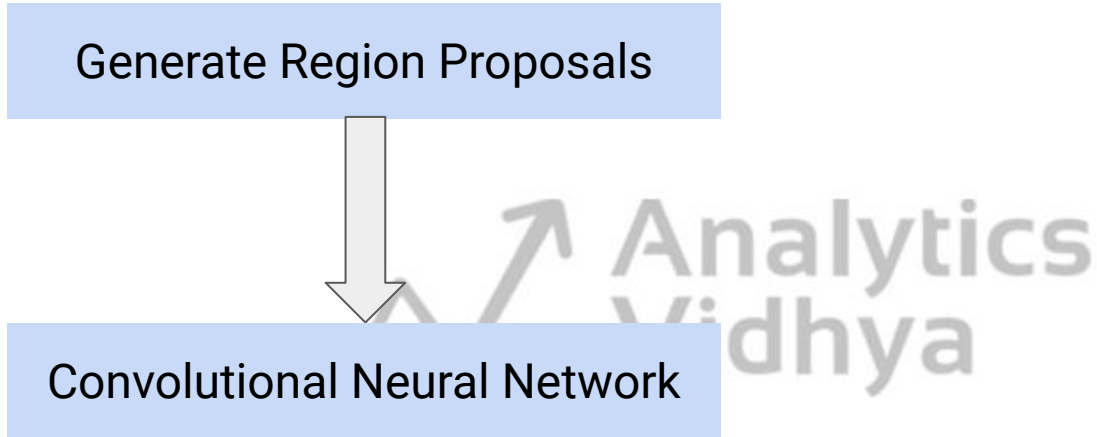
Region Based Convolutional Neural Network (R-CNN)

Generate Region Proposals

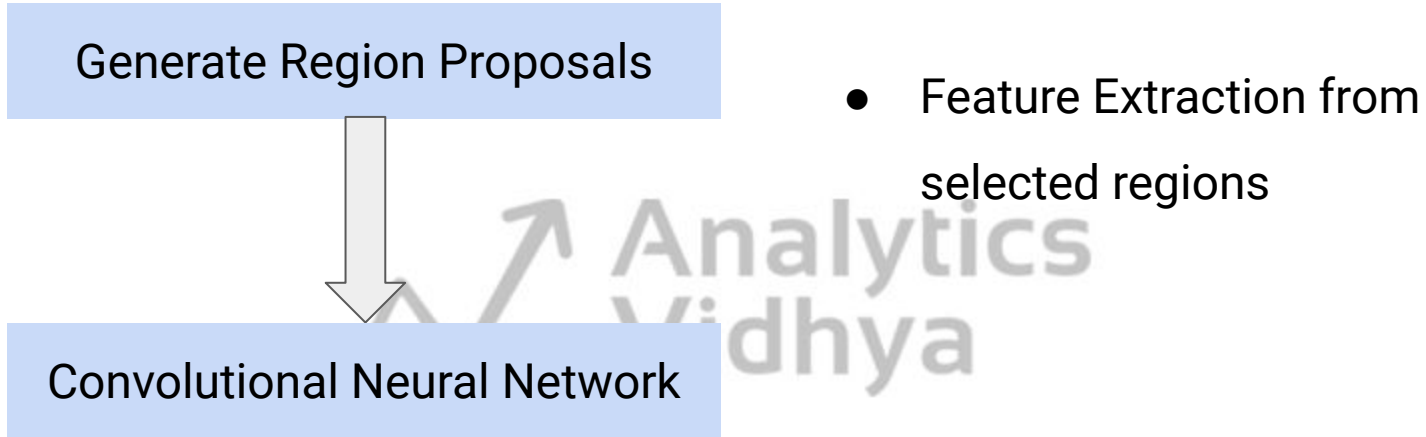
- Selected regions which “may” have the object

Selective Search Algorithm

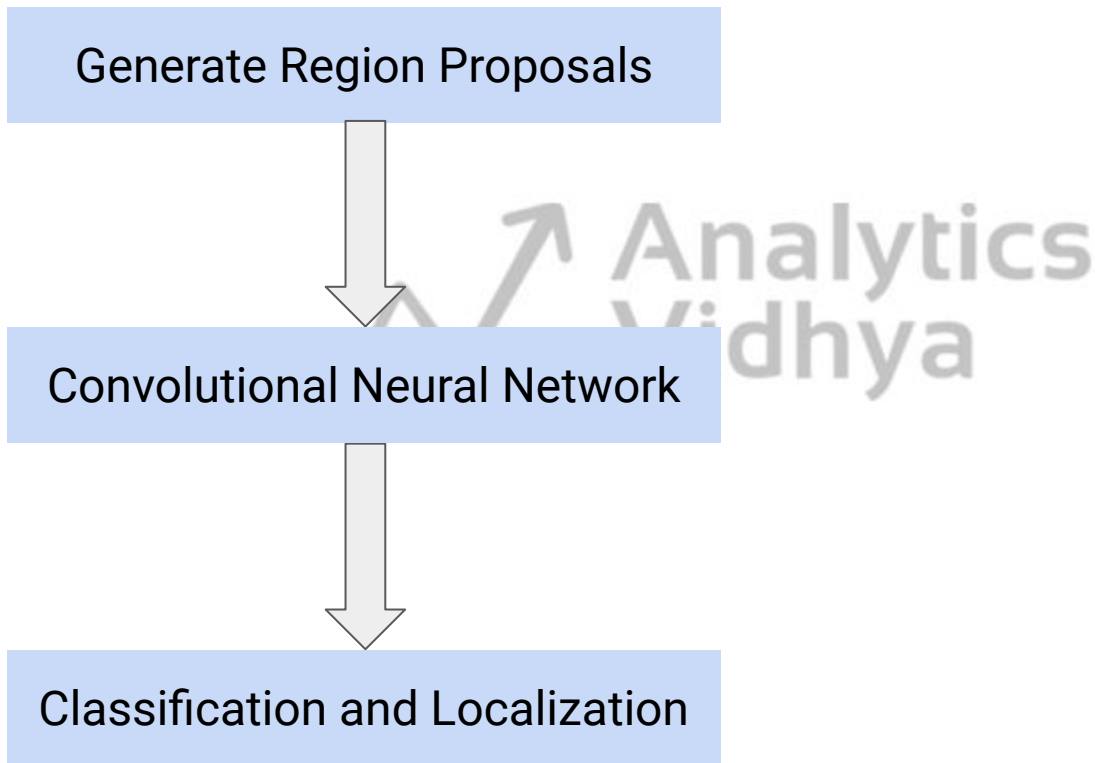
Region Based Convolutional Neural Network (R-CNN)



Region Based Convolutional Neural Network (R-CNN)



Region Based Convolutional Neural Network (R-CNN)





Thank You