**Literature Survey**

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| **Year** | **Title** | **Method** | **Remarks** |
| 2012 | ImageNet Large Scale Visual Recognition | Use of ISLVRC dataset to train the validation set manually for image recognition using image classification, object localization and semantic segmentation. | **Advantage**:  No limitations like as human perception.  **Disadvantage**:  Data processing and analytics is intensive and requires a large amount of computation resources and memory. |
| 2012 | ImageNet Classification with Deep Convolutional  Neural Networks | ImageNet database is used for image classification using Deep Convolutional Neural Networks | **Advantage**:  Is an architecture that can be adapted to new problems relatively easily  **Disadvantage**:  Requires heavy computation for training the data. |
| 2014 | Visualizing and Understanding  Convolutional Networks | Use of ImageNet to classify images using Convolutional Neural Networks | **Advantage:**  Has best-in-class performance on problems that significantly outperforms other solutions in multiple domains.  **Disadvantage**:  Requires a large amount of data |
| 2014 | Microsoft COCO: Common Objects in Context | MS COCO dataset, state of the art object recognition.  Objects are labelled using per-instance segmentations to aid in precise object localization. Bounding box and segmentation detection improves object detection. | **Advantage:**  Improved object detection and recognition in Microsoft COCO's dataset  **Disadvantage:**  Less number of categories in comparison to ImageNet and SUN |
| 2015 | Fast R-CNN | This paper proposes a Fast R-CNN for object detection. Fast R-CNN builds on previous work to efficiently classify object proposals using deep convolutional networks. | **Advantage:**  Fast R-CNN trains the very deep VGG16 network 9x faster than R-CNN, is 213x faster at test-time  **Disadvantage:** Swamping the deep classifier with more proposals does not help, and even slightly hurts accuracy. |
| 2015 | Faster R-CNN: Towards real-time object detection with region proposal networks | Region Proposal Network (RPN) merged with Fast R-CNN into a single network by sharing their convolutional features using attention mechanisms. RPN components tell this unified network where to look. | **Advantage:** Performance better than Fast R-CNN takes 10ms per image for object detection. |
| 2016 | Deep Residual learning for Image Recognition | Image classification using deep convolutional neural networks | **Advantage**:  Reduces the need for feature engineering, one of the most time-consuming parts of machine learning practice.  **Disadvantage**:  Is extremely computationally expensive to train. The most complex models take weeks to train using hundreds of machines equipped with expensive GPUs. |