# Analytics and Algorithms (Mid Sptint3)

For the Simpsons characters, our team need use 6 Algorithms to analysis them. They are

1. Convolutional Neural Network (CNN)
2. Hybrid CNN-ELM
3. Mask R-CNN
4. Faster R-CNN with different Hyper parameter
5. YOLO (You only look once)
6. Single shot Multi-box detection (SSD).

The Hybrid R-CNN is used to do the image classification and the Mask R-CNN is used to segment those images. The Yolo and the SSD are both do the statistics visualization.

CNN:

CNN is a multilayer perceptron specially designed for recognizing image contents. This network structure is highly invariant to translation scale slant or covariant deformation. It is the basic algorithm for other algorithms that we needed use in our research and in our project we used it to do the image classification.

R-CNN:

R-CNN combines region proposals with CNNS, it can use high-capacity convolutional neural networks to bottom up region in order to locate and image segmentation (Girshick, Donahue, Darrell, & Malik, 2014). R-CNN can also be understood as regions with CNN features.