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| **Classification Algorithms** | **Pros** | **Cons** | **Structure of the Algorithm** |
| RESNET | - High accuracy  - Skip connections enable easier training of deep networks  - Better accuracy in computer vision related tasks.  - Can be adapted and applied to different tasks | - Too many layers require extensive computational power | * Input * Shortcut Connection * Activation Function * Output |
| DENSNET | - Efficient Parameter Sharing  - Reduced Overfitting  - Dense Connectivity | - Too much memory Consumption | * DENSNET consists of multiple blocks, where each block has several connected layers. * Each layer in a block receives inputs from all preceding layers within the same block. * Transition layers are used to control the number of features between blocks. * Then, DensNet captures intricate features, making it highly suitable for image recognition tasks. |
| VGG | * simple and straightforward architecture * VGG's pretrained models can be used as a starting point for other image recognition tasks * High Speed | - Requires a large amount of memory | * VGG consists of a series of convolutional layers that perform operations on input images. Think of these layers as filters that extract features from the images. * Followed by max pooling layers, which reduce the size of the feature maps and retain important information. * After the convolutional and pooling layers, the feature maps are flattened into a vector and fed into fully connected layers, which make the final predictions * The network is trained using a process called backpropagation, where the model adjusts its parameters to minimize the difference between predicted outputs and true labels. |
| INCEPTION | * Improved Performance * Efficient Use of Parameters * Multiscale Feature Extraction | * Computational Complexity * Increased Memory Usage | * Inception networks consist of multiple branches or paths that process the input data simultaneously, each using different sizes of convolutional filters. * These branches are designed to capture features at different scales or levels of abstraction, allowing the network to understand both local details and global context. * Within each branch, various convolutional layers are stacked to extract and transform the input features. * The output features from all branches are then concatenated and passed through additional layers to further refine and combine the information. |