plant leaf disease classifier.

motto: prevention is better than cure.farmers cant identify easily with low cost on large scale periodically(automation) and maintain it using fertilizers.increase productivity and save resorces,thus produce better quality

explain about dataset.

conv+relu -> learn parameters using specific filters to extract specfic features

pooling -> non linear down sampling and reduces overfitting(reduce number of para's and computation in network)

relu -> to intoduce non-lineraity in network

fully cnnected -> each neuron is connected to all activations of previous layer

method / implementation: 1. construct model using keras and tensorflow backend

2. transfer learning (learn features and weights from keras network like resnet50(pretrained on imagenet weights) and train an svm classifier.i.e., replace fullyconnected layer by linear svm classifier)

we get more generic features in early layers and more more data specific features in later layers.

inputs of one layer are also available to next ayer.so theres no problem of vanishing gradient.thus can build deep layers with small model size

software used and code

pre process images using pil(cropping and resizing)

feature extraction(extract structred data from non-structured data)

leaf recog difficulties:

differences b/w. species in same class are not noticeable

feature extraction is inflenced by noise,variation in brightness

model and results

deviation between predicted and true labels decreases with epochs...validation accuracy after 25 epochs is....

accuracy may not increase beyond a point bcoz 2 different classes may share almost same features

future work

data augmentation --> reduces overfitting

increase leaf species

introduce more layers in network(deep)









