SheetCNN Architecture

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The SheetCNN model is a simple convolutional neural network designed from scratch to classify leaf images into several botanical categories.

The architecture is composed of three convolutional blocks:

- Conv2d
- ReLU
- MaxPool2d

Block 1

1. Input: 3 channels (RGB image)
2. Conv2d(3, 16, kernel_size=3, padding=1) a 16 feature maps
3. ReLU()
4. MaxPool2d(2) the output size: 16 × 150 × 150

Block 2

1. Input: 16 channels
2. Conv2d(16, 32, kernel_size=3, padding=1) a 32 feature maps
3. ReLU()
4. MaxPool2d(2) the output size: 32 × 75 × 75

Block 3

- Input: 32 channels
- Conv2d(32, 64, kernel_size=3, padding=1) a 64 feature maps
- ReLU()
- MaxPool2d(2) the output size: 64 × 37 × 37

2. Classifier

After flattening the feature maps (64×37×37), the classifier processes them through two fully connected layers.

Layers

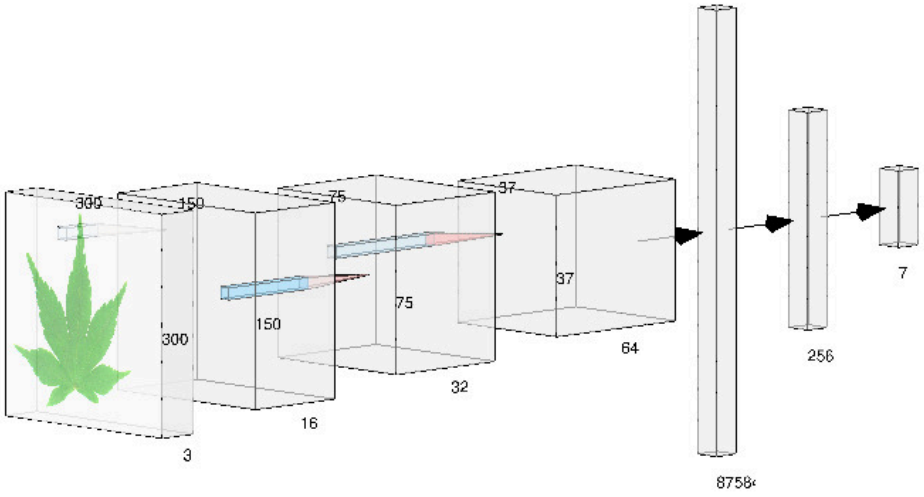
- Dropout(0.4) to prevents overfitting
- Linear(64 * 37 * 37, 256)
- ReLU()
- Dropout(0.4)

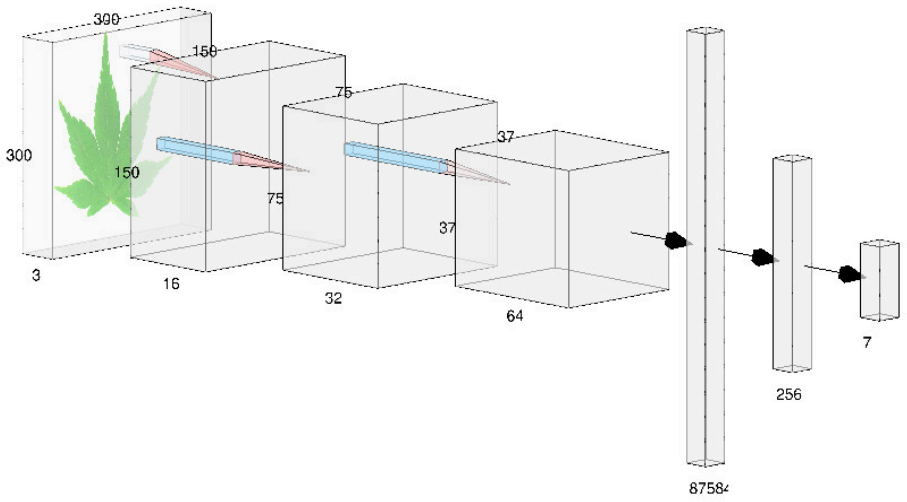
- Linear(256, n_classes) in this case, 7 classes

3. Forward Pass Summary

1. Input image
2. Flatten the resulting tensor
3. Pass through the fully connected classifier
4. Output: class logits

4. CNN Architecture




300
150
3
150
75
16
75
37
32
37
64
87584
256
7