Autophotographer

Project Demo

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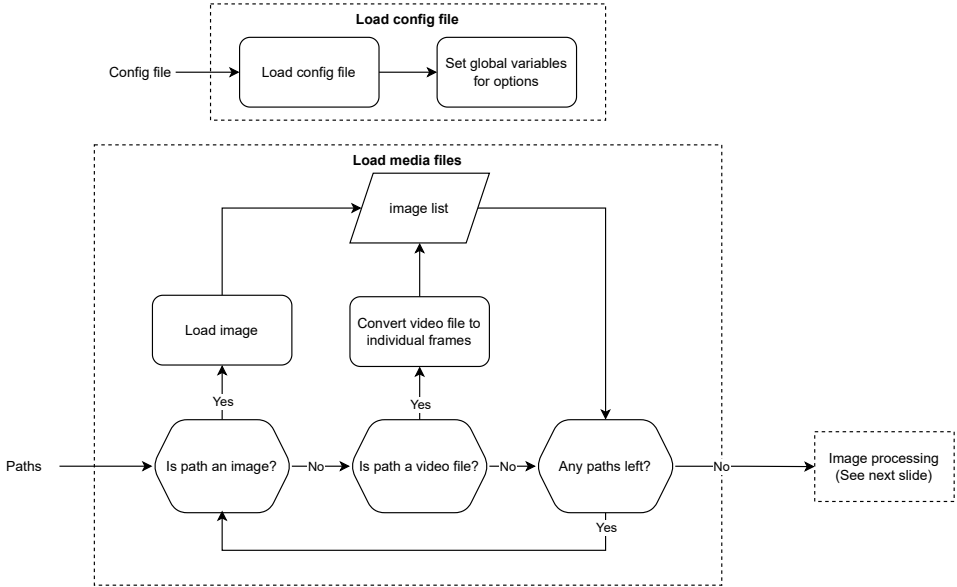

Load config file
Config file
Load config file
Set global variables for options
Load media files
image list
Load image
Convert video file to individual frames
Yes
Yes
Paths
Is path an image?
No
Is path a video file?
No
Any paths left?
No
Image processing (See next slide)
Yes

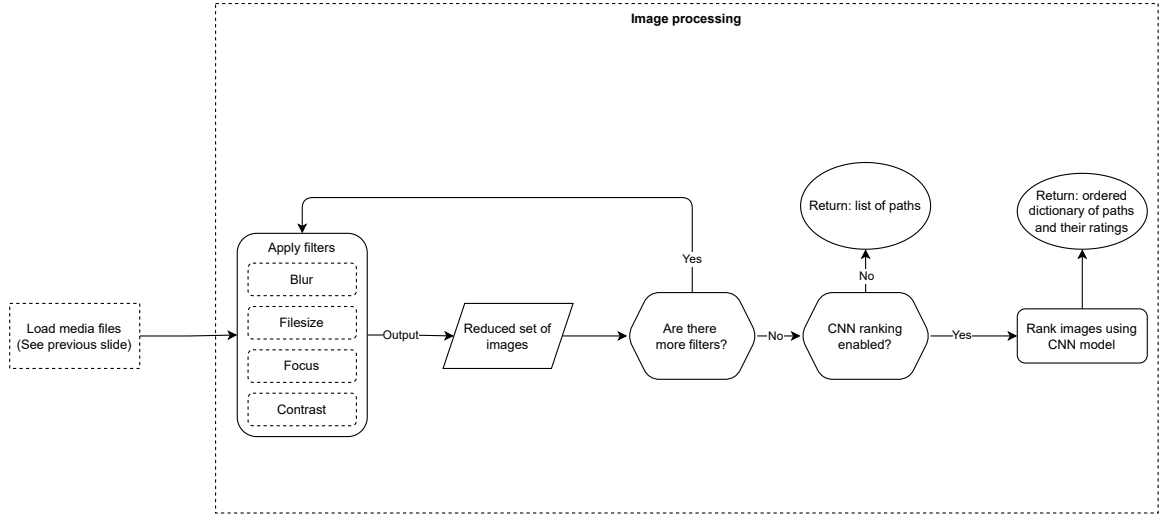
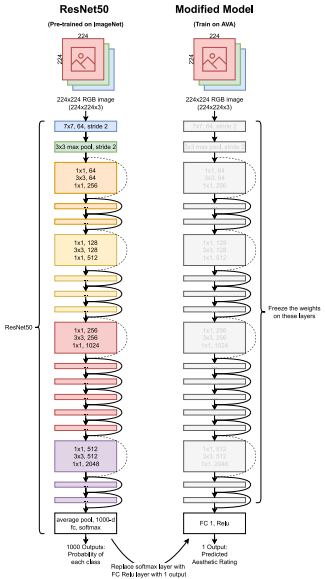
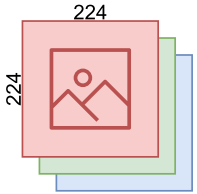


Image processing
Load media files
(See previous slide)
Apply filters
Blur
Filesize
Focus
Contrast
Output
Reduced set of images
Are there more filters?
Yes
No
CNN ranking enabled?
No
Return: list of paths
Yes
Rank images using CNN model
Return: ordered dictionary of paths and their ratings


ResNet50
(Pre-trained on ImageNet)
Modified Model
(Train on AVA)
224
224
224x224 RGB image
(224x224x3)
7x7, 64, stride 2
3x3 max pool, stride 2
1x1, 64
3x3, 64
1x1, 256
1x1, 128
3x3, 128
1x1, 512
1x1, 256
3x3, 256
1x1, 1024
1x1, 512
3x3, 512
1x1, 2048
average pool, 1000-d
fc, softmax
1000 Outputs
Probability of
each class
ResNet50
Freeze the weights
on these layers
FC 1, Relu
1 Output
Predicted
Aesthetic Rating
Replace softmax layer with
FC Relu layer with 1 output

Modified Model

(Train on AVA)



Loss = Mean Absolute Error
Optimizer = Adam
Learning Rate = 0.001

224x224 RGB image
(224x224x3)

7x7, 64, stride 2

...49 layers...

...

Pretrained Resnet50:
Weights of all layers
except the final FC
layer are frozen

FC 1, Relu

Our FC single output Relu layer.