Image segmentation and synthesis

Quiz, 7 questions

1 point

1.

Which of the following is an operation, not a task in computer vision?

- ☐ Object detection

- ☑ Perspective projection

- ☐ Instance segmentation

- ☑ Max-pooling

- ☑ Gradient computation

- ☑ Image convolution

1 point

2.

For a 3-class semantic segmentation problem, how many numbers must an algorithm output for a 640x480 image?

921600

1 point

3.

Why is SLIC algorithm better suited to the image oversegmentation task than k-means method?

- ☑ It is more computationally efficient because segment sizes are bounded, limiting the number of pixels examined at each iteration

- ☐ Unlike k-means, SLIC is a supervised learning method and thus can use labels to improve segmentation

- ☐ It utilizes a more robust distance metric, rather than simple Euclidean distance used in k-means method

- ☑

Image segmentation and synthesis

1
point

4.

What is the goal of the unpooling operation?

- [ ] To undo channel concatenation by decreasing the number of convolutional feature maps

- [ ] To undo convolution by applying the transposed convolution

- [ ] To help backpropagate errors by introducing sparse convolutions

- [x] To undo pooling by outputting an image with larger resolution (i.e., pixels in spatial directions)

1
point

5.

In unpooling, how do we approximate the inverse of the non-invertible max-pooling operation?

- (●) We output maximal values at their respective indexes (called max location switches) and place zeroes elsewhere

- ( ) We do bilinear interpolation to compute the output

- ( ) We use 'bed of nails': output the maximal values in the top left corner and zeros elsewhere

1
point

6.

What is a Gram matrix in linear algebra?

- (●) A matrix produced by computing dot product between two sets of vectors

- ( ) A matrix of feature activations in a CNN

- ( ) A confusion matrix of CNN

- ( ) A positive-semidefinite matrix used to generate random numbers from a Gaussian distribution

1
point

7.

What makes a good generator for a GAN model?

○ It produces nicely looking images

○ It achieves superior performance in generating Gaussian mixtures

● It produces data that is hard to distinguish from real

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