Texture
Practice Questions
Solutions

Multiple Part True/False Questions. For each question, indicate which
of the statements, (A)–(D), are **true** and which are **false**? Note: Questions may
have zero, one or multiple statements that are true.

Question 1: Texture representation is hard. Which of the following statements
are **true** of texture? Which are **false**?

(A) Texture depends on scale, illumination and viewpoint.

(B) To date, texture analysis has proven more tractable than texture synthesis.

(C) The "spots" and (oriented) "bars" approach to texture representation described in Forsyth and Ponce is motivated, in part, by properties of human vision.

(D) The Laplacian pyramid provides no explicit representation of orientation. But, if we process each layer of the Laplacian pyramid further with a set of oriented filters then we can represent energy at distinct scales and orientations as an "oriented pyramid."

Solution : (A) True, (B) False, (C) True, (D) True.

Question 2: The Efros and Leung texture synthesis method uses a degree of randomization to select a match from among the good patch matches. What can be expected if we **increase** the degree of randomization for selecting patches? (Indicate which of the following statements are **true** and which are **false**).

(A) Unrealistic repeating patterns may appear in the texture.

(B) The accuracy of selected patches from the sample texture may decrease, leading to unrealistic textures.

(C) We will need to use a larger training sample of the texture to maintain similar performance.

(D) The method can run faster since we no longer need to compute the actual best match.

Solution: (A) False, (B) True, (C) True, (D) False

Short Answer Questions.

Question 3: It is common to use normalization of image patches when they are being matched for stereo correspondence. For the Efros and Leung texture synthesis method (as implemented in Assignment 3) would it further improve the results also to normalize patches in the matching step? Explain your answer with just one or two sentences.

Solution: No, normalization would allow patches with differing brightness to match, and this would create sharp lines at their boundaries.