Image Processing Expert Interview Questions And Answers Guide.

Image Processing Expert Job Interview Preparation Guide.

Question # 1

What do you meant by Zooming of digital images?

Answer:-

Zooming may be viewed as over sampling. It involves the creation of new pixel
locations and the assignment of gray levels to those new locations.

Read More Answers.

Question # 2

Explain the types of connectivity?

Answer:-

1. 4 connectivity
2. 8 connectivity
3. M connectivity (mixed connectivity)

Read More Answers.

Question # 3

What is the need for transform?

Answer:-

The need for transform is most of the signals or images are time domain signal (ie) signals can be measured with a function of time. This representation is not always
best. For most image processing applications anyone of the mathematical transformation are applied to the signal or images to obtain further information from that
signal.

Read More Answers.

Question # 4

List the hardware oriented color models?

Answer:-

1. RGB model
2. CMY model
3. YIQ model
4. HSI model

Read More Answers.

Question # 5

A continuous image is digitised at _____ points.
a) random
b) vertex
c) contour
d) sampling

Answer:-

d) sampling
Explanation: The sampling points are ordered in the plane and their relation is called a Grid.

Read More Answers.

Question # 6

Images quantised with insufficient brightness levels will lead to the occurrence of _____
a) Pixillation
b) Blurring
c) False Contours

d) None of the Mentioned

Answer:-

c) False Contours
This effect arises when the number brightness levels is lower that which the human eye can distinguish.

Question # 7

Define subjective brightness and brightness adaptation?

Answer:-

Subjective brightness means intensity as preserved by the human visual system.
Brightness adaptation means the human visual system can operate only from scotopic to glare limit. It cannot operate over the range simultaneously. It accomplishes this large variation by changes in its overall intensity.

Question # 8

Write the expression to find the number of bits to store a digital image?

Answer:-

The number of bits required to store a digital image is
b=M X N X k
When M=N, this equation becomes
$b=N^2k$

Question # 9

List the applications of color models?

Answer:-

1. RGB model- used for color monitors & color video camera
2. CMY model-used for color printing
3. HIS model--used for color image processing
4. YIQ model-used for color picture transmission

Question # 10

Write a procedure to implement highlight as a blinking operation?

Answer:-

The function textattr in conio.h can be use for this purpose a small program has presented here...
#include<conio.h>
int main()
{
textattr(129);
cprintf("My name is John Smith...");
return 0;
}
here in the textattr till 128 only colors would be set and more than it colors with blink.

Question # 11

Explain what are the differences between the books Digital Image Processing and Digital Image Processing?

Answer:-

Difference between the books is that Digital Image Processing (DIP) deals primarily with the theoretical foundation of digital image processing, while Digital Image Processing Using MATLAB (DIPUM) is a book whose main focus is the use of MATLAB for image processing. The DIPUM book covers essentially the same topics as DIP, but the theoretical treatment is not as detailed. Some instructors prefer to fill in the theoretical details in class in favor of having available a book with a strong emphasis on implementation.

Question # 12

For Dynamic range ratio the lower limit is determined by
a) Saturation
b) Brightness
c) Noise
d) Contrast

Answer:-

c) Noise
Noise is taken as the Denominator.

Question # 13

What is weber ratio?

Answer:-

The ratio of increment of illumination to background of illumination is called as weber ratio.(ie) ?i/i
If the ratio (?i/i) is small, then small percentage of change in intensity is needed (ie) good brightness adaptation.
If the ratio (?i/i) is large , then large percentage of change in intensity is needed (ie) poor brightness adaptation.

Read More Answers.

Question # 14

Find the number of bits required to store a 256 X 256 image with 32 gray levels?

Answer:-

32 gray levels = 25
= 5 bits
256 * 256 * 5 = 327680 bits.

Read More Answers.

Question # 15

What is Image Transform?

Answer:-

An image can be expanded in terms of a discrete set of basis arrays called basis images. These basis images can be generated by unitary matrices. Alternatively, a given NxN image can be viewed as an N^2times1 vectors. An image transform provides a set of coordinates or basis vectors for vector space.

Read More Answers.

Question # 16

How to increase the quality of an image?

Answer:-

Image enhancement process is purely dependent on the application where we need to use the enhanced image and the type of degradation in the image. Few solutions from my basic knowledge
1. If image contain so much noises, apply filtering operations such as mean/median etc.
2. If the image is looking too dark or or too bright apply histogram equilization process to improve the contrast.
3. If the image is blurred apply sharpening operations in the image.

Read More Answers.

Question # 17

What is the tool used in tasks such as zooming, shrinking, rotating, etc.?
a) Sampling
b) Interpolation
c) Filters
d) None of the Mentioned

Answer:-

b) Interpolation
Interpolation is the basic tool used for zooming, shrinking, rotating, etc.

Read More Answers.

Question # 18

Dynamic range of imaging system is a ratio where the upper limit is determined by
a) Saturation
b) Noise
c) Brightness
d) Contrast

Answer:-

a) Saturation
Saturation is taken as the Numerator.

Read More Answers.

Question # 19

What is recognition and Interpretation?

Answer:-

Recognition means is a process that assigns a label to an object based on the information provided by its descriptors.Interpretation means assigning meaning to a recognized object.

Read More Answers.

Question # 20

What is simultaneous contrast?

Answer:-

The region reserved brightness not depend on its intensity but also on its background. All centre square have same intensity. However they appear to the eye to

become darker as the background becomes lighter.

Question # 21

What is Luminance?

Answer:-

Luminance measured in lumens (lm), gives a measure of the amount of energy an observer perceiver from a light source.

Question # 22

What is Hue and saturation?

Answer:-

Hue is a color attribute that describes a pure color where saturation gives a measure of the degree to which a pure color is diluted by white light.

Question # 23

The transition between continuous values of the image function and its digital equivalent is called _____
a) Quantisation
b) Sampling
c) Rasterisation
d) None of the Mentioned

Answer:-

a) Quantisation
The transition between continuous values of the image function and its digital equivalent is called Quantisation.

Question # 24

The type of Interpolation where the intensity of the FOUR neighbouring pixels is used to obtain intensity a new location is called _____
a) cubic interpolation
b) nearest neighbour interpolation
c) bilinear interpolation
d) bicubic interpolation

Answer:-

b) nearest neighbour interpolation
Bilinear interpolation is where the FOUR neighbouring pixels is used to estimate intensity for a new location.

Question # 25

Specify the elements of DIP system?

Answer:-

1. Image Acquisition
2. Storage
3. Processing
4. Display

Question # 26

Write short notes on neighbors of a pixel?

Answer:-

The pixel p at co-ordinates (x, y) has 4 neighbors (ie) 2 horizontal and 2 vertical neighbors whose co-ordinates is given by $(x+1, y)$, $(x-1,y)$, $(x,y-1)$, $(x, y+1)$. This is called as direct neighbors. It is denoted by N4(P)
Four diagonal neighbors of p have co-ordinates $(x+1, y+1)$, $(x+1,y-1)$, $(x-1, y-1)$, $(x-1, y+1)$. It is denoted by ND(4).
Eight neighbors of p denoted by N8(P) is a combination of 4 direct neighbors and 4 diagonal neighbors.

Question # 27

The smallest discernible change in intensity level is called _____
a) Intensity Resolution
b) Contour
c) Saturation
d) Contrast

Answer:-

a) Intensity Resolution
Number of bits used to quantise intensity of an image is called intensity resolution.

Question # 28

Quantitatively, spatial resolution cannot be represented in which of the following ways
a) line pairs
b) pixels
c) dots
d) None of the Mentioned

Answer:-

d) None of the Mentioned
All the options can be used to represent spatial resolution.

Read More Answers.

Question # 29

The type of Interpolation where for each new location the intensity of the immediate pixel is assigned is _____
a) bicubic interpolation
b) cubic interpolation
c) bilinear interpolation
d) nearest neighbour interpolation

Answer:-

d) nearest neighbour interpolation
Its called as Nearest Neighbour Interpolation since for each new location the intensity of the next neighbouring pixel is assigned.

Read More Answers.

Question # 30

What are the differences between Structural Patterns & Morphological Structural Element?

Answer:-

In software engineering, structural design patterns are design patterns that ease the design by identifying a simple way to realize relationships between entities.

Read More Answers.

Question # 31

List the categories of digital storage?

Answer:-

1. Short term storage for use during processing.
2. Online storage for relatively fast recall.
3. Archival storage for infrequent access.

Read More Answers.

Question # 32

What is illumination and reflectance?

Answer:-

Illumination is the amount of source light incident on the scene. It is represented as i(x, y).
Reflectance is the amount of light reflected by the object in the scene. It is represented by r(x, y).

Read More Answers.

Question # 33

What is meant by illumination and reflectance?

Answer:-

Illumination is the amount of source light incident on the scene. It is represented as i(x, y).   Reflectance is the amount of light reflected by the object in the scene. It is represented by r(x, y).

Read More Answers.

Question # 34

Do you know what is Rectification in image processing?

Answer:-

Image rectification is a transformation process used to project two-or-more images onto a common image plane. It
corrects image distortion by transforming the image into a standard coordinate system.
It is used in computer stereo
vision to simplify the problem of finding matching points between images.
It is used in geographic information systems to
merge images taken from multiple perspectives into a common map coordinate system.

Read More Answers.

Question # 35

What are the steps involved in DIP?

Answer:-

1. Image Acquisition

2. Preprocessing
3. Segmentation
4. Representation and Description
5. Recognition and Interpretation

Read More Answers.

Question # 36

Explain subjective brightness and brightness adaptation?

Answer:-

Subjective brightness means intensity as preserved by the human visual system.Brightness adaptation means the human visual system can operate only from scotopic to glare limit. It cannot operate over the range simultaneously. It accomplishes this large variation by changes in its overall intensity.

Read More Answers.

Question # 37

What do you meant by shrinking of digital images?

Answer:-

Shrinking may be viewed as under sampling. To shrink an image by one half, we delete every row and column. To reduce possible aliasing effect, it is a good idea to blue an image slightly before shrinking it.

Read More Answers.

Question # 38

What is image translation and scaling?

Answer:-

Image translation means reposition the image from one co-ordinate location to another along straight line path.
Scaling is used to alter the size of the object or image (ie) a co-ordinate system is scaled by a factor.

Read More Answers.

Question # 39

Define Resolutions?

Answer:-

Resolution is defined as the smallest number of discernible detail in an image.Spatial resolution is the smallest discernible detail in an image and gray level resolution refers to the smallest discernible change is gray level.

Read More Answers.

Question # 40

Differentiate photopic and scotopic vision?

Answer:-

Photopic vision Scotopic vision
1. The human being can resolve the fine details with these cones because each one is connected to its own nerve end.
2. This is also known as bright light vision.

Read More Answers.

Question # 41

What are sampling and quantization?

Answer:-

Sampling means digitizing the co-ordinate value (x, y).Quantization means digitizing the amplitude value. Several rods are connected to one nerve end. So it gives the overall picture of the image.This is also known as thin lightvision.

Read More Answers.

Question # 42

Define sampling and quantization?

Answer:-

Sampling means digitizing the co-ordinate value (x, y).
Quantization means digitizing the amplitude value.

Read More Answers.

Question # 43

What is meant by machband effect?

Answer:-

Machband effect means the intensity of the stripes is constant. Therefore it preserves the brightness pattern near the boundaries, these bands are called as machband effect.

Read More Answers.

Question # 44

Define Brightness?

Answer:-

Brightness of an object is the perceived luminance of the surround. Two objects with different surroundings would have identical luminance but different brightness.

Read More Answers.

Question # 45

How cones and rods are distributed in retina?

Answer:-

In each eye, cones are in the range 6-7 million and rods are in the range 75-150 million.

Read More Answers.

Question # 46

Explain what is simultaneous contrast?

Answer:-

The region reserved brightness not depend on its intensity but also on its background. All centre square have same intensity. However they appear to the eye to become darker as the background becomes lighter.

Read More Answers.

Question # 47

What is meant by path?

Answer:-

Path from pixel p with co-ordinates (x, y) to pixel q with co-ordinates (s,t) is a
sequence of distinct pixels with co-ordinates.
35. Give the formula for calculating D4 and D8 distance.
D4 distance (city block distance) is defined by
$D4(p, q) = |x-s| + |y-t|$
D8 distance(chess board distance) is defined by
$D8(p, q) = max(|x-s|, |y-t|)$.

Read More Answers.

Question # 48

What do you meant by Gray level?

Answer:-

Gray level refers to a scalar measure of intensity that ranges from black to grays and finally to white.

Read More Answers.

Question # 49

Define Digital image?

Answer:-

When x, y and the amplitude values of f all are finite discrete quantities , we call the image digital image.

Read More Answers.

Question # 50

What is meant by mach band effect?

Answer:-

Mach band effect means the intensity of the stripes is constant. Therefore it preserves the brightness pattern near the boundaries, these bands are called as mach band effect.

Read More Answers.

Question # 51

What is geometric transformation?

Answer:-

Transformation is used to alter the co-ordinate description of image.
The basic geometric transformations are
1. Image translation
2. Scaling
3. Image rotation

Read More Answers.

Question # 52

What is meant by pixel?

Answer:-

A digital image is composed of a finite number of elements each of which has a particular location or value. These elements are referred to as pixels or image elements or picture elements or pixls elements.

Question # 53

What is Chromatic Adoption?

Answer:-

The hue of a perceived color depends on the adoption of the viewer. For example,the American Flag will not immediately appear red, white, and blue of the viewer has been subjected to high intensity red light before viewing the flag. The color of the flag will appear to shift in hue toward the red component cyan.

Question # 54

What are the types of light receptors?

Answer:-

The two types of light receptors are
• Cones and
• Rods

Question # 55

What do you meant by Color model?

Answer:-

A Color model is a specification of 3D-coordinates system and a subspace within that system where each color is represented by a single point.

Question # 56

What is Dynamic Range?

Answer:-

The range of values spanned by the gray scale is called dynamic range of an image. Image will have high contrast, if the dynamic range is high and image will have dull washed out gray look if the dynamic range is low.

Question # 57

Calculate the storage capacity per image for hdtv given its resolution as 1920 x 1024 pixels and the color format is 24bits/pixel?

Answer:-

No Answer is Posted For this Question

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