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① Discuss the significance of sampling and quantization in processing of digital imaging.

~~Inorder to become suitable for~~.

More formally we define image as two dimensional intensity function, say (x,y) where x and y are the cordinates representing horizontally and vertically. ~~where x and y are the cordinates to~~. In order to process the image an image function (x,y) must digitized both spatially and on amplitude. Typically, a frame grabber or digitizer is used to sample and quantize the analog signal. Hence inorder to create digital image, we need to convert continous data into digital form. This process involves sampling and Quantization process.

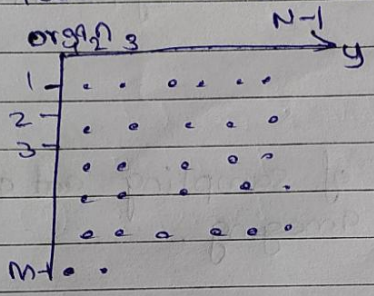
The sampling rate governs the spatial resolution of digitized image, while the quantization level fixes the number of grey levels in the digitized images. A magnitude of the sampled image is expressed as digital ~~image in~~ value in image processing. The change over between continous value of the image function and its digital equivailent is called quantization.

The number of quantization level should be high enough for human perception of

"The degree of slowness proportional to the intensity of memory. of speed is directionally

fine shading details in image.

Two dimensional representation of a image



we can notice here the reason to perform sampling and quatization on a given analog image to digital image. In order to perform operation on an analog signal with digital computer. we have store that signal on the cmptr.

(Q) Discuss the importance of image prepossing in understanding the digital image data.

Preprocessing denotes operations on images at the lowest level of abstraction where both input and output images are intensity images. The aim of preprocessing is an improvement of image data that eliminates disortion for futher processing.

Image enhancement, is most appealing preprocessing technique. Bassically idea behind enhancement technique is to bring out details that is obscured. and highlight contain feature of interest in an image.

The 4 categories of image preprocessing metho

acording to the size of pixel neighborhood that is used for calculation of a new pixel brightness

:- pixel brightness transformation
- geometric transformations.
- Preprossing methods that use local neighborhood of the processing pixel
- image restoration

image pre processing methods use the considerable redundancy on image

③ Justify image analysis and understanding an useful task for better society

1. Harvesting
2. Quality detection
3. cleaning
4. Disease identification

Remote sensing

Remote sensing is the acquisition of information about an object.

Security and surveilance:

Surveillance cameras such as these are installed by millions in many countries. It captures images. It reduce manpower.

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(5) explain imag representations

After an imag has been segmented into regions the resulting pixels is usually represented in Suitable form for futher processing.

Representation involves two choice
① external characteristics
② internal characteristics

first one focusses on shape
2nd one is color and characteristics.

Technique of representain
① chain codes
② polygonal approximation
③ Signatures
④ skeletons
⑤ Boundary segments

④ Discuss the importance of biometric technology considering the current application

Bio metric technology generally refer to use of tech nology to identify a person based on some aspect of their biology.

① Finger print recognization is one of the bio metric technology.

② Banking :-
1. document verification
2. person authentication
3. Banker cheque analysis

③ Remote sensing :-
It is the acquisition of information about an object or phenomenon without making physical contact with the object

④ Security Surveiliance :-
Surveiliance cameras such as these are installed by the millions in many countries, and are howa days monitored by automated computer programs ~~and~~ instead of persons.

⑤ face lock :-
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