II Mac (Compular ) calpasamente

Image Processing

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Dat Homo, HRaj. N. Date: 26-10-20. 1) Discuss the significance of sampling and quantity 2) Disuss the importance of image pre-processing in understanding the digital image data (4)

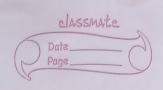
3) Justify image analysis and understanding is on
useful tash for better society building (4)

4) Discuss the importance of biometric technology
considering the current applications. (4)

5) Explain Image representation. (4) In order to become suitable for digital processing an image function f(x, y) must be digitaled both spatially and in amplitude. Typically a frame grabber or digitizer is used to sample and quentize the analogue video stal signal. Hence in order to exect an image which is digital, we need to convert continuous deta inho digital form. There are two steps

1. which it is done!

. Sampling
. Quantization The sampling rate determines the spatial resolution of the digitized image while the quentization level determines the number of girly levels the digitized image. A magnitude of the sampled image is expressed as a digital value in image processing. The transition between continuous values of the image function and its digital equivalent is called quentization The number of questication levels should



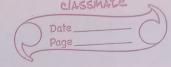
should be high enough for human perception of fine shedly details in the image. The occurance of filse contours is the main problem in image which has been quartical, with insufficient brightness levels.

picorosis mans

Pre-processing involves operations on image, at the lowest level of abstraction where both input and output images are intensity images. The aim of pre-processing is an improvement of the image data the clininate distributions or enhances some image features suitable for further processing. Image enhancement is the most appealing pre-processing technique. Basically the idea behind enhancement techniques is to bring out detail that is obscured or simply to highlight centain features of interest in an image such as , changing brightness & contrast sete

3) Image analysis is the extraction of meaningful information from images; mainly from digital images by means of digital image processing techniques. Image analysis tasks can be as simple as reading bar coded tags an as sophisticated as identifying a person from their face.

Computers are indispensable for the analysis of large amounts of data, for tasks that require compex computation or for the extraction of quantitative information. On the other hand the human visual cortex is an excellent image analysis apparatus, especially for extracting higher-level information and for may



applications - including medicine, security and remote sensing - human analysts still compate be replaced by computers. For this reson many important image analysis hals such as edge detectors and heatral networks are imprired by human visual perception models. 4) It is common to have physical and behaving oral characteristics to authoritiste a person Then are several sechors which adopt bionitie based person authorticettes for secure transactions airport entry etc. The
laind of brometrics varies from face
signature, palm-print, car to spiech and
many more

Biomitries of Authentication of a person -> Banking

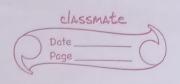
-> Airport

-> Electronic volty

-> Defense sectors

-> Secured transactions The most common Biomehics are, > Figerprint -> Volc 1 -> Hondohope -> 3D foce -> Rehina -> Palmprint -> Dignative

-> Earshape



5) Image Representation:

Sclecking a good representation is only part of
the solution for transforming image doka into form
suitable for succeeding processing. Description
also called feature extraction that deals with
extraction at hibutes that result in some quantitative information of interest and are basic for discriminating one calls of digeo from another. The feature extraction technique extracts high-level features needed in order to perform classification of objects under objects under which uniquely describe an object such as its size shope composition, location etc Measureable quantities of object features allow description and dossification of