Mr ANOULACK HONSANITH (MSC)

Image processing Test

(1) Discuss the significance of sampling and quandization in processing of digital images (4)

(2) Discuss the importance of image pre-processing in understanding the digital image data (a)

(3) justify image analysis understanding is an use-ful task setter society building (4)

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

(5) Explain image representation.

①

* sampling and quandization

The sampling rate determines the spatial resolution of the digital image, while the quantization level determines the number of grey level in the digitized image. A magnitude of the samped image is expressed as a digital value in image processing. The transition between continous values of the image function and its digital equivalent is called quantization

The number of quantization levels should be high enough for human perception of fine shading details in the image. The occurrence of false contours is the main problem in image which has been quantized with insufficient brightness levels

sampling and quandization will be definined properly

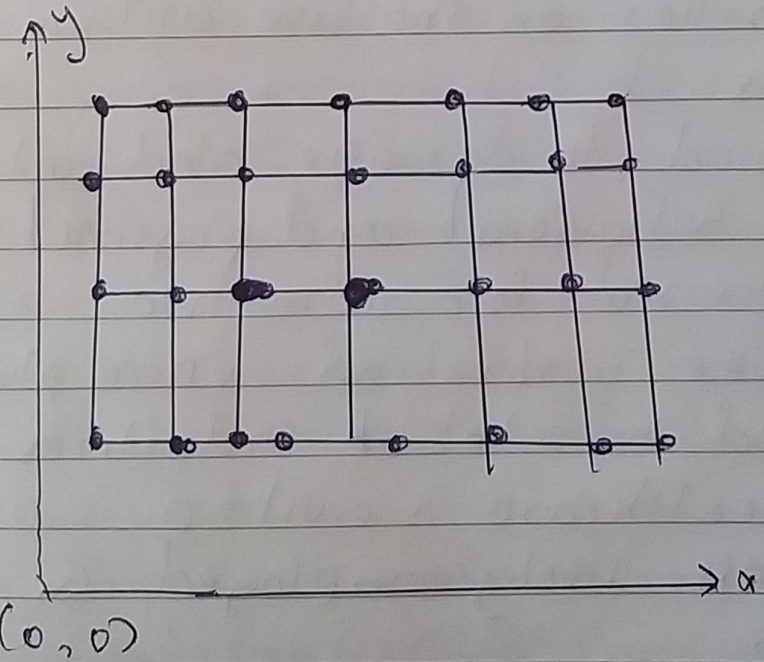
⑤ image Representation

In computer science, we can represent an image in various forms. Most of the time, it refers to the way that

brings information, such as color is coded digitally, and how the image in stored, i.e., how an image in structured.

several open standard as were recommended to create, manipulate, store and exchange digital image. The rules described the format of image files, the algorithms of image encoding, the form of additional information often as metadata.

A digital image is the composition of individual pixel or picture element. The pixels are arranged in the form of row and column to form a picture area



(4)

Biometric technology is capable of ensuring fast and reliable protected access to information. currently, techniques such as password verification have a lot of issues causing people to write them down and forged them at times which leads to stealing and hacking.

- is very useful for ID verification in range of goverments organizations, banks and financial institutions, and high security areas.
- one of the main advantages associated with biometric technology is high individual identification accuracy. Biometrics relies on the use unique physical traits.
- is less exposed to damage and sudden changes. The behavioral and physical elements accersed for biometric verification like iris, retina, voice, pluse...
- can be used in alot of industries such as healthcare, civil ID...
- can be effectively employed in forensics.

- can be used to averd illicid aeceis of ATMs, phones, smard..
- can fingerprinds won't be lost and can't be addained and copied by some one aiming do illegally gain aecess

(2) pre-processing is a comon name for operations with image ad the lowest level of asstraction - both input and output are intensity images. Theye inconic images are of the same kind as the original data captured by the sensor. The pre-processing is an improvement of the image data that suppresses unwilling distortions or enchances some image feautures impodand for further processing, although geometric transformation of images (e.g rotation, sealing, translation) are classified among pre-processing method here since similar techinques are used

- The first group of methods uses no knowledge asoud the nature of the

degradation; only very general properties of the degradation are assumed
- A second group assumes knowledge about the properties of the image acquisition device, and the conditions under which the image was obtained. The nature of noise (usually is spectral characteristics) is sometime known
- A third approach uses knowlaged about objects that are searched for in the image, which many simplify the pre-processing very considerably

(3)

image analysis is the extraction of meaningful information from images; mainly from digital images processing techniques. Image analysis taks can be as simple as reading bar coded tags or as sophisticated as identifying a person from their face

computers are indispensable for the analysis of large amounds of data for task the require complex computation or for the extraction of quandidative

information. on the other hand, the human visual cortex is an excellent image analysis apparatus, especially for extracting higher-level information and for many applications including medicine, security, and remote sensing human analysis still cannot be replaced by computer.