

Image Processing

① Define image processing and computer vision.

"The area of Image analysis is in between Image processing and computer vision". Explain.

Ans: Image Processing: Image processing is a method to convert an image into digital form and perform some operations on it, in order to get an enhanced image or to extract some useful information on it.

Computer Vision: Human use their eyes and their brains to see and visually sense the world around them. Computer vision is the science that aims to give a similar, if not better capability to a machine or computer.

Computer vision concerned with the automatic extraction, analysis and understanding of useful information from a single image or a sequence of images.

-Image analysis is the extraction of meaningful information from images. Computer image Analysis largely contains the field of computer or machine vision and medical imaging, image processing and makes heavy use of pattern recognition, digital geometry and signal processing.

so, The area of Image analysis is in

between Image processing and computer vision.

2. How image processing is necessary in medical sector and in telecommunication.

~~Medic~~

Image processing provides core innovation for medical imaging. Current advances in medical imaging are made in field such as instrumentation, diagnostics and therapeutic application and most of them are based on imaging technology and image processing. Image processing has been established as a core field of innovation in modern health care.

In Medical sector, image processing techniques have been used for assisting in diagnosis and research. Various techniques for image improvement like image enhancement and image restoration

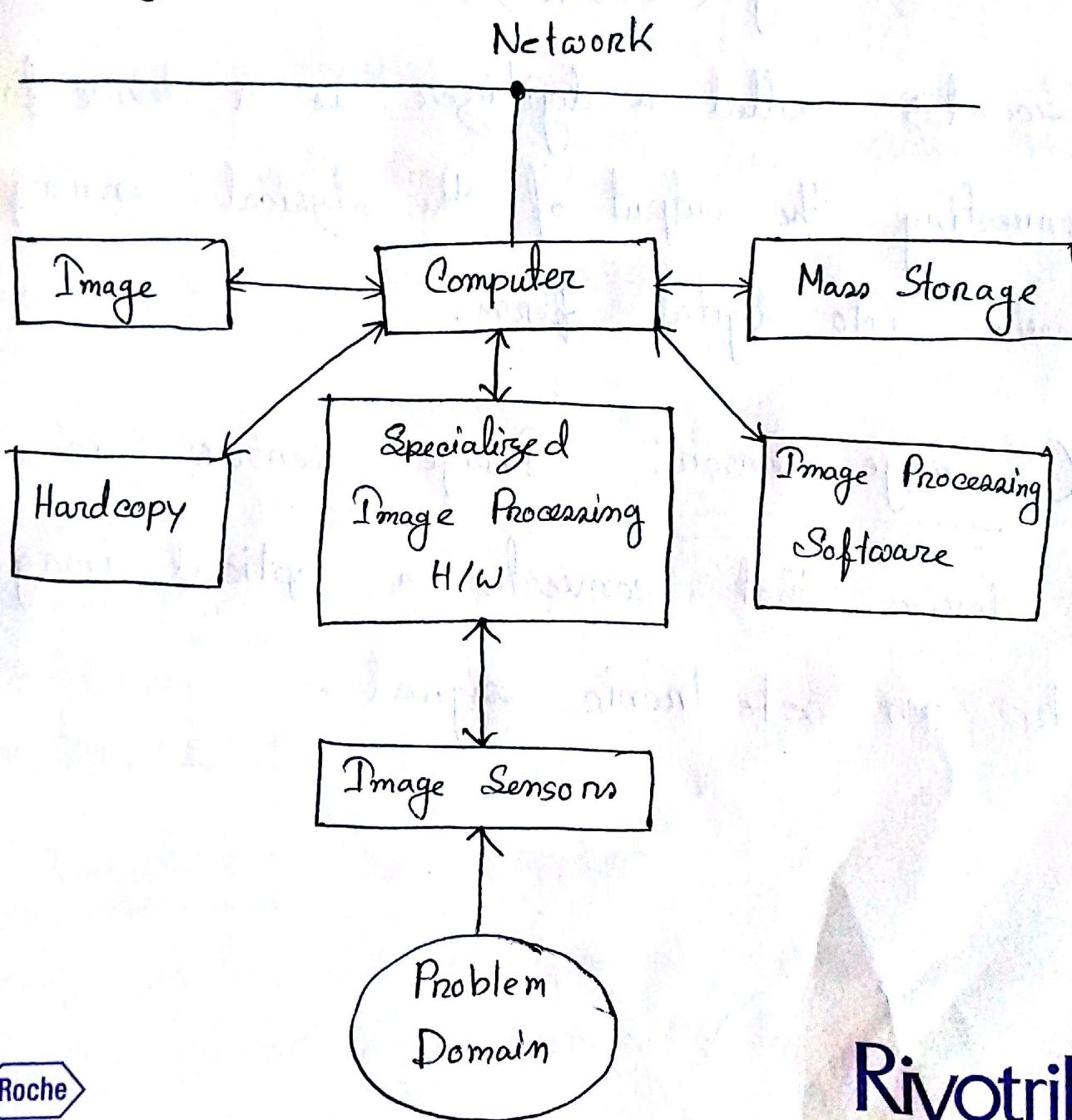
are used. Image analysis techniques including morphological image processing, edge detection, image feature extraction, image segmentation, shape analysis find much use in the medical field. 2 dimensional images to provide a 3 dimensional image structure, automated detection which largely depends on what kind of images are being processed.

Image processing techniques are used in telecommunications, video desk, video conferencing, video calls, etc. tasks are held by processed image techniques.

Q What are the components of general purpose image processing system.

The following components are used in general purpose

- image processing system.



Two elements are required to acquire digital images

First → is the physical device that is sensitive to the energy radiated by the object we wish to image (Sensor).

Second → called a digitizer, is a device for converting the output of the physical sensing device into digital form.

① Image Sensor: Image sensor is a device that converts a optical image into an electronic signal.

② Specialized Image Processing H/W:

Usually consists of the digitizer, mentioned before - plus hardware that performs other primitive permutation operations, such as an arithmetic logic unit (ALU), which performs arithmetic and logical operations in parallel on entire images.

③ Processing Software:

- * RISC vs CISC
- * MIMD
- * SIMD
- * PIPELINES

④ Computer: The computer in an image processing system is a general purpose computer - and can range from a PC to a Supercomputer.



Rivotril
clonazepam

④ Mass Storage:

There are three different types of digital storage that are available for digital image processing applications.

① short term storage

② Online Storage

③ Archival storage.

⑤ Hardcopy devices:

Used for recording images, include laser printers, film cameras, heat sensitive devices, inkjet units and digital units such as optical and CD-Rom disks.

⑥ Image Processing Software:

It is the algorithm that runs on your hardware to achieve specific results. This software can be your own designed algorithm or we can just be an end user.

⑦ Image Displays: A display device is

an output device for presentation of information in visual.

⑧ Networking:

Networking is almost a default function in any computer system in use today..

④

What is the main difference between Gray image
and binary image.

- * Gray Image represented by black and white shades on combination of levels. For 8 bit gray image means total $2^8 = 256$ level from black to white.
- * Binary image has only two values for each pixel 0 and 1 corresponding to black and white.