

### **Notes from Digital Image Processing**

1. There are several types of images - Binary images, Grayscale images, Color images. The primary purposes of image processing are - Visualization, Image restoration, Image retrieval, Pattern recognition, Image acquisition, Image enhancement, Image restoration, Image segmentation.
2. Traditional image processing algorithms are Morphological image processing, Gaussian image processing, Fourier transform image processing, Wavelet image processing. If a picture is  $500 \times 400$  (width x height), then 200000 pixels make up the entire image.
3. The levels of computer vision are categorized as Low- Level vision, Mid-Level vision, High- Level vision.
4. Brains (maybe) came after eyes! More than 30 different substructures in brain for processing visual data. About 1 million ganglia in the eye transit compressed information.
5. An image is a projection of the 3D world onto a 2D plane. An image is essentially a matrix of light values.

### **Types of healthcare reports and medical imaging reports**

#### **Healthcare reports-**

1. History and physical examination report
2. Radiology report
3. Operative report
4. Pathology report
5. Discharge summary
6. Death summary
7. Autopsy report
8. Outpatient model report

#### **Medical Imaging reports-**

1. X-ray and Radiography : Uses electromagnetic radiation to create images.
2. CT(Computed Tomography) : Combines multiple x-rays from different angles to create detailed cross-sectional slices.
3. MRI(Magnetic Resonance Imaging) : Uses strong magnets and radio waves to generate highly detailed images of soft tissues, brain, spinal cord and joints without radiation,
4. Ultrasound( Sonography) : Uses high- frequency sound waves to produce real-time images .
5. Mammogram : Two types of mammograms are offered in the battle against breast cancer: screening and diagnostic mammograms. Screening mammograms are used to first detect any abnormalities. Diagnostic mammograms check for malignancy after a lump or thickening in the breast has been detected.
6. Fluoroscopy : While other tests are comparable to still photography, a fluoroscopy is like a motion picture of bodily functions.

7. PET scans : A PET scan, also known as positron emission tomography scan, is like disease detection in the body, revealing problems happening at the cellular level. The procedure involves introducing radioactive tracers into the body.