

Medical Imaging

LECTURE FOUR

Introduction to Medical Imaging

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Medical imaging refers to techniques and processes used to create images of various parts of the human body for diagnostic and treatment purposes, or it is the use of imaging modalities and processes to get pictures of the human body, which can assist diagnosis and treatment of patients. Medical imaging can be divided into many classification, such as:

- 1) X-ray radiography
 - i) Plain Radiograph/X-ray: It is represent the simplest medical images of the human body by using X-ray
 - ii) Computed Tomography (CT): It is a medical imaging system that creates 3D cross-sectional images of the internal body using complex x-ray and computer from a 'virtual pile of X-ray photographs'. The x-ray generator is rotated within 1° to 180°
 - iii) Fluoroscopy: It is a type of medical imaging that produces a continuous live' X-ray image of the patient's internal structures on a monitor.
 - iv) Mammography: It is a special type of X-ray imaging used to create detailed images of the breast and is commonly used in screening for breast cancer.
 - v) Angiography: It is a specific type of X-ray technique for viewing blood vessels and organs, especially the heart, by injecting a contrast agent into the blood that enhances its visibility on the X-ray image.
- 2) Ultrasound: imaging is a type of medical imaging that uses high-frequency sound waves (frequencies above 20,000 Hz - ultrasonic range) to look at organs and structures inside the body
- 3) Magnetic resonance imaging (MRI): It is a medical imaging system for obtaining