

5 interesting points

1. Simple Eyes existed before complex brains :

Early organisms had basic light sensing eyes before advanced brains evolved, suggesting that vision may have driven brain development rather than the other way around.

2. We can see without being aware of it: Blindsight proves that visual information can guide actions even when conscious vision is lost, revealing that vision has unconscious processing pathways.

3. Peripheral Vision evolved for survival: side vision is more sensitive to motion, helping detect threats quickly. This explains why we notice movement at the edges of our vision faster than details in the center.

4. Human Vision is Computationally Intensive: 30% of the cerebral cortex is devoted to vision. This computational load explains why building effective computer vision systems often requires significant processing power, as seen with large GPUs used for training models

5. Digital Camera Sensors Mimic Human Eye Sensitivity: To capture color information using a single sensor array, cameras use a Bayer pattern, which is a filter grid that assigns red, green, or blue filters over individual sensor points. This pattern incorporates twice as many green filters as red and blue filters, directly reflecting the fact that the human eye has a much higher concentration and response to light in the green spectrum.

HEALTH CARE REPORTS:

Healthcare reports are essential documents used to record , analyze, and communicate patient information. These reports help doctors make decisions, track progress, plan treatments, and diagnoses. These reports ensure continuity of care , support, billing and legal processes, serve as a permanent record of the patient's medical journey.

COMMON TYPES OF HEALTHCARE REPORTS

1. Clinical reports , contains doctor's observations , medical history, symptoms , diagnosis , and treatment plans.

2. Laboratory Reports: include results of blood tests , urine tests , stool and other body fluids. They provide numerical values , reference ranges and interpretations.

3. Radiology Reports: reports document the interpretation of medical images produced using imaging technologies like X-ray , CT scans , MRI scans , and ultrasounds. These reports contains observations, detected abnormalities and a final impression. These are prepared by radiologists.

4. Pathology report: pathology reports present the results of tissue , cell or fluid analysis, after obtained through biopsies or surgical samples. These reports are very essential and critical in diagnosing diseases such as cancer

5. Discharge summaries : a discharge summary is prepared when a patient is leaving the hospital.it provides a comprehensive overview of the patient's hospital stay.which include reason for admission, diagnosis, treatment and procedures performed, medications and follow up instructions.
6. Operative reports: Operative reports are written by surgeons after a surgical procedure. They give a step-by-step account of the operation. this includes preoperative diagnosis, surgical procedure performed, findings during surgery, and complications if any.
7. history and physical (H&P) Report : The H&P Report is a fundamental critical document created at the time of patient admission. It records the patient's medical history, present illnesses, past medical and surgical history , family history and physical examination results.
8. Progress report : These reports are the regular entries made to document the patient's ongoing condition. These contain daily observations, response to treatment, changes in diagnosis, or care plan.

MEDICAL IMAGING REPORTS:

Medical imaging reports are written interpretations of medical images prepared by radiologists. These reports help physicians understand what the images reveal about a patient's condition.

Common Medical Imaging Modalities.

1. X-Ray : Used to examine bones, fractures , chest conditions, and lung infections.
2. Computed Tomography (CT) : Produces detailed cross- sectional images of organs, blood vessels, and bones.
3. Magnetic Resonance Imaging (MRI) : Provides high Resolution images of soft tissues such as brain , spinal cord, muscles, and ligaments.
4. Ultrasound: Uses sound waves to visualise organs, pregnancy developments, and blood flow .

Structure of a medical imaging report :

1. Patient Information:
Name, age, gender, and identification details.
2. Type of Examination:
Specifies the imaging technique used and body part scanned.
3. Clinical History:
Brief information about symptoms or medical concerns.
4. Findings:
Detailed observations of normal and abnormal structures.
5. Impression / Conclusion:
Summary of key findings and possible diagnosis.

Importance of Medical Imaging Reports

1. Early detection of diseases: these reports help in identifying diseases at an early stage, often before symptoms become severe. For example, small tumors, internal bleeding, or early stage infections can be detected.
2. Support Accurate Diagnosis: Imaging reports provide detailed insights into the structure and condition of internal organs and tissues. By analyzing scans such as MRI or CT, radiologists can distinguish between normal and abnormal findings.
3. Guide Treatment Planning and Surgery: Medical imaging reports are essential for planning medical treatments and surgical procedures. Surgeons rely on imaging to understand the exact size, location, and spread of a disease. This allows for precise surgical planning, minimizes risks, and improves the success rate of interventions.

Role of Computer Vision in Medical Imaging

1. To detect tumors and abnormalities.
2. Segment organs and tissues.
3. Assist radiologists in diagnosis.
4. Improve speed and accuracy of reports.