

Name

Agil lehan

ID.

15022

paper

CR-DR

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Q1 Describe the Feature of preprocessing and postprocessing.

Ans Feature preprocessing is the most important step in data mining. In this post I will introduce you to the concept of feature preprocessing its important in different machine learning models and different feature preprocessing techniques for numerical feature.

The quality of the model largely depends on the data that.

(2)

is fed into the
model. When that data
mining processes some
of the data are
missing we refer to this
missing values. Also it
is highly susceptible
to contain noise. This
results in poor
quality data and
you might have
heard before the
model only good
as the data
is trained on.

(3)

→ Post processing with
blob filters is
Conducted to correct
local errors based
on semantic consistency
constraint e.g. the
region of road and
buildings should be
homogenous without
small spots of
tree or lawn inside
on the other
hand gaps are
allowed for trees
and lawn.

(4)

DoV middle of a lawn

The post processing also

Caused by data

artifacts and improves

plausibility of result

the size of the

blobs to be filtered

determined based on

the empirically derived

adapted a varying

data resolution & quality.

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(5)

Q2 Distinguish b/w spatial resolution and contrast resolution:

Ans Spatial resolution:

- Spatial resolution (resolution in space) is the ability of an imaging system to resolve and/or render on the image * small high-contrast object

In medical imaging spatial resolution is described by the spatial resolution.

(b)

⇒ Contrast resolution:

Contrast resolution is the ability to distinguish

many shades of gray

from black to white

• All digital imaging have better contrast resolution than screen film imaging

• the principal descriptor of

~~res~~ contrast resolution is

gray scale also called

dynamic range

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(7)

Q3

Discuss the characteristic of digital imaging that should result in lower patient radiation doses.

Ans

Characteristic of a Digital Image:

A digital image begins as an analog signal through computer data processing the image become digitized and is sampled multiple time. The critical characteristics of a digital image are spatial resolution, contrast resolution

(8)

noise and dose

efficiency (OD the

receptor) however to

fully grasp how a

digital image is formed

an understanding of

its basic component

is necessary.

→ patient radiation doses.

- CR plates have lower

speed typically speed.

- Data manipulation tools

available. For digital

image processing.

(9)

- more added filtration and
~~at~~ ICVP may be used
to reduce patient dose.
DR.

usually DR speed
is faster
- DR speed can be
programmed according to
the acceptable image
noise level



(10)

Q4 Discuss feature of an active matrix liquid crystal display.

Ans An active-matrix liquid crystal display (AMLCD) is a type of flat panel display. The only viable technology for high resolution TVs, computer monitors, note book, tablet computers and smart phone with LCD screen due to low weight, very good image quality, wide color gamut and response time.

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Q5

Identify application of the picture archiving and communication system.

Ans

PACS (Picture archiving and communication system) is a medical imaging technology used primarily in health care organization to securely store and digitally transmit electronic images, and clinically-relevant reports. The use of PACS eliminates the need to manually file

(12)

Sensitive information
store film and report

Instead medical
documentation and

images can be housed
in off site server

and safely accessed
essentially from

anywhere using PACS

software workstation

and mobile

devices.

PACS

- PACS improves image interpretation processing viewing storage and recall.

- the four principal components of PACS are image acquisition system the display system the network and flat storage systems



(14)

Q6

Discuss the three
types of digital
radiographic imaging
artifacts and how
to avoid them.

Ans Digital radiographic imaging
artifacts.

Show a lateral chest
image with an
unusual superimposed
pattern on the
anatomy. This is an
example of
CR image obtained
with cassette
reversed where.

the tube side of
 cassette is pointed away
 from the x-ray tube
 source and toward
 the patient. Cassette
 plastic structural patterns
 are projected onto the
 imaging plate
 particular noticeable
 in the arms and
 anterior part of the
 patient in this
 image a reversal
 of left right
 can also be
 recommended



(1b)

Q7

Describe the basic
for data compression
the different b/w
losses and lossy
compression

Ans

The main difference
b/w the two compression
techniques lossy compression
and lossless compression
is that the lossy
compression techniques
does not restore
the data in
its original form
after decompression
on the other

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lossless compression
restores and
rebuilds the
data in its
original form
after them.



Q8

(18)
Identify the difference
blw. for processing
image for presentation
image

Ans

Processing image

In Computer Science digital
image processing is the
use of a digital
Computer to process digitized
image through an
algorithm. As a subcategory
or field digital signal
processing has over
analog image
processing.

(14)

⇒ presentation image.

Your presentation image allow you to showcase your story through visuals. Whether you choose photograph graphic design element and so on your imagery is key helping you make your main point helping your audience to visualize your point is essential to a good presentation.



Q9 Explain how digital radiographic image artifact because collimation partition or ligament.

Ans Digital Radiography image artifact image patterns from the plastic support structure in the CR cassette are superimposed on the anatomy caused by the placement of the imaging plate and the cassette upside

(21)

down in the
cassette holder
collimation - partition:

if the x-ray exposure

field not properly

collimated size and positioned

exposure field recognition

error may occur

- the result is very

dark or very light very

noisy image

radiation field essential

for artifact image

- the projected area

x-ray beam important

(22)

is important patient
reduction improves
contrast screen film

in BA DR proper
collimation has added
value defining histogram
improperly collimate can
be analyzed resulting
an artifact.

proper collimate and
centering prevent
histogram that
can be lead
artifact.