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Q.1
(a) · Computer vision and image processing ⇒

A human eye has between six and seven million cone cells, containing one of three colour - sensitive proteins known as opsins. when photons of light hit these opsins, they change shape, triggering a cascade that produces electrical signals, which in turn transmit the message to the brain for interpretation.

Image processing ⇒

Digital image processing was pioneered at NASA'S jet propulsion laboratory in the late 1960's, to convert analogue signals from the Ranger spacecraft to digital images with computer enhancement. Now, digital imaging has a wide range of applications, with particular emphasis on medicine.

Some techniques which are used in digital image processing include.

→ Hidden Markov models.

→ image editing and restoration

→ linear filtering and Bilateral filtering

→ Neural networks.

Computer vision →

Computer vision comes from modelling image processing using the technique of machine learning. Computer vision applies machine learning to recognise pattern for interpretation of images. much like the process of visual reasoning of human vision, we can distinguish blw objects, classify them, sort them according to their size, and so forth. Computer vision, like image processing, takes images as input and gives output in the form of information on size,

Color intensity etc.

Below are the components of a standard machine vision system.

- camera
- Lighting devices
- Lens
- Frame grabber
- image processing s/w
- Machine learning algorithms for pattern recognition.
- Display screen or a robotic arm to carry out an instruction obtained from image interpretation.

Q.1 (b)

Different types of cv models.

Curriculum vitae (cv) means "course of life" in latin. A curriculum vitae is a brief summary of the basic information of a potential job application which includes contact information education & work history and achievements

Types of cv

There are different types of formats used in preparing a good cv. They include the chronological cv, functional cv, and combined cv which is a combination of the two.

chronological cv.

The chronological or performance cv is the most tradition and widely used format. This type of cv basically outlines your work and education history and is ideal if you have stayed in the same career for most of your working life. steadily working your way up.

functional cv

This type of cv focuses on and highlights the skills and achievement that you have geined throught your whole working career irrespective of where and

when you acquired them. This is useful if you do have gaps in your working career or if you want to change career completely

Combined CV ⇒ also called the Crono-functional CV. it follows both the chronological and function format, which makes the CV slightly longer than normal.

The overall types of CV is
Chronological CV
function CV
combined CV

Q.4 @ explain Rule-based segmente

Rule-Based Segementation ⇒

Rule Based Segmentation examines user behaviours and segments user groups based on a set of rules. The specific 'rules' change from one school of thought to another, but for the most part they're a mix

mix between common sense and past experience, meant to predict intent.

for example, in ecommerce, users who abandoned a cart are a very common rule based segment

if we look closer we can break it down to three points. first the behaviour being tracked, in or case the "Add to cart" button, second the threshold of activity, in this case it's added to cart but didn't buy finally the rule logic, which in that if a user added a product to cart they're probably interested in that product.

finally the here is the premise

where is Rule Based segmentation useful.

on the other hand, they would probably hit a negative ROAS if they try to target all

their site visitors with Remarketing. A simple approach would either target anyone who viewed a product, which will be aiming too broad. Another alternative is targeting only the Add to cart visitors, which is most likely too narrow. This is where rule based Segmentation would kick in for them.

Q.4 (b) illustrate Line fitting, curve fitting

Curve fitting is the process of constructing a curve, or mathematical function, that has the best fit to a series of data points possibly subject to constraints. in which a smooth function is constructed that approximately fits the data. A related topic is regression analysis which focuses more on question of statistical inference such as how much uncertainty

g. is present in a curve that is fit to data observed with random error

Line fitting is the processes of constructing a straight line that has the best fit to a series of data points, several method exist, considering vertical distance: simple linear regression. Resistance to outliers. Robust Simple linear regression.

A line of Best fit is a straight line drawn through the maximum number of points on a scatter plot balancing about an equal number of points above and below the line. it is used to study the nature of relation b/w two variables.