

CVDSE312 Questions: 18-19th April 2022

Q1. From Lecture 7:

You were asked to construct a projection matrix from the set of points (2D image coordinates and 3D world coordinates). Compute the projection matrix and find the intrinsic and extrinsic parameters of the projection matrix. Write down all the intermediate steps and show all the working as how you arrive at the answer. You may solve the equations by hand and then use computer codes to arrive at the answer.

Q2. From Lecture 14:

Image denoising problem:

Determine the noise probability density function in the given Fig1. and write down the expression of that PDF. Provide an estimate of the PDF parameters.

Build your code to compute the harmonic mean filter for the given image.

Q3. From CNN Lectures:

For the following matrix example:

255	40	103	134
95	39	56	67
48	28	39	51
24	12	17	21

i) Compute with stride=1 and max pooling and no padding

ii) Compute with stride=2 and average pooling and zero padding
Write the expression as well.

Q4. From BoVW lecture:

For the following, compute Term frequency-Inverse document frequency. Write the code for the same.

Word	TF	
	A	B
The	1/7	1/7
Car	1/7	0
Truck	0	1/7
Is	1/7	1/7
Driven	1/7	1/7
On	1/7	1/7
The	1/7	1/7
Road	1/7	0
Highway	0	1/7