

CS663: Digital Image Processing - Homework 1

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1 Homework 1 - Question 2

Given:

u_{12} represents the motion from I_1 to I_2 and a similar relation for u_{23} and u_{13} .

Relation:

$$u_{13} = u_{12} + u_{23}$$

Explanation:

Since the motion is solely transnational therefore the total displacement from I_1 to I_3 should be the sum of the displacement between I_1 - I_2 and I_2 - I_3 .

Practicality:

Some troubles may arise when this relations is used in practical. The reasons may be:

Numerical Approximations:

Numerical methods used in computation introduce rounding errors, which can accumulate and cause the computed motion vectors to deviate slightly from the theoretical relationship.

Noise:

The camera and other similar devices may be cursed with random noise, which can distort and hamper some features leading to small errors.