

Exercise 03 Team13

Q2:

Brute-force matching 13284 image pairs...

Successfully matched 1000 out of 13284 image pairs with a total of 44203 inlier feature matches (109579 total). New total of matched image pairs is 13284.

Matching 3649 image pairs using BoW...

Successfully matched 458 out of 3649 image pairs with a total of 24037 inlier feature matches (43850 total). New total of matched image pairs is 3649.

And then we have 1000x2 pictures. From the results of 85x2 .Brute-Force matching , we can get 13824 image pairs from 85x2 picture, so each frame in stereo-camera can generate average 162 pairs , so when we get 1000, and then the candidate pairs should be about 162000, and matched 12195

By analogy, regarding the BoW matching, we can get rough number of candidate pairs as 43000 , and matched 5400

Q1:

$$\lambda_2 x_2 = K \lambda_1 x_1 + T \quad [\text{Transformation equation}]$$

$$\lambda_2 \hat{T} x_2 = \hat{T} K \lambda_1 x_1 + \hat{T} T : \quad \hat{T} : \text{the cross-matrix of } T$$

equals 0. λ_1, λ_2 : constant

$$\lambda_2 x_2 \hat{T} x_2 = \lambda_1 x_1 \hat{T} K x_1 + \hat{T} T = 0.$$

$$\therefore x_2 \hat{T} K x_1 = 0. \quad \text{Essential Matrix.}$$