Perception IV: Place Recognition & Line Fitting

Place Recognition using the Vocabulary Tree

Put the steps/stages in the correct order

In this week's material we have studied Place Recognition and how we construct, populate and use the Vocabulary Tree to identify candidate matches for a given query image. This unit aims to exercise your understanding of the intermediate steps involved in this process.

Answer

1. Extract image features from the image collection
2. Populate the descriptors space with the descriptors of the extracted features
3. Perform k-means clustering (in the descriptors' space to construct visual words)
4. Extract features from the Model images
5. Identify the visual word corresponding to an extracted feature (drop the corresponding feature descriptor down the tree)
6. Link the visual word to the Model image it appears in
7. The Vocabulary Tree is ready
8. Extract features from the Test image
9. Identify the visual word corresponding to an extracted feature (drop the corresponding feature descriptor down the tree)
10. Look-up the visual word in the inverted-file database
11. Increment the element of the voting array corresponding to the obtained visual word (and take the weighting of each word into account)
12. Select most voted image as the best candidate matching the test image