Assignment 2 (Group, max size 3)

Deadline: Feb 15

Visual Recognition

Fun trip to city centre

- Visit Vidhan Soudha, Cubbon Park and Brigade Road
  - Travel tips: Take G3 bus to brigade road and walk around
- Take pictures - to create Panorama
- Take videos of three junctions
  - Useful for a future assignment

Assignment 2a (3 marks)

- Play with Panorama (of Vidhan Soudha, Cubbon Park, Brigade Road):
- Clue: RANSAC
- cv2.findHomography(src, dst, cv2.RANSAC, 5.0)
- cv2.warpPerspective(img1, H, (img2.shape[1]+img1.shape[1], img2.shape[0]))
- Explain how SURF descriptor is different from SIFT (5 sentences)
- Briefly explain the main principles of FLANN matching and RANSAC (5 sentences each)
- Document your experiments and observations

References

- Instance Matching
  - https://towardsdatascience.com/image-panorama-stitching-with-opencv-2402bde6b46c
  - https://www.pyimagesearch.com/2016/01/11/opencv-panorama-stitching/
- Category Recognition
  - https://towardsdatascience.com/bag-of-visual-words-in-a-nutshell-9ceea97ce0fb

Assignment 2b (7marks)

- Implement Bike vs Horse Classification
- Dataset: available on LMS (notes folder)
- Use Bag-of-visual words approach (SIFT/SURF + K-means + SVM/Logistic Regression/KNN)
- Explain the procedure and your approach and observations
- Reference paper: available on LMS (notes folder)
- Extend to CIFAR 10, with 10 classes: https://www.cs.toronto.edu/~kriz/cifar.html