



Master in Computer Vision *Barcelona*

Module: M1

Project: Museum painting retrieval

Coordinator: Ramon Morros

W1 - Homework

QST1-W1

Team	Method	Dev. MAP@1	MAP@1	MAP@5	Comments
Team4	method2	0,56	0,70	0,70	Norm. CieLab, 48 bins, L1 dist
Team1	method1	0,57	0,60	0,60	HSV+Hellinger
Team2	method1	0,53	0,60	0,60	3D RGB hist, Chi-square
Team4	method1		0,60	0,60	
Team5	method2	0,47	0,60	0,60	Lab + Histo intersection
Team8	method1	0,43	0,60	0,60	CIE Lab + L1 dist
Team5	method1		0,57	0,57	
Team8	method2		0,57	0,57	
Team7	method1	0,43	0,43	0,43	HSV, local histogram, patches, distance??
Team9	method2	0,60	0,43	0,43	HSV 16 bins + Chi square
Team1	method2		0,40	0,40	
Team7	method2		0,30	0,30	
Team9	method1		0,27	0,27	
Team3	method1	0,30	0,07	0,07	color hist (??) + Hellinger
Team3	method2		0,07	0,07	
Team6	method1	0,07	0,00	0,00	YCbCr + Chi square
Team7	method2		0,00	0,00	

W1 - Homework

QST2-W1 - MAP@k

Team	Method		MAP@1	MAP@5		
Team1	method2	0,47	0,433	0,43	HSV+Hellinger, otsu binarization	
Team2	method1	0,5	0,433	0,43	color difference + shadows + row/column processing	
Team5	method1	0,47	0,433	0,43	grayscale histo + binarization + morphology	
Team8	method2	0,47	0,433	0,43	Threshold on HSV channels + post-proc	Better results on QS2???
Team8	method1		0,400	0,40		
Team5	method2		0,367	0,37		
Team1	method3		0,300	0,30		
Team7	method2	0,47	0,233	0,23	sliding window variance	Better results on QS2???
Team9	method1	0,3	0,233	0,23	??	
Team9	method2		0,233	0,23		
Team2	method2		0,133	0,13		
Team4	method1	0,23	0,133	0,13	YUV, threshold on distance to corner colors	
Team1	method1		0,100	0,10		
Team3	method1	0,4	0,000	0,00	Otsu binarization	
Team3	method2		0,000	0,00		
Team4	method2		0,000	0,00		
Team7	method1		0,000	0,00		
Team6	method2	0	0,000	0,00	HSV color thresholding, per channel	
Team6	method1		0,000	0,00		

W1 - Homework

QST2-W1 - Segmentation

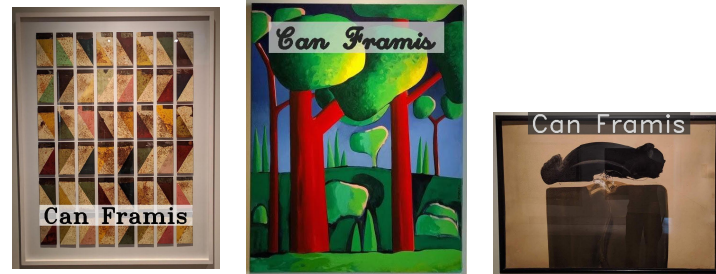
Team	Method	Precision	Recall	F1
Team2	method1	0,97	0,99	0,98
Team8	method1	0,99	0,95	0,97
Team8	method2	0,99	0,95	0,97
Team1	method2	0,95	0,98	0,96
Team7	method2	0,96	0,96	0,96
Team5	method1	0,96	0,95	0,95
Team5	method2	0,95	0,96	0,95
Team1	method1	0,92	0,95	0,93
Team1	method3	0,84	1,00	0,91
Team7	method1	0,94	0,85	0,89
Team4	method1	0,94	0,76	0,84
Team4	method2	0,94	0,76	0,84
Team2	method2	0,86	0,81	0,83
Team9	method2	0,80	0,87	0,83
Team9	method1	0,94	0,73	0,82
Team3	method1	0,85	0,70	0,77
Team3	method2	0,95	0,36	0,53

Week2 Datasets

Museum datasets

- [Can Framis Museum](#)
- [Figueres 120 years expo](#)
- [Kode Bergen](#)

original and paintings with superimposed text on a semitransparent box
(different fonts, sizes and positions)



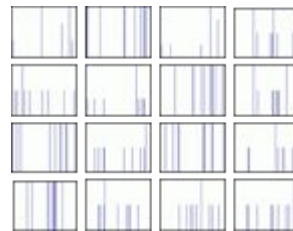
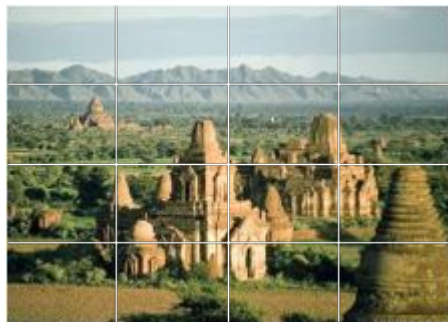
Query datasets (development with GT and test without GT)

- QSD2-W1: 30 (with background) pictures (same as previous week to see if multiresolution histograms improve results; only best MR method)
- QSD1-W2: 30 (cropped) pictures with overlapping text (name of painter), one painting per image
- QSD2-W2: 30 pictures with background and text and in some cases more than one picture per image

W2 - Task1

- Implement 3D / 2D and block and multiresolution histograms

Block-based Histograms: divide image in non-overlapping blocks; compute histograms per block; concatenate histograms.



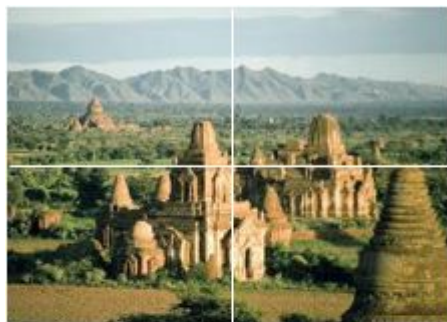
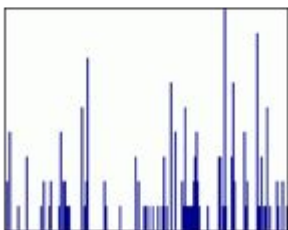
W2 - Task1

- Implement 3D / 2D and block and multiresolution histograms

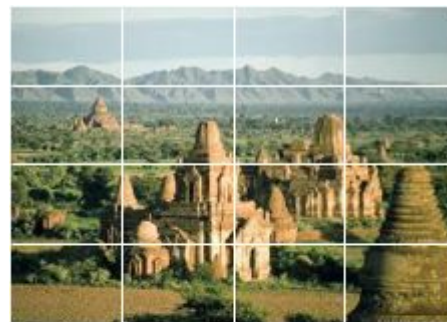
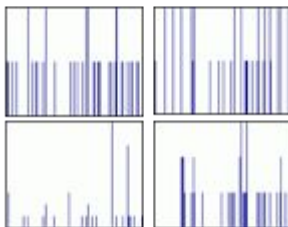
Spatial pyramid representation: compute block histograms at different levels, concatenate representations



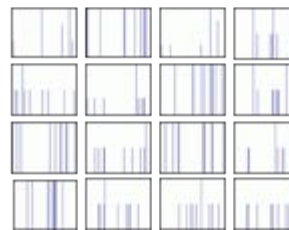
level1



level2



level3



W2 - Task2

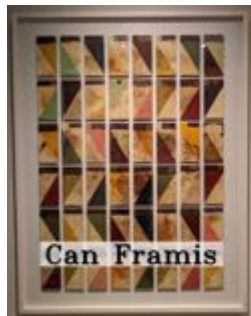
- Test query system using QSD2-W1 (from week1) with Task1 descriptors and evaluate results
 - use any of the similarity measures from week1
 - you can use morphology to improve foreground (if necessary)
 - compare with previous week results
 - no submission (no test set for this task)
 - include results in report slides

W2 - Task3

- Detect and remove text from images in QSD1-W2:
 - Detect text bounding box
 - Provide bounding box coordinates for evaluation

Text on a opaque box superimposed in the image,
with different sizes, fonts and locations.

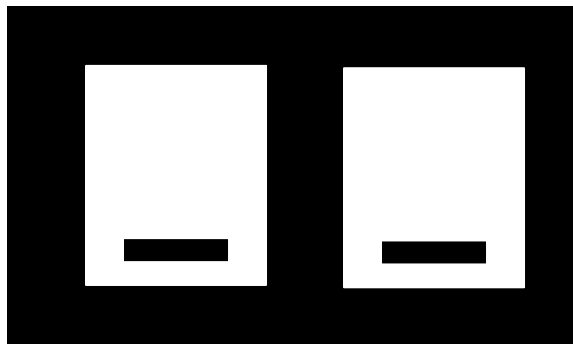
Bright (dark) text on dark (bright) background-



W2 - Task4

- Evaluate text detection using bounding box
- Metric: mean IoU
- For each image, return the list of bboxes of the text positions

$[[[tlx_1, tly_1, brx_1, bry_1]], \dots]$



→ $[[tlx_1, tly_1, brx_1, bry_1], [tlx_2, tly_2, brx_2, bry_2]]$

Order: left to right / top to bottom

W2 - Task5

- Test query system using query set QSD1-W2 development, evaluate retrieval results (use your best performing descriptor)
 - ignore pixels in the text area (inside detected bounding box)

W2 - Task6

- For QSD2-W2 : detect all the paintings (max 2 per image), remove background and text, apply retrieval system, return correspondences for each painting. Only retrieval is evaluated.
- Add extra list level to allow for the possibility of more than one painting per image

Integers!
[[[7,25,...],[44,81,...]], ...]



[7,25,...]

[44,81,...]

W2 - Submissions

- For each query test (QST1-W2, QST2-W2) a list of the K best results (K=10).
 - Create a python list of lists
- For QST2-W2, return the masks
- For QST1-W2 and QST2_w2 return the bbox of the text position
[[[tlx₁, tly₁, brx₁, bry₁]],...]

Note: Deliver pkl files to:

/home/dlcv0X/m1-results/week2/QST1/**method1**/result.pkl

/home/dlcv0X/m1-results/week2/QST1/**method1**/text_boxes.pkl

...

/home/dlcv0X/m1-results/week2/QST2/**method2**/*.png

- Test query set will be published Sunday, 16 Oct 2022 at 14h
- Submit progress slides
 - Deadline slides: Sunday 16 Oct 2022 at 19:00
 - Deadline results: Sunday 16 Oct 2022 at 19:00
 - Deadline questions to teams: Monday 17 Oct 2022 at 14:00