2.24 Meeting Record

1. Purpose:
   1. How to build feature space
   2. Learning method
   3. Similar state of art
   4. Prepare for Phase 1 report and presentation
2. References for building feature space
   1. An aesthetic cropping system

<http://www.cs.dartmouth.edu/~chenfang/paper_pdf/FLMS_mm14.pdf>

This paper proposed a cropping system mostly based on important content preservation and visual composition score. In visual composition method, it implements **Spatial Pyramid of Saliency Map** to build feature space. This is from **What Makes a Patch Distinct?**

<http://webee.technion.ac.il/~ayellet/Ps/13-MTZ.pdf>

This paper uses Pattern Distinctness and Color distinctness to extract salient pixels.

SIFT feature extraction:

<https://www.cs.ubc.ca/~lowe/papers/ijcv04.pdf>

* 1. ORB detector

<http://www.willowgarage.com/sites/default/files/orb_final.pdf>

This paper proposed a new algorithm named ORB, which is based on the FAST detection and BRIEF descriptor. They employed Harris corner measurement and pyramid scheme of multi-scale features into the traditional FAST and steer BRIEF according to the orientation of keypoints, thus invariant to rotation.

Our test results with some landscape pictures indicate that ORB can not find the main feature of the photograph.

* 1. 在旋转不是非常厉害的图像里，用BRIEF生成的描述子的匹配质量非常高，作者测试的大多数情况中都超越了SURF。但在旋转大于30°后，BRIEF的匹配率快速降到0左右。BRIEF的耗时非常短，在相同情形下计算512个特征点的描述子时，SURF耗时335ms,BRIEF仅8.18ms；匹配SURF描述子需28.3ms，BRIEF仅需2.19ms。

1. References for learning method
   1. SVM

This method is widely applied in many literatures:

AVA dataset application:

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6247954>

(just binary, either good or bad) Linear SVMs with Stochastic Gradient Descent(SGD) on Fisher Vector(FV) signatures computed from color and SIFT(scale invariant feature transform) descriptors

Learning to Predict the Perceived Visual Quality of Photos:

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6126246&tag=1>

SVDR

1. F
   1. A Framework for Photo-Quality Assessment and Enhancement based on Visual Aesthetics\

<http://www.cs.cmu.edu/~rahuls/pub/mm2010-rahuls.pdf>

Deep learning network ILGnet

<http://jinxin.me/downloads/papers/019-WCSP2016a/ILGNet-Final.pdf>

http://jinxin.me/downloads/papers/019-WCSP2016a/ILGNet-Final.pdfhttp://jinxin.me/downloads/papers/019-WCSP2016a/ILGNet-Final.pdf

Double column CNN:

https://dl.acm.org/citation.cfm?id=2654927