Study of higher order image descriptors
Article overview

Malte Stær Nissen
tgq958@alumni.ku.dk

Benjamin Michael Braithwaite
cpg608@alumni.ku.dk

Supervisor: Kim Steenstrup Pedersen, kimstp@diku.dk
Co-supervisor: Sune Darkner, darkner@diku.dk

February 6, 2014

This is an overview of the types of descriptors used in various articles.

0.1 Crosier 2010 [CG10]

Descriptor for 200x200 pixel texture regions. Consists of a histogram of 6 Basic Image Features (BIFs) built from 2-jet information at 4 different scales. ($6^4 = 1296$ bins)

0.2 Dalal 2005 [DT05]

Descriptor for 3x3 cell blocks of 6x6 pixel cells used for pedestrian detection. Each cell has a histogram of unsigned gradient orientations divided into 9 bins.

0.3 Felzenszwalb 2008 [FMR08]

Descriptor for 2x2 cell blocks of 8x8 pixel cells used for general object detection. Each cell has a histogram of unsigned gradient orientations divided into 9 bins.

0.4 Pedersen [PSSZI]

Descriptor for 100x100 pixel regions of galaxies used to estimate specific star formation rate (sSFR). Consists of histograms of gradient orientation in 8 bins and shape index in 9 bins, at 8 different scale levels.

References

[CG10] Michael Crosier and Lewis D Griffin. Using basic image features for texture classification. *International Journal of Computer Vision*, 88(3):447–460, 2010.

[DT05] Navneet Dalal and Bill Triggs. Histograms of oriented gradients for human detection. In *Computer Vision and Pattern Recognition, 2005. CVPR 2005. IEEE Computer Society Conference on*, volume 1, pages 886–893. IEEE, 2005.

[FMR08] Pedro Felzenszwalb, David McAllester, and Deva Ramanan. A discriminatively trained, multiscale, deformable part model. In *Computer Vision and Pattern Recognition, 2008. CVPR 2008. IEEE Conference on*, pages 1–8. IEEE, 2008.

[PSSZI] Kim Steenstrup Pedersen, Kristoffer Stensbo-Smidt, Andrew Zirm, and Christian Igel. Shape index descriptors applied to texture-based galaxy analysis.