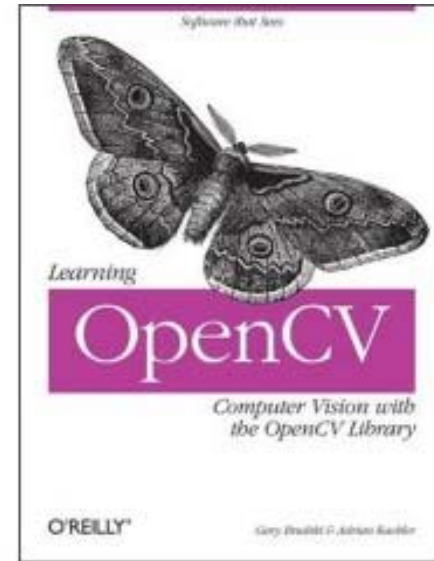




EECS 442 – Computer vision

Computer Vision Resources

Open Computer Vision



The Open Computer Vision Library has > 500 algorithms, documentation and sample code for real time computer vision.

Tutorial documentation is in O'Reilly Book: Learning OpenCV
<http://www.amazon.com/Learning-OpenCV-Computer-Vision-Library/dp/0596516134>

<http://sourceforge.net/projects/opencvlibrary/>

Geometry

- MATLAB Functions for Multiple View Geometry

<http://www.robots.ox.ac.uk/~vgg/hzbook/code/>

- Camera Calibration Toolbox for Matlab

http://www.vision.caltech.edu/bouquetj/calib_doc/

- Synchronization and Calibration of a Camera Network for 3D Event Reconstruction from Live Video

<http://cs.unc.edu/~ssinha/Research/silcalib/>

- Relative orientation from 5 points: a compute relative orientation of two calibrated cameras from unknown 3D points.

<http://lear.inrialpes.fr/people/triggs/src/>

- Geometric Context

<http://www.cs.uiuc.edu/homes/dhoiem/>

Detectors and descriptors

SIFT & SIFT ++

<http://vision.ucla.edu/~vedaldi/code/sift/sift.html>

Andrea Vedaldi

<http://www.cs.ubc.ca/~lowe/keypoints/>

David Lowe

OTHERS

<http://www.robots.ox.ac.uk/~vgg/software/>

[Region detectors](#) - Linux binaries for detecting affine covariant regions.

[Region descriptors](#) - Linux binaries for computing region descriptors.

Matching

Matching with Shape Contexts

http://www.eecs.berkeley.edu/Research/Projects/CS/vision/shape/sc_digits.html

Pyramid matching

http://www.cs.utexas.edu/~grauman/research/projects/pmk/pmk_projectpage.htm

Object detection and representation

- Histograms of Oriented Gradients for Human Detection

<http://pascal.inrialpes.fr/soft/olt/>

- Pyramid Histogram of Oriented Gradients (Bosh and Zisserman)

<http://www.robots.ox.ac.uk/~vgg/research/caltech/phog.html>

- Bag-of-words classifiers

<http://people.csail.mit.edu/fergus/iccv2005/bagwords.html>

- A simple parts and structure object detector

<http://people.csail.mit.edu/fergus/iccv2005/partsstructure.html>

Segmentation

- **MATLAB Normalized Cuts Segmentation Code**

<http://www.cis.upenn.edu/~jshi/software/>

- **Efficient Graph-Based Image Segmentation**

<http://people.cs.uchicago.edu/~pff/segment/>

- **Graph cut**

<http://www.cs.cornell.edu/~rdz/graphcuts.html>

- **A Multiresolution Approach to Image Segmentation Based on EdgeFlow**

<http://vision.ece.ucsb.edu/segmentation/edgeflow/>

Face recognition

<http://www.face-rec.org/source-codes/>

Clustering tools

- Adaptive mean shift based clustering

<http://www.caip.rutgers.edu/riul/research/code.html>

- Kmeans

Use matlab kmeans

Learning tools

Boosting

<http://people.csail.mit.edu/torralba/shortCourseRLOC/boosting/boosting.html>

Probabilistic Latent Semantic Analysis (pLSA)

<http://www.robots.ox.ac.uk/~vgg/software/>

Trackers

- A GPU-based Implementation of the Kanade-Lucas-Tomasi Feature Tracker

http://cs.unc.edu/~ssinha/Research/GPU_KLT/

<http://www.ces.clemson.edu/~stb/klt/>

Linear algebra useful functions

- Factorization methods

<http://lear.inrialpes.fr/people/triggs/src/>

Datasets

Caltech datasets

<http://www.vision.caltech.edu/html-files/archive.html>

Labelme

<http://labelme.csail.mit.edu/>

PASCAL

<http://pascallin.ecs.soton.ac.uk/challenges/VOC/databases.html>