**Normalized Cuts Segmentation Code, for MATLAB**  
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This is a Matlab/C++ implementation of Normalized Cuts for image segmentation and Data Clustering.

**Download**

[download Ncuts code (ncut\_9.zip)](http://timotheecour.com/software/ncut/Ncut_9.zip)   new (January 22, 2010): release of all c++ source mex files compatible with matlab R2009b.

This software is made publicly for research use only. It may be modified and redistributed under the terms of the [GNU General Public License](http://www.gnu.org/copyleft/gpl.html).

see also [**linear time multiscale normalized cut image segmentation**](http://www.seas.upenn.edu/%7Etimothee/software/ncut_multiscale/ncut_multiscale.html)**.**

**Citation**

Normalized Cuts and Image Segmentation, Jianbo Shi and Jitendra Malik, IEEE Transactions on Pattern Analysis and Machine Intelligence(PAMI) 2000

**Description**

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| http://timotheecour.com/software/ncut/images/5.JPG | **Data Clustering with Normalized Cuts**  [Demo step by step](http://timotheecour.com/software/ncut/demo1.html)  Given a weighted graph, W, find a graph partition with Normalized Cuts. |
| image segmentation | **Image Segmentation with Normalized Cuts**  [Demo step by step](http://timotheecour.com/software/ncut/demo2.html)  Given an input image I, construct a pixel-pixel pair-wise similarity matrix W based on Intervening Contours. Output the image segmentation with Normalized Cuts. |

**Installation instructions**

Make sure you have Matlab (it was tested under R2009b but should probably work in other versions as well). Certain functions might require the Matlab Image Processing Toolbox.

1) After you unzipped the files to mydir,   
   put the Current Directory in Matlab to mydir  
  
2) In the matlab command prompt,  
   type compileDir\_simple to compile the mex files (ignore the error on the C++ non-mex file; needs to be done once)

**Synopsis**

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| --- | --- |
| **demoNcutImage** | script that shows a demo of image segmentation |
| **demoNcutClustering** | script that shows a demo of point cloud clustering |
| NcutImage | given image "I", segment it into "nbSegments" segments     [SegLabel,NcutDiscrete,NcutEigenvectors,NcutEigenvalues,W]= NcutImage(I,nbSegments); |
| ICgraph | compute Intervening Contour based pixel similarity matrix W     W = ICgraph(I); |
| ncutW | Given a similarity graph "W", computes Ncut clustering on the graph into "nbSegments" groups;     [NcutDiscrete,NcutEigenvectors,NcutEigenvalues] = ncutW(W,nbSegments); |

**Release notes**

2010, January 22: release version 9: release of all c++ source mex files compatible with matlab R2009b  
2006, May 04: release version 8: fixed incompatibility issues with new matlab  
2004, June 18: release version 7: initial release  
  
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