**IBM-Technion Airborne camera project, for detection of movements in recorded video**

Selected article for starting implementation is “***fast video object segmentation technique***”:

<http://calvin.inf.ed.ac.uk/wp-content/uploads/Publications/papazoglouICCV2013-camera-ready.pdf>

with project web page that includes open source code :

<http://calvin.inf.ed.ac.uk/software/fast-video-segmentation/>

Short summary:

The suggested code is in Matlab, and partially in C. MEX is required.

Our implementation was not successful.

Self-implementation of the algorithm blocks is done by OpenCV learning and ready-code-examples implementations.

The suggested algorithm is :

***Notes*** from the authors:

“If you wish ***to use alternative methods instead***,

refer to the “Using alternative optical flow/superpixels methods” section”

maxflow algorithm [6] as provided by the authors.

**Example from reference article :**

optical flow estimation method of

[ 2(default) , 3 ],

Computes the video object segmentation

Superpixel over-segmentation methods

[4 , 5 (default) ]

well per-frame **superpixel** over-segmentation

**optical flow**

between subsequent frames

Notes from the authors about “Using alternative optical flow/superpixels methods” :

Using alternative optical flow/superpixels methods

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The code is optical flow/superpixel method agnostic, so you could use your own

methods if you wish. The only requirement is that you use the same data format:

Optical flow:

The optical flow should be stored in a cell array (N-1)x1, where N is the

number of frames in the shot. Each cell should contain a HxWx2 int16 matrix

that contains the displacement values, where H is the height of the frame

and W is the width. flow{ frame }( :, :, 1 ) should contain the displacement

over the height axis, while flow{ frame }( :, :, 2 ) should contain

the displacement over the width axis.

Superpixels:

The superpixels should be stored in a cell array Nx1. Each cell should

contain a HxW uint16 matrix that depicts the superpixel label/ID for each

pixel in the frame. The superpixel labels need to be > 0.

**Both of these cell need to be passed as part of the input struct to the**

**videoRapidSegment.m function, as data.flow and data.superpixels respectively**.

For an example, see demo.m.