

The code is a C++ implementation of the paper "*An Equalised Global Graphical Model-Based Approach for Multi-Camera Object Tracking*". There are two files ("RunEGTracker" and "Params_NLPRMCT").

"RunEGTracker":

the file of source code, which needs a set of files as input and output the tracking result as an "output.txt". The input set is consisted of five files and an output path. All the required inputs are listed below:

| File Name | Description | Format |
|-----------------|---|--|
| Param.ini | A file used to set the parameters in the tracker. | camnum: the number of camera views. maxflow: the expected total number of objects in the whole system. waitframe: waiting time threshold, the largest frame interval for a possible link of any two tracklets. mug_pairthrd: the minimum value of the MUG. bg_updatespeed: the updating speed of the Gauss background, counting by frame. bg_gaussthrd: a threshold using for Gauss background modeling. fg_thrd: a threshold to distinguish the foreground from the background for every pixel, ranging from 0 to 255. conv_thrd: the confidence threshold of the AIF tracker. |
| Video.txt | A file contains all the video paths. | For a N-camera system, there should be N paths for all the N source videos. The order should be corresponding with the camera line in "Groundtruth.txt" |
| Groundtruth.txt | A file contains the detection ground truths for all cameras. | The file contains an M*7 matrix. M is the total number of bounding boxes for all cameras. Each line corresponds to a bounding box. It contains 7 numbers describing the Camera Number, the Frame Number, the label of the object, the location and size of the bounding box. The purpose of the proposed method is to obtain the label of each object, so in this code, the 3 rd column (the label of the object) is set to 0. |
| Topology.txt | A file used to define the topological relationship between every two cameras in the system. | The file contains a binary N*N matrix. N is the camera number in the system. 0 means there's no connection between two cameras, and 1 indicates an exit-enter relationship. The order should be the same as that in "Video.txt" |

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|-------------|---|---|
| Area.txt | A file contains the exit/enter areas and disappearing points for two connected cameras. | <p>For any two connected cameras, there should be a “Relationship” item. An example “Relationship” item for the connection that Camera a to Camera b is listed below:</p> <p>Relationship: a b</p> <p>Area: a1.x a1.y a2.x a2.y a3.x a3.y a4.x a4.y a5.x a5.y b1.x b1.y b2.x b2.y b3.x b3.y b4.x b4.y b5.x b5.y</p> <p>a, b are index of two cameras in the connection (a→b), ranging from 1 to N, corresponding to the index in “Video.txt”.</p> <p>a1.x a1.y – a4.x a4.y are the x,y-coordinate of leftup, rightup, rightright, leftdown points for the exit area of Camera a respectively, a5.x and a5.y is the x,y-coordinate of the disappearing point for Camera a’s exit area. b1.x b1.y – b5.x b5.y are for the enter area of Camera b.</p> <p>FYI, if the connection is bidirectional (b→a is available) and the exit area of Camera a (the enter area of Camera b) in a→b is the same as the enter area of Camera a (the exit area of Camera b) in b→a, two items can be sample as one. Write either of them is OK.</p> |
| Output path | A file path to save the “output.txt” | The format of the “output.txt” is the same as that in “Groundtruth.txt” |

"Params_NLPRMCT"

Four examples for the code, which are corresponding to the four sub-datasets of NLPR_MCT dataset (<http://mct.idealtest.org/Datasets.html>).

An example command line: `.\RunEGTracker\Debug\RunEGTracker.exe .\Params_NLPRMCT\Dataset1\Param.ini .\Params_NLPRMCT\Dataset1\Video.txt`

`.\Params_NLPRMCT\Dataset1\Groundtruth.txt .\Params_NLPRMCT\Dataset1\Topology.txt .\Params_NLPRMCT\Dataset1\Area.txt .\Params_NLPRMCT\Dataset1\`

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