CLEAR-MOT Matlab script

a metric for multiple target tracking

A standard metric for evaluating the multiple target tracking algorithm is the CLEAR MOT. This metric is described in the paper [1] .

http://www.micc.unifi.it/masi/code/clear-mot/

details

We provide the code that implements the metric CLER-MOT has described by the authors in [1]. The function is implemented in MATLAB and has been tested on real data generated by a multiple-target tracker.

The tarball contains these MATLAB files:

* *groundtruth.mat* contains the labeled annotations of 3 objects. Objects are specificated by labeled bounding box as [*ID* *tl*.x *tl*.y *br*.x *br*.y]. The *ID* is the label, *tl* is the top-left point of the annotations and *br* is the bottom-right.
* *result.mat*contains the tracking results hypothesis as taken from the ground truth files. So, MOTA and MOTP results to 100% in this simple example.
* *evaluateMOT.m*is the function that performs the evaluation.
* *main.m*is the main file
* *GreedyAssociation.m*is the file that performs the association given the distance matrix. You can replace with other solvers like f.e. Hungarian algorithm.

These data files are only an example: if you want to use the script to evaluate your multiple target tracking result, you have to re-create the structures *groundtruth.mat*and*result.mat*with your own data.

**Note that ID Switch (mismatch) should be carefully counted by visual inspection, considering that the automatic association is not able to manage situations where targets are very near each other.**

*Bur reporting is very appreciated, please contact me as soon as possible, leaving a comment below.*

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## acknowledge

Please, note if you use the code, you have to cite our work:

@article{ masi:multimedia12, author = {Bagdanov, Andrew D. and Del Bimbo, Alberto and Dini,

Fabrizio and Lisanti, Giuseppe and Masi, Iacopo},

title = {Compact and efficient posterity logging of face imagery for video surveillance},

booktitle = {IEEE Multimedia},

year = {2012}, }

### changelog

- 2012/05/11 Initial release.

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Iacopo Masi and Giuseppe Lisanti <masi,lisanti>@dsi.unifi.it

## demo example

|  |  |
| --- | --- |
| 1  2  3  4  5 | load groundtruth  load result  VOCscore = 0.5;  dispON  = true;  ClearMOT = evaluateMOT(gt,result,VOCscore,dispON); |

The result is the following:

|  |  |
| --- | --- |
| 1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16 | ------ ::RESULTS:: ---------  rateFP = 0  (0%)  rateTP = 1  (100%)  rateFN = 0  (0%)  ----------------------------  TP = 9  FN = 0  FP = 0  ID switch (MisMatch) = 0  \*\*\*NOTE\*\*\*: ID switch should be carefully counted by visual inspection  Sum of GrountTruth Obj = 9  Sum of FN+TP+IDSW = 9  ----------------------------  MOTP = 1  MOTA = 1  (100%)  ---------------------------- |

## references

1. Keni Bernardin and Rainer Stiefelhagen. “Evaluating multiple objec tracking performance: the CLEAR MOT metrics” J. Image Video Process. 2008, Article 1 (January 2008), 10 pages.” DOI=10.1155/2008/246309 [http://dx.doi.org/10.1155/2008/246309](http://www.micc.unifi.it/masi/code/clear-mot/%22Keni%20Bernardin%20and%20Rainer%20Stiefelhagen.%20Evaluating%20multiple%20object%20tracking%20performance:%20the%20CLEAR%20MOT%20metrics.%20J.%20Image%20Video%20Process.%202008,%20Article%201%20(January%202008),%2010%20pages.%22%20DOI=10.1155/2008/246309%20http:/dx.doi.org/10.1155/2008/246309)