Multi-Camera Object Tracking (MCT) Challenge Evaluation Kit

This file will guide you to use the MCT challenge evaluation kit to evaluate your trackers.

1. Prepare the files

—Create a folder named "workingdirectory". This folder is used as a workspace, where your results will be created automatically later.

—Download the NLPR_MCT_Dataset from the website (http://mct.idealtest.org/Datasets.html**),** including the annotation files and all the videos. Then put the NLPR_MCT_Dataset under the "workingdirectory" folder.

—Modify the paths of annotations and videos in the "NLPR_MCT_Dataset". The path of annotation files should be as set as "…\workingdirectory\NLPR_MCT_Dataset\annotation \DatasetX\CamY.dat", and the path of the videos should be set as "…\workingdirectory\NLPR_MCT_Dataset\video\DatasetX\CamY.avi", where "X" and "Y" represent the specific index of dataset and camera respectively. **Note that the paths should be exactly the same as required and the space is not allowed.**

2. Prepare the trackers

—Modify the inputs of your trackers as required. For all the three experiments, the inputs of your trackers are the same: a "dataset.txt" file and an "input_groundtruth" file. The "dataset.txt" file contains video paths of a sub-dataset. An example for Dataset 1 is listed as below:

```
D:\workingdirectory\NLPR_MCT_Dataset\video\Dataset1\Cam1.avi
D:\workingdirectory\NLPR_MCT_Dataset\video\Dataset1\Cam2.avi
D:\workingdirectory\NLPR_MCT_Dataset\video\Dataset1\Cam3.avi
```

The "input_groundtruth.txt" file contains the available ground truth according to the experiment type. The format of the contexts in the "input_groundtruth.txt" file is the same as the annotation files (but with commas). The meaning of the seven columns in the file is: <Camera Number>, <Frame Number>, <Object Label>, <Upleft X>, <Upleft Y>, <Width>, <Height>.

For Experiment 1, the <Object Label> column is reordered in each camera. For Experiment 2, the <Object Label> column is set to zeroes. For Experiment 3, all the columns are zeroes.

—Modify the output of your trackers as required. The output of your trackers should be a file named "output.txt" which contains all your results of the specific experiment on the specific sub-dataset. The format is the same as the "input_groundtruth.txt" file.

—**Modify the name of your tracker executive files as required.** Each experiment needs an executive file, and the executive files can be either all ".exe" or all ".m". The three trackers used for Experiment 1-3 should be named as "tracker1", "tracker2" and "tracker3" respectively as follows.

—**Put all the executive files of your tracker under one folder.** It's recommended that this folder is put under the "workingdirectory" folder.

3. Run the evaluation kit

—**Download the evaluation kit from the website** (http://mct.idealtest.org/Evaluation.html). The evaluation kit is a matlab version, so please ensure that your computer has installed a matlab environment.

—**Open the "configuration.m" file to configure paths and parameters for your trackers.** Note that there's no space in all your paths. If necessary, please replace the space with an underscore "_". The details are listed as below:

a. The first variable that has to be set is an absolute path to the "workingdirectory" folder. It is recommended that the folder is empty before the first use.

```
% track_properties.directory = '...\workingdirectory';
track_properties.directory = '<Set_a_workingdirectory_path>';
```

b. Select the type of executive files of your tracker.1 for ".exe" file and 0 for ".m" file.

```
% Set 1 for tracker.exe. Set to 0 for tracker.m.
track_properties.execute = 0;
```

c. This parameter is set to 1 when you run the example trackers and set to 0 when you run your trackers.

```
% Set 1 when running the example tracker. And set to 0 when running your trackers.
track_properties.example = 0;
```

d. When you run the trackers, this parameter shows more details of debug information. 1 for more details and 0 for none.

```
% Set 1 if needing more details of debug.
track_properties.debug = 0;
```

e. Fill in your unique team name here. It's used for identifying your results from other participants. If your team name contains spaces, please replace the space with an underscore "_".

```
% team_name = 'Example_Tracker';
team_name = '<Your_team_name>';
```

f. Configure the folder path of your tracker executive files.

```
% tracker_path = '...\workingdirectory\Examples\exe';
tracker_path = '<Set_the_tracker_path>';
```

g. You can add library directories which are necessary to guarantee your trackers executable.

```
% tracker_linkpath = {'...\workingdirectory\Examples\exe'};
tracker_linkpath = {'<Set_the_necessary_link_paths_for_your_tracker>'};
```

—**Open the "main.m" file and run the evaluation kit.** You will see the following instructions:

```
Choose an action:
a - Run the tracker on a selected sub-dataset for a selected experiment (optional)
b - Run the tracker on all the sub-datasets for a selected experiment (required)
e - Exit
Choose an action:
```

Choose "a" to run your tracker for a selected experiment on a sub-dataset to ensure the kit and your trackers are working well. Choose "b" to run the tracker on all the sub-datasets for the selected experiment. After one experiment is run, there would be two more options for you.

```
Choose an action:
a - Run the tracker on a selected sub-dataset for a selected experiment (optional)
b - Run the tracker on all the sub-datasets for a selected experiment (required)
c - Display the latest result compared with the groundtruth (optional)
d - Print results of all the experiments (required)
e - Exit
Choose an action:
```

Choose "c" if you want to see the latest result for the last experiment on the last dataset. It's optional. **Choose "d" to print your results into an ".html" file, which is necessary when you submit the results.**

4. Results

—**Find the results.** The results are produced under the "…\workingdirectory\Results\Your_team_name", among which the most important file is the ".html" file that contains all the experimental results.

—**Submit the results.** Ensure to compress the folder with the name of your team name as a ".rar/.zip" file and upload it through the website (http://mct.idealtest.org/Submission.html). Before uploading, please make sure that all your experimental results are listed in the latest ".html" file.

5. More details of the evaluation kit

When you run an experiment on a sub-dataset, the output is saved as a ".txt" file indexed by name. You can find them under"…\workingdirectory\Results\Your_team_name". If your experiment breaks off in the middle, previous results have already been saved. When you restart the kit, you need to run previous experiments again. However in this case the kit would just read previous corresponding existing".txt" files implicitly. If you want to update the results, you should delete the corresponding saved ".txt" files and then start your new experiments. It's recommended to choose "d" to update the ".html" file after all the experiments and check out that all the experimental results are listed in the latest".html" file.