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## CITIUS Video Database - Information

This eye tracking video database can be used to validate visual attention models. This dataset includes 72 videos downloaded from Internet and some synthetic videos generated in the lab. The videos can be classified in four categories, natural and synthetic, with fixed or movement camera. It includes 27 synthetic videos with dynamic pop-out effects. The videos have been selected in order to minimize the influence of the top-down effects.

### Videos

- *Number of videos* ... 72
- *Video resolution* ..... 320×240 pixels
- *Frame rate (fps)* ..... 15 fps (Natural) / 30 fps (Synthetic)
- *Video format* ..... Mpeg 4
- *Video duration* ..... Around 10 seconds. (198±93 Frames per video).

### Subjective test

- *Observation distance* .. The head of the subject was placed on a chin-rest located at 60cm from the display.
- *Environment* ..... ITU-R BT.500-11
- *Duration* ..... 11,4 min.
- *Free or Quality Task* ... Its a Task Free Experiment.
- *Calibration procedure* .. The calibration procedure was carried out at the beginning of each block. The subject had to follow a target that was placed sequentially at 5 locations evenly distributed across the screen. Accuracy of the calibration was then validated at 4 of these calibrated locations. If the error in the estimated position was greater than 0.5 degrees of visual angle, the experiment was stopped and calibration restarted.

### Eyetracker

- *Eyetracker* ..... [SMI RED Eyetracker](#)
- *Eyetracker mode* ..... Binocular
- *Acquisition frequency* ... 50Hz

## Observers

- *Number of observers* ... 22 naives with ages ranging from 11 to 43 (All the videos were presented in random order to each subject).
- *Number of fixations* ..... 40.558 (Left eye) / 40.348 (Right eye) Extracted with [BeGaze™](#) Software.
- *Subject-Video hours* .... 4,19h (22 subjects\*11,4min)

## Display

- *Display model* ..... The LCD display had a 1280×1024 pixels resolution, with a physical screen size of 33,792mm.(H) x 27,0336mm.(V)
- *Display resolution* ... 1280×1024
- *Display luminance* ... 0.65/450 cd/m<sup>2</sup>
- *Display frequency* .... 60Hz

## Fixation database structure

Each video has been rescaled to a 320×240 resolution and the fixation information for all the subjects is referred to the same image space. X and Y are image's coordinates referred to the leftmost bottom corner, and both parameters *Start* and *Duration* are in ms. All the fixations have been saved in the CITIUS\_VDB\_Fixations file, [CITIUS\\_VDB\\_Fixations](#), using matlab with the following structure:

```
EyeTrackVDB
|-Video (List of Videos)
  → Name (Original video name)
  → ShortName (Used in publications)
  → NF (Number of frames)
  → FPS (Frames per second)
  → FixL (List of fixations for the left eye: [X,Y,Start,Duration])
  → FixR (List of fixations for the right eye: [X,Y,Start,Duration])
  → Frame (List of Frames)
    |-Time (Start time for each frame)
    |-FixL (List of left fixations that happened during this frame:
[X,Y,Start,Duration])
    |-FixR (List of right fixations that happened during this frame:
[X,Y,Start,Duration])
```

## How can I use this fixation database structure?

In the following example we illustrate how to access to the XY coordinates of the left eye fixations in the seventh frame of the third video of the database:

```
>> load('EyeTrackVDB.mat');
```



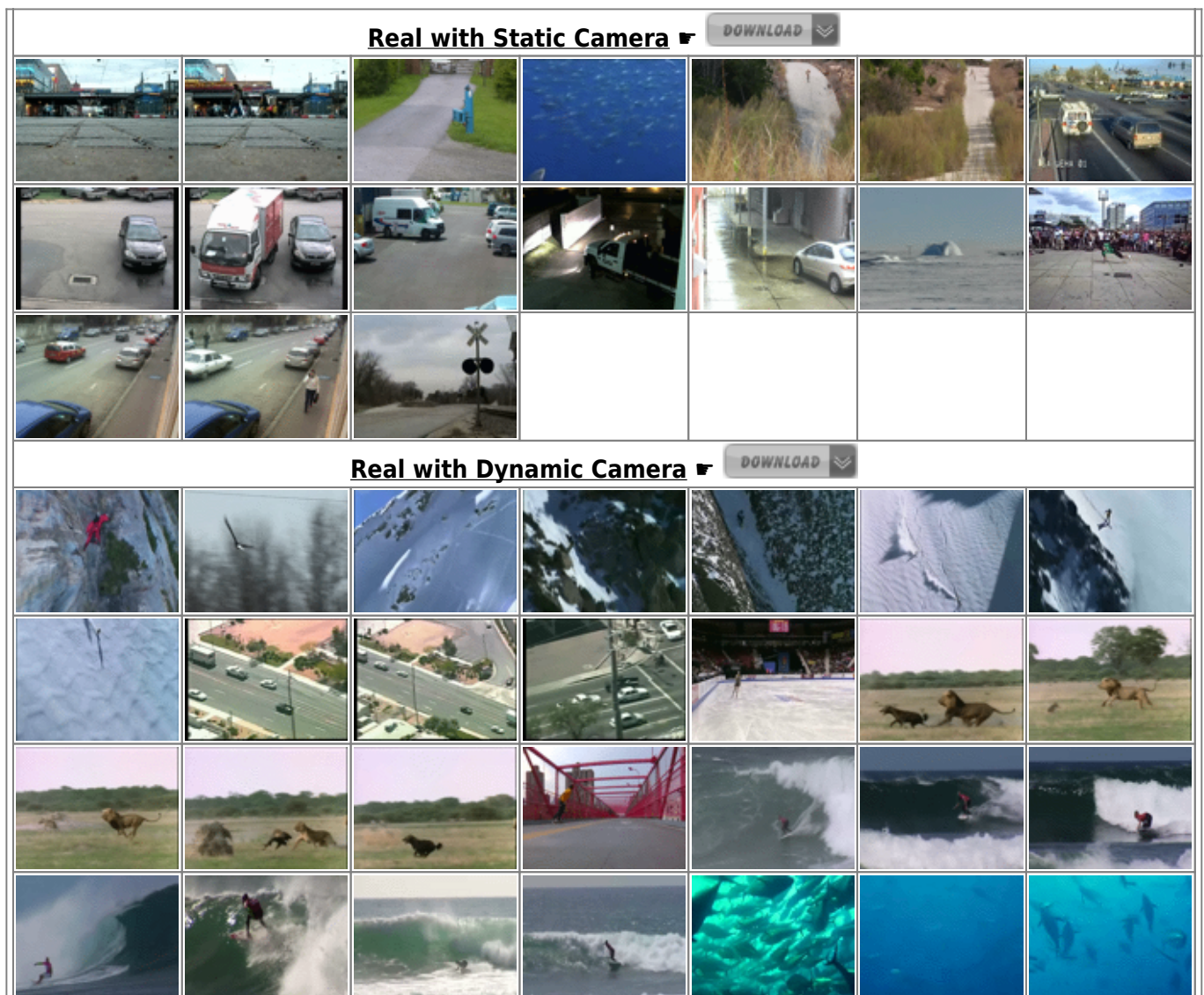
You can also use filters, for instance to show all the videos that contain the string 'RCD' in the name use:

>>

```
WEB_ShowVideoAndFixations('..\DataBases\CITIUS\HumanData\eyeTrackData\EyeTrackVDB.mat','RCD');
```

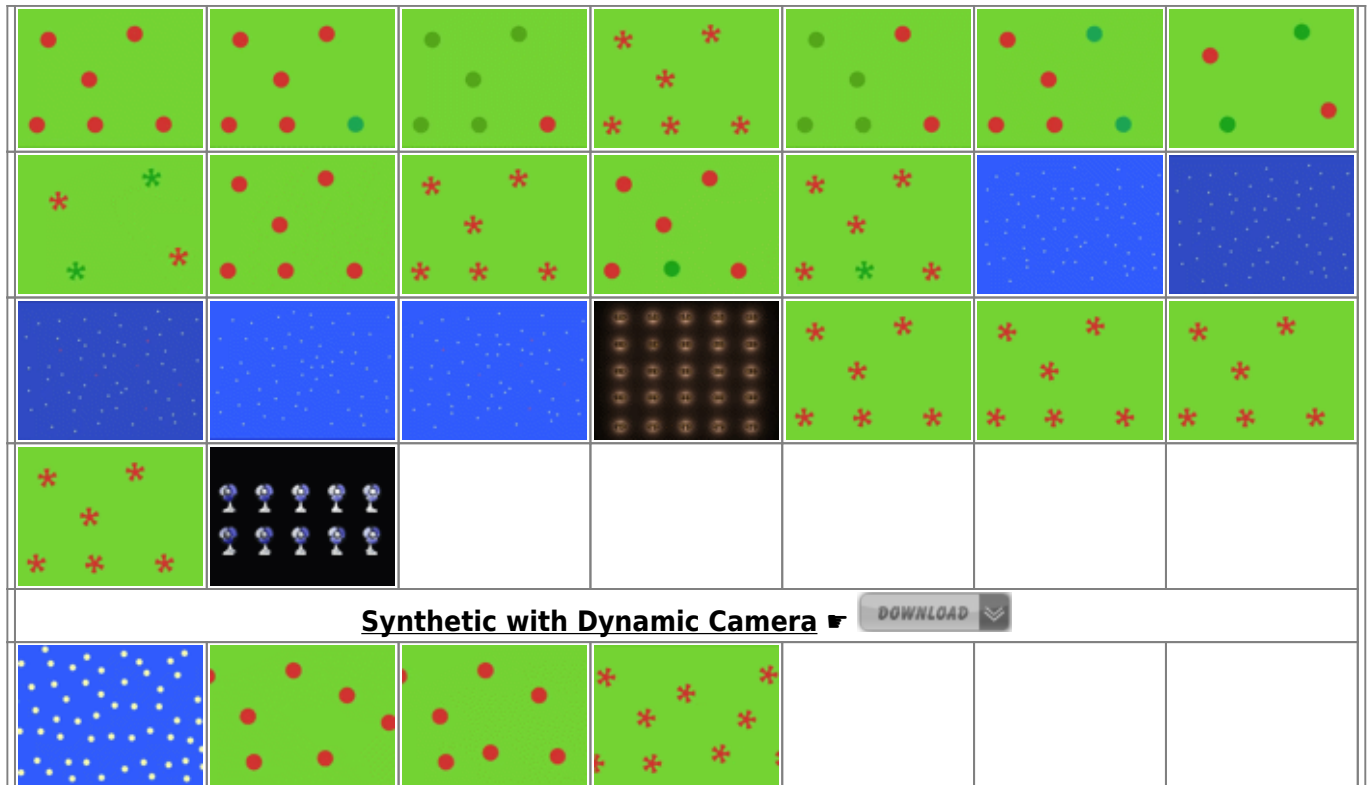
## Thumbnails of videos

- The following images show thumbnails for the Natural videos in the CITIUS database. All the videos included on the database have been rescaled to a resolution of 320x240 pixels.



- The following images show thumbnails for the Synthetic videos in the CITIUS database.





## Download All

If you only want to download the videos you can do it by clicking on the download icons of the previous section. If you have a fast enough internet connection and you prefer to download a stand alone file, with all the information and folder structure included inside, you can download by clicking on this link:

[CITIUS\\_VDB\\_Videos](#)

You can also download this database using git repository:

[GitLab CITIUS\\_VDB\\_Videos](#)

[GitLab CITIUS\\_VDB\\_Videos](#)

## Research Team

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- [Antón García-Díaz](#). PhD, AIMEN Technology Center - O Porriño, Spain.

## Bib reference

The database, along with MATLAB functions for its use, will be freely downloaded here, and will be used without restriction for educational and research purposes, providing that our paper “Dynamic Whitening Saliency” from IEEE Transactions on Pattern Analysis and Machine Intelligence ( **t-PAMI**), is cited in any published work.

```
@article{10.1109/TPAMI.2016.2567391,
author = {Leborán Alvarez, Víctor and García-Díaz, Antón and Fdez-Vidal,
Xosé R. and Pardo, Xosé M.},
title = {Dynamic Whitening Saliency},
journal = {IEEE Transactions on Pattern Analysis and Machine Intelligence},
volume = {39},
number = {5},
issn = {0162-8828},
year = {2017},
pages = {893-907},
doi = {http://doi.ieeecomputersociety.org/10.1109/TPAMI.2016.2567391},
publisher = {IEEE Computer Society},
address = {Los Alamitos, CA, USA},
}
```

## Other video databases

- [CRCNS](#) - Collaborative Research in Computational Neuroscience : 50 videos viewed by 8 users (L. Itti 2006).
- [IRCCyN IVC](#) Eyetracker SD 2008 11 : 51 videos viewed by 37 users (Fadi Boulos, Wei Chen, Benoit Parrein and Patrick Le Callet 2008).
- [The DIEM Project](#): 85 videos viewed by 250 users (John M. Henderson, Robin Hill, Tim Smith and K. Mital 2009).
- [Lubeck University Dataset](#): 54 videos viewed by 18 users (Michael Dorr, Thomas Martinetz, Karl Gegenfurtner and Erhardt Barth 2010).
- [Actions in the Eye](#): 497107 frames viewed by 16 users (Stefan Mathe and Cristian Sminchisescu 2012).
- [Eye tracking database for standard video sequences](#): 12 Videos viewed by 15 users (H. Hadizadeh, M. J. Enriquez, and I. V. Bajic 2012)
- [ASCMN database](#): The database contains 24 videos split into 5 classes (N. Riche, M. Mancas, D. Kulibrk, V. Krnojevic, B. Gosselin, T. Dutoit).
- [Hollywood2](#) : It includes 69 movies used to generate the 823 train and 884 test clips in this dataset (Marcin Marszalek and Ivan Laptev and Cordelia Schmid).

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