MaggotTracker

Drosophila melanogaster larval locomotion

User manual for MaggotTracker software components.

MagRecognizer.

I. Overview
MagRecognizer processes a video (with .avi extension) to generate a list of x,y coordinates of the 13 points detected along the midline of an animal.

II. Installation
Download MagRecognizer (downloads).
Simply unzip the ZIP file. The Java programs are compiled already.

III. Input files
Each recording has 3 files associated with it:
1. filename.avi: The movie file of a larva crawling.
2. filename.info.xml: The configuration file generated automatically by WormTracker together with every video recording.
3. filename.log.csv: The positions of the stage at different time stamps, also generated automatically by WormTracker together with every video recording.

The input to MagRecognizer is a folder containing such files, regardless of how many recordings exist.
There is no user-interaction when MagRecognizer processes the videos. Hence, the method we use to run it is via command-line:
On *Windows* systems:

- open a "Command Prompt" window
- Go to the folder where MagRecognizer is located. For example: cd \maggottracker\magrecognizer
- Type 'run' followed by the folder containing the videos. For example: run c:\data\folder1

On *Mac OSX*, or *Linux* systems:

- open a "Terminal" window
- Go to the folder where MagRecognizer is located. For example: cd /Users/ana/maggottracker/magrecognizer
- Type './osx_run.sh' followed by the folder containing the videos. For example: ./osx_run.sh /Users/ana/data/folder1

IV. Result files
The result files of a movie file (such as filename.avi) are placed into a newly created directory with the same name as the movie file (except the .avi extension) and with the prefix 'worm_'. For example, if the original video file is filename.avi, then the folder name will be worm_filename .
Then the movie file, and its associated .xml and .csv files are moved into that directory. The original movie file is renamed to movie.avi, and the other two files are renamed to info.xml, and log.csv .
A points.txt file is created, containing x,y pixel coordinates of the 13 points of the midline of the animal.
A file abs_points.txt is created, containing x,y coordinates translated into milimeters by using the stage log information.
Several image files are created (one every 100 frames) as the video is processed, containing an overlay of the 13 detected points.

V. Additional notes
- It is recommended to use a recent version of Java (such as 1.7) as we have found in rare cases that a video fails to process in earlier versions.
- If the need arises to re-process a video. It is possible to copy the .avi, info.xml, and log.csv and manually rename them as they originally were. However, another method is to use the '--again' option in MagRecognizer. Example: run c:\data\folder1 --again
- We tested MagRecognizer successfully on Windows XP, Windows 7, Mac OSX 10.5.8, RedHat Enterprise Linux Server release 5.8
- The time to process a video is approximately the same as its duration.
- The detected points in pixels do not imply that point 1 is the head of the animal, such information is determined at a later step: abs_points.txt has point 1 as the head of the animal.