

# Easy Trainer Quick Start Guide

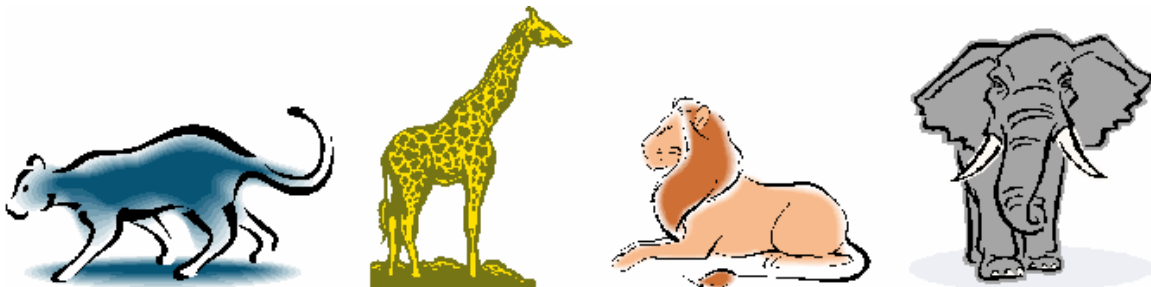
## *Introduction*

Two versions of easy Trainer are available: Easy\_Video\_Trainer and Easy\_Image\_Trainer. They use the CogniMem neural network in the same way and their graphical user interfaces are very similar. The CogniMem Knowledge Files they generate can be exchanged from one application to the other.

**Easy\_Video\_Trainer** is intended for use with one of the CogniMem Evaluation boards interfaced to a video sensor. You can teach patterns seen in live video images and monitor the recognition in real-time. The application features a menu to edit the image acquisition settings and one to enable the output lines of the board. Finally, you can record large amount of images for learning and testing at a later time with Easy\_Image\_Trainer for example.

**Easy\_Image\_Trainer** loads images saved to disk. It features a View Transform menu which is not available under Easy\_Video\_Trainer at the present time and displays the spatial distribution of the network response over the full image. This can be especially useful to pinpoint areas of uncertainty and decide if the training is sufficient or not.

For your convenience, an image AnimalCard.jpg is supplied in the Doc folder of the CD. You can print it and place it in front of the camera interfaced to Easy\_Video\_Trainer, or load it directly into Easy\_Image\_Trainer.



## *1) Define what to recognize...*

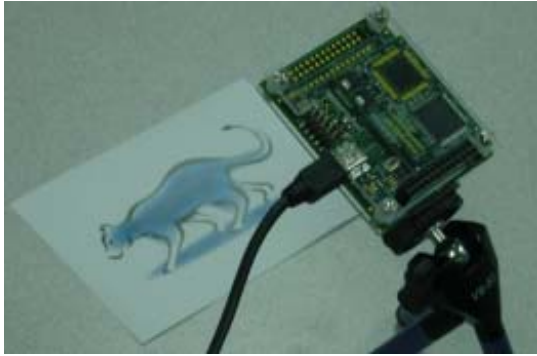
The first step consists of editing the **names of the categories of objects** to identify. This is done in the QuickTeacher panel shown below. Shift click at "Category 1" to edit a new name such as "Cheetah". Click at "edit new name" to add a second category such as "Lion". Repeat to add "Giraffe" and "Elephant".

The second step consists of defining the **size of the objects** to identify. The default size is outlined with the rectangle in the image window, also called region of interest. The left mouse button must be depressed to move the region of interest. The right mouse button must be depressed to resize the region of interest.

### **REMARK**

The following paragraphs describe how to teach with **Easy\_Video\_Trainer** by placing different objects in front of the camera. You can do the same with **Easy\_Image\_Trainer** by loading different images and/or moving the region of interest in the displayed image.

## 2) Teach examples



Place the card with the Cheetah in front of the sensor so it appears inside the region of interest.

Click at the name "Cheetah" in the list of categories. The status bar of the main panel should report "Neurons= 1"

Remove the Cheetah. The application may report that it still recognizes a 'Cheetah" because the neurons have not yet been trained to discriminate a Cheetah from anything else.

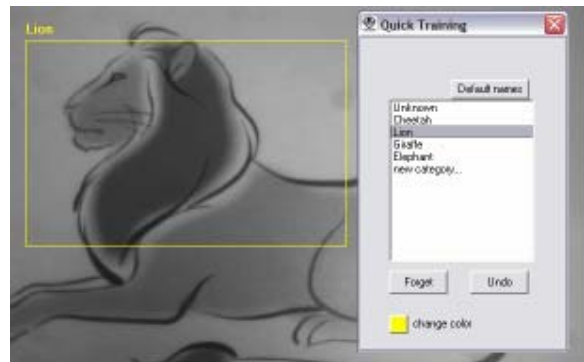
Click at the name "Unknown" in the list of categories until the application reports "Unknown" on the screen.

Place the card with the Lion in front of the sensor so it appears inside the region of interest. Click at the name "Lion" in the list of categories. The status bar should report "Neurons= 2"

Switch the cards again and test if the application recognizes properly the Cheetah and the Lion. If not, you may have to reinforce the training so the neurons learn to recognize these animals while the ambient light might be flickering, or when the cards are presented slightly rotated, or farther from the camera.

Now try adding the recognition of the Giraffe and the Elephant.

When satisfied with your recognition engine, save the project to file for backup purposes using the File\Save project menu.



## 3) Recognize in standalone mode

Monitoring the autonomous recognition of the board requires the following:

- The board must be powered through its external power supply
- LED or other indicators must be connected to the IO lines of the board
- Open the View\Output Settings menu and enable the output lines.
- Save the project to the camera using the menu File\Save to camera.
- Close the Easy\_Trainer application and disconnect the PC.
- Power up the board. Recognition resumes automatically after a few second and you can observe it by moving the cards in front of the sensor.

