LIVE CAPTURE SETTINGS - USING VIDEO CAMERAS

Setting Up Live Capture

make sure no other programmes are using your camera - close Skype / iStopmotion / etc

INPUT > LIVE CAPTURE SETTINGS (cmd + L)

Scan for devices

Select channel 1 > Enable

VIDEO INPUT

Device > built in iSight (or other source)

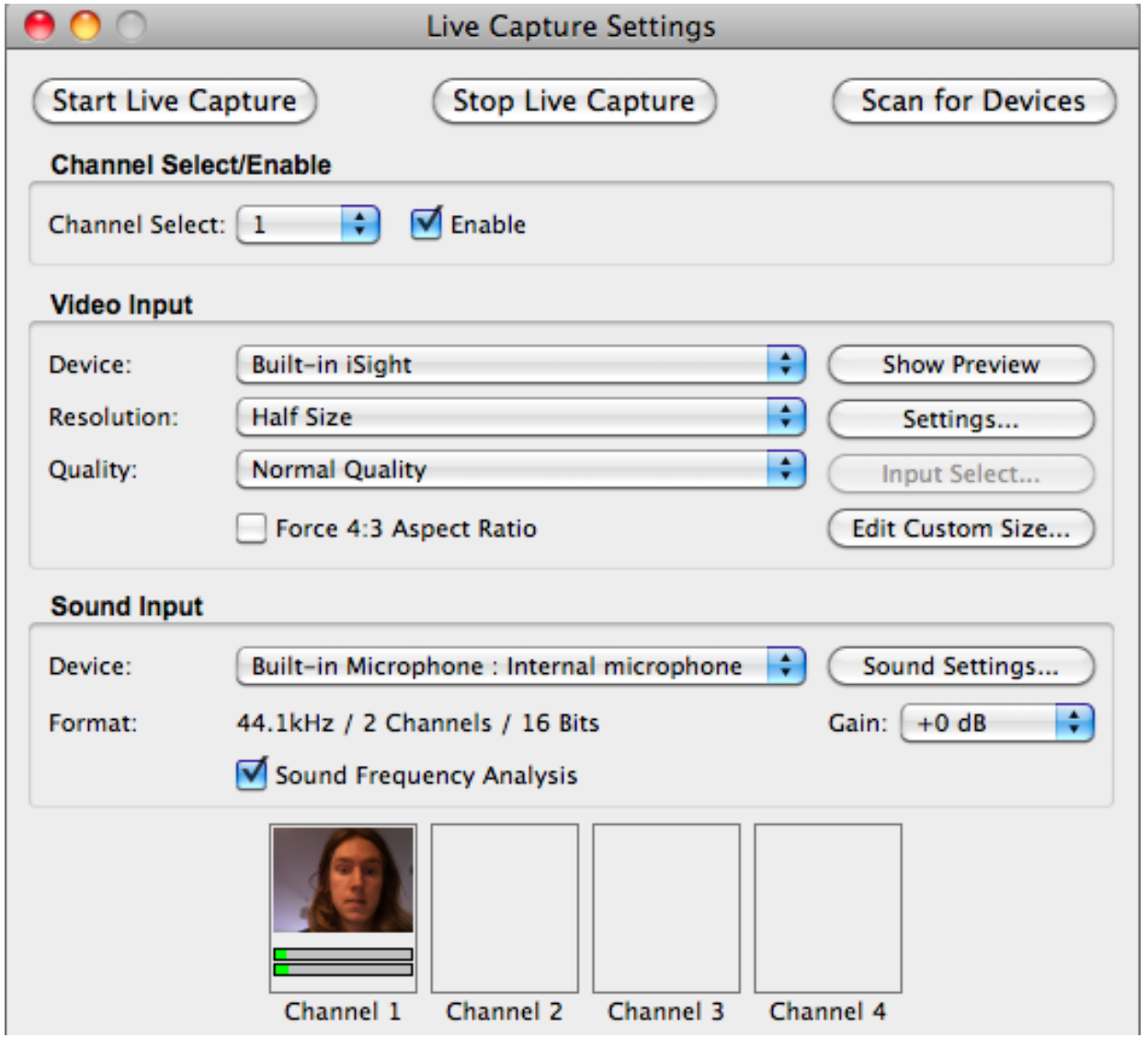
Set your resoultion to half size - this will allow izzy to process faster

SOUND INPUT

Device > Built in microphone (or other source)

click on START LIVE CAPTURE!

use a Video In Watcher and Projector to see your live feed.



DETECTING MOVEMENT WITH DIFFERENCE

Wire the following:
Video In Watcher > Difference > Projector

When you move, your image appears as white on black - the DIFFERENCE between each frame of video as it is processed.

MOVEMENT = WHITE
STILLNESS = BLACK

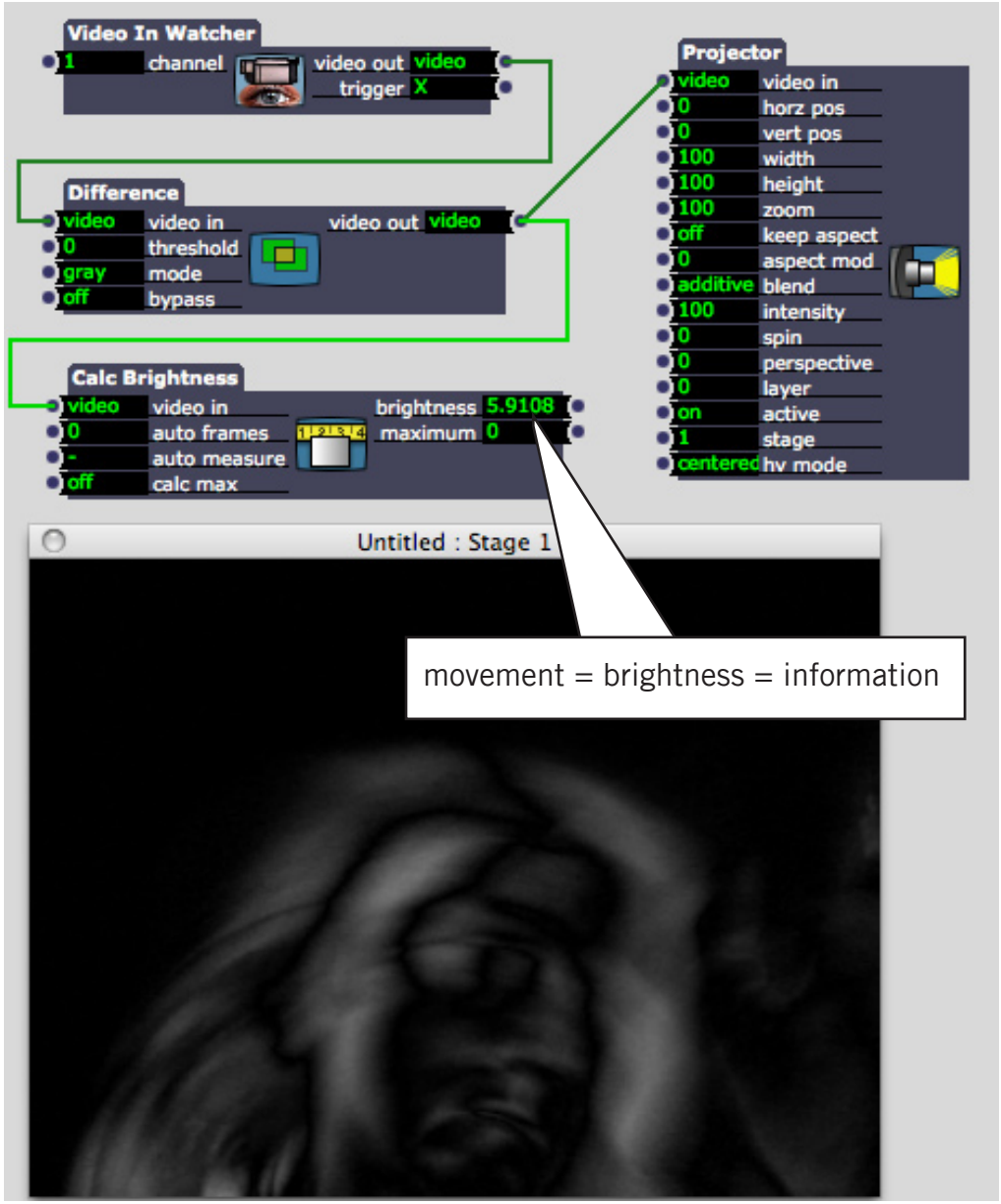
Add a Calc Brightness actor - take a second wire from the Difference actor.

The Calc Brightness actor measures the amount of light in the frame. When using a feed from the difference actor, this means:

MOVEMENT = WHITE = INFORMATION
STILLNESS = BLACK = 0

Task: Movement = ?

Wire this brightness number to another variable (eg spin / volume). It may work best applied to a separate movie player / fx / projector



LIMIT SCALE VALUE

SCALING UP OR DOWN

Sometimes the numbers we receive from an actors output do not correlate well enough to apply to another variable. The range can be too weak or too strong.

eg. - CALC BRIGHTNESS might output a range of 0 - 10, but we need to apply it to a VOLUME of 0 - 100.

eg. - EYES tracking might output a VERT OBJ CTR of 0 - 100 but we only want to apply it a projector SPIN of -20 to 20.

We can use the LIMIT SCALE VALUE to transpose one range of values onto another.

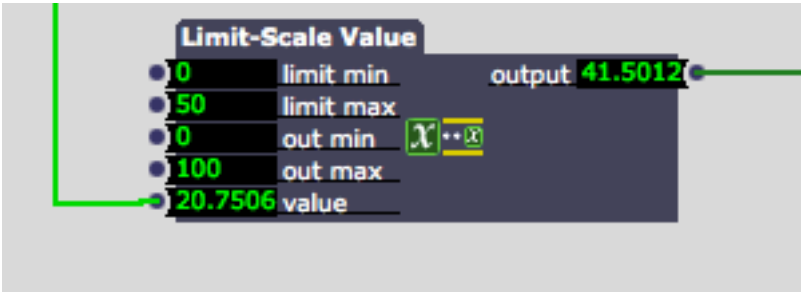
CALIBRATION, CALIBRATION, CALIBRATION

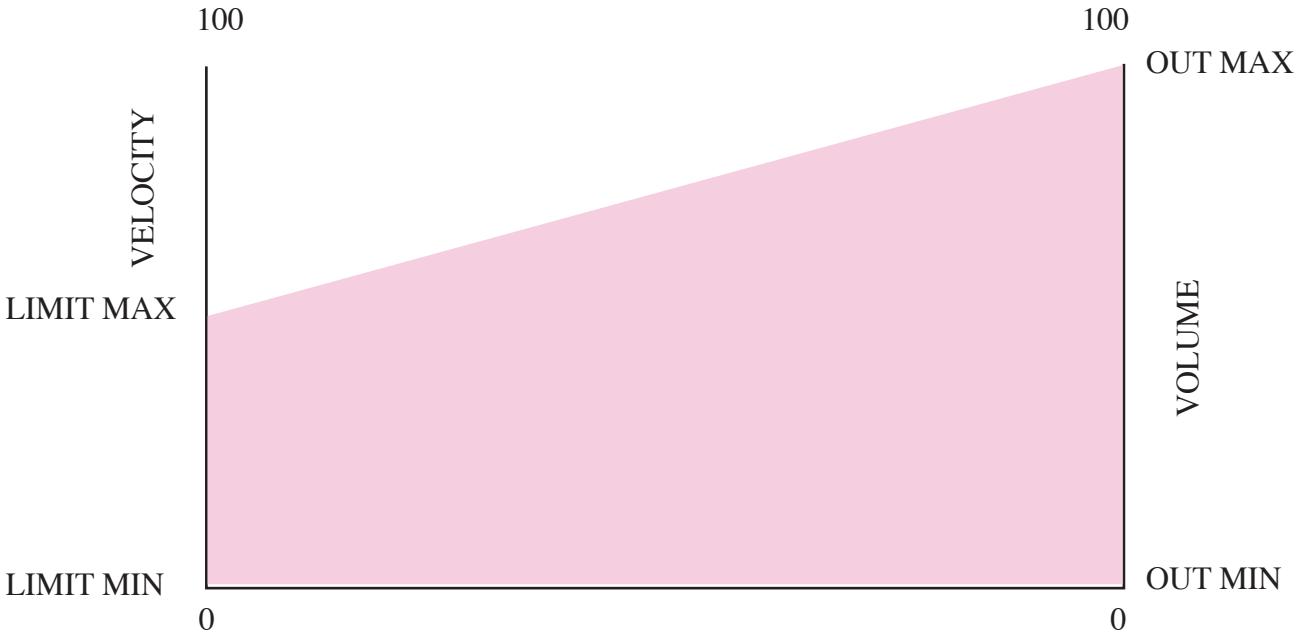
Calibration is about identifying the USEFUL RANGE of values being generated.

Work out the range of values that you are generating from a tracking interaction. eg - MAX and MAX velocity speeds generated.

Set the LIMIT MIN and LiMiT MAX to match this range. (eg 0 and

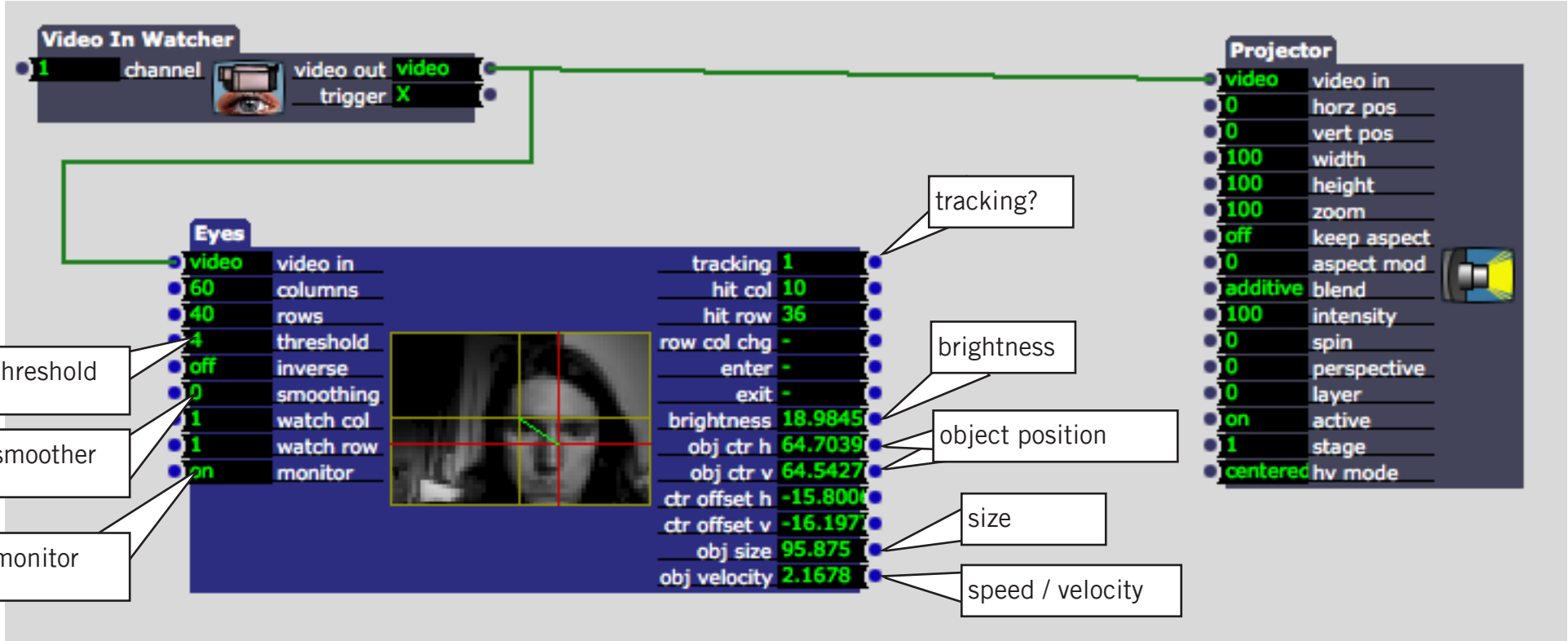
Set your OUT MIN and OUT MAX to the range of values that you want to output





TIP - you can set the LIMIT SCALE VALUE ACTOR to accept / send negative values. This is especially important when applying tracking to H + V positions of actors.

EYES ACTOR



The EYES actor allows you to analyse a video feed.

It tells you:

- if something is **tracking** / not tracking
- the **brightness** of the feed
- the **position** of the brightest area / object
- the **size** of the brightest area / object
- the **velocity** of a moving area / object

YOU MUST PREPARE YOUR VIDEO FEED!
Think about the type of information you are tracking to track, and prepare your feed before it reaches the EYES actor.

TIP - use SMOOTHING at 0.7 to even out the values outputted by the tracker

TIP - use THRESHOLD to filter out unwanted noise

TIP - turn your MONITOR on

TRACKING 01 - DIFFERENCE / MOVEMENT

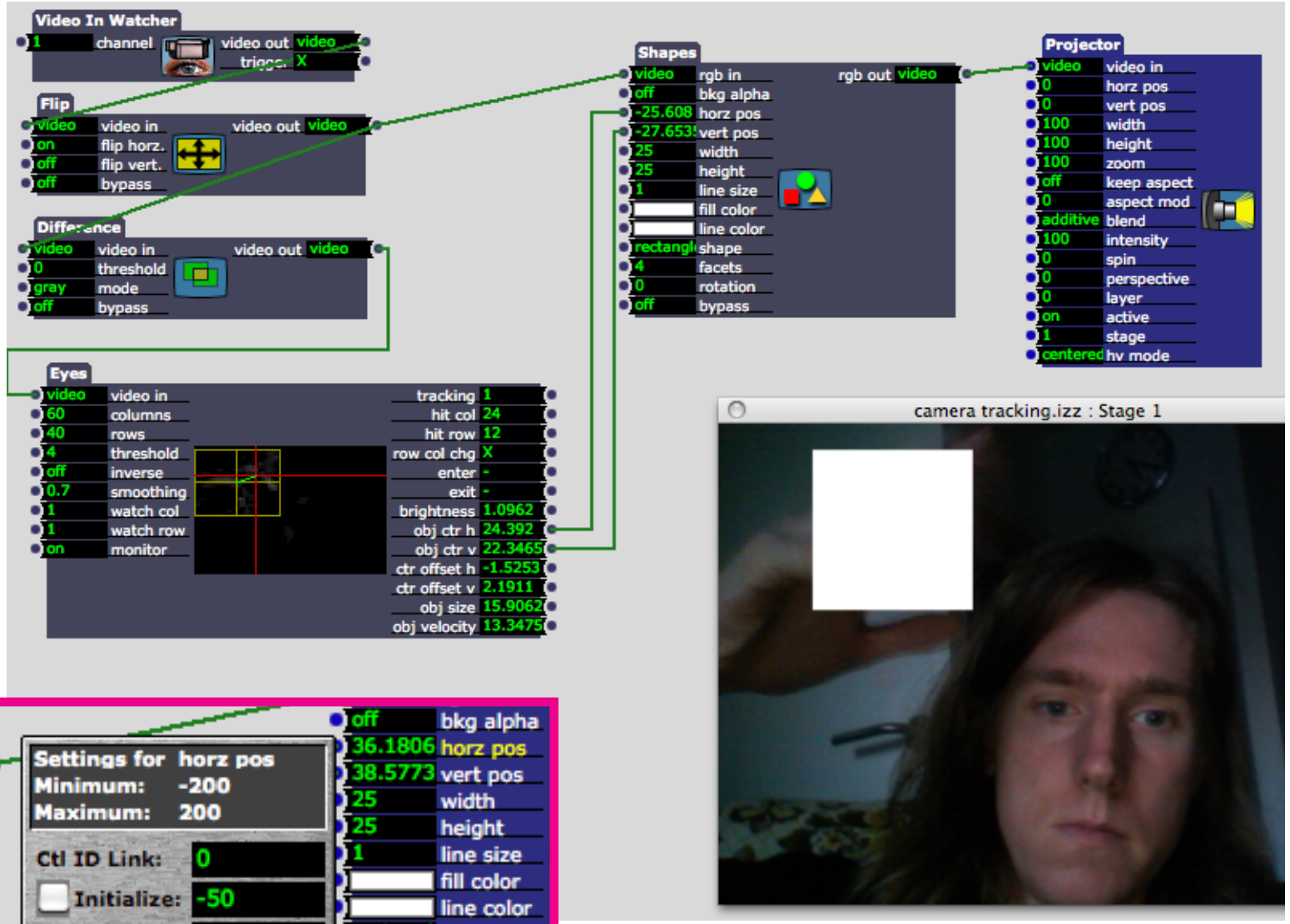
DIFFERENCE

The DIFFERENCE actor allows us to highlight movement. By sending this to EYES, EYES tracks anything moving in the frame.

- Add a SHAPE actor to the patch
- Wire the OBJ CTR H and OBJ CTR V of the EYES actor to the H POSITION and V POSITION of the the SHAPE actor

TIP - add a flip actor to the feed to make make your isight a mirror.

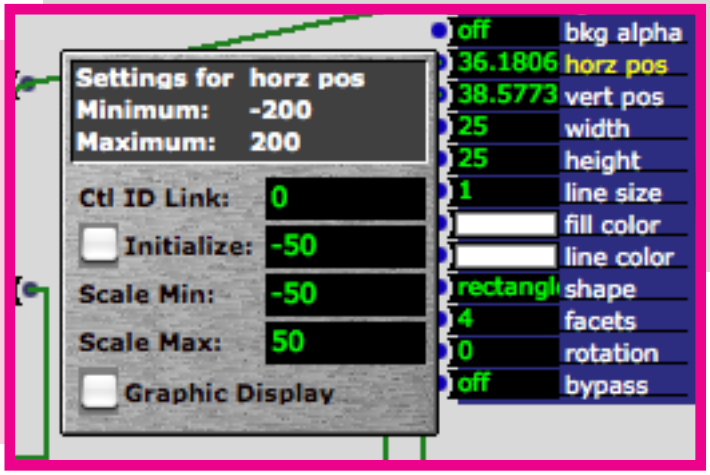
TIP - set the SMOOTHING to 0.7



MINIMUM / MAXIMUM

- click on the HORZ POS of the SHAPE actor
- Set the SCALE MIN to -50
- Set the SCALE MAX to 50

this will limit the movement of the shape actor on the stage



TIP - add a CONTRAST ADJUST actor between the DIFFERENCE and EYES actors. Adjust the levels to boost the brightness of any movement. You may also have to raise the THRESHOLD on the EYES actor to filter out noise.

TRACKING 02 - POSITION / FREEZE

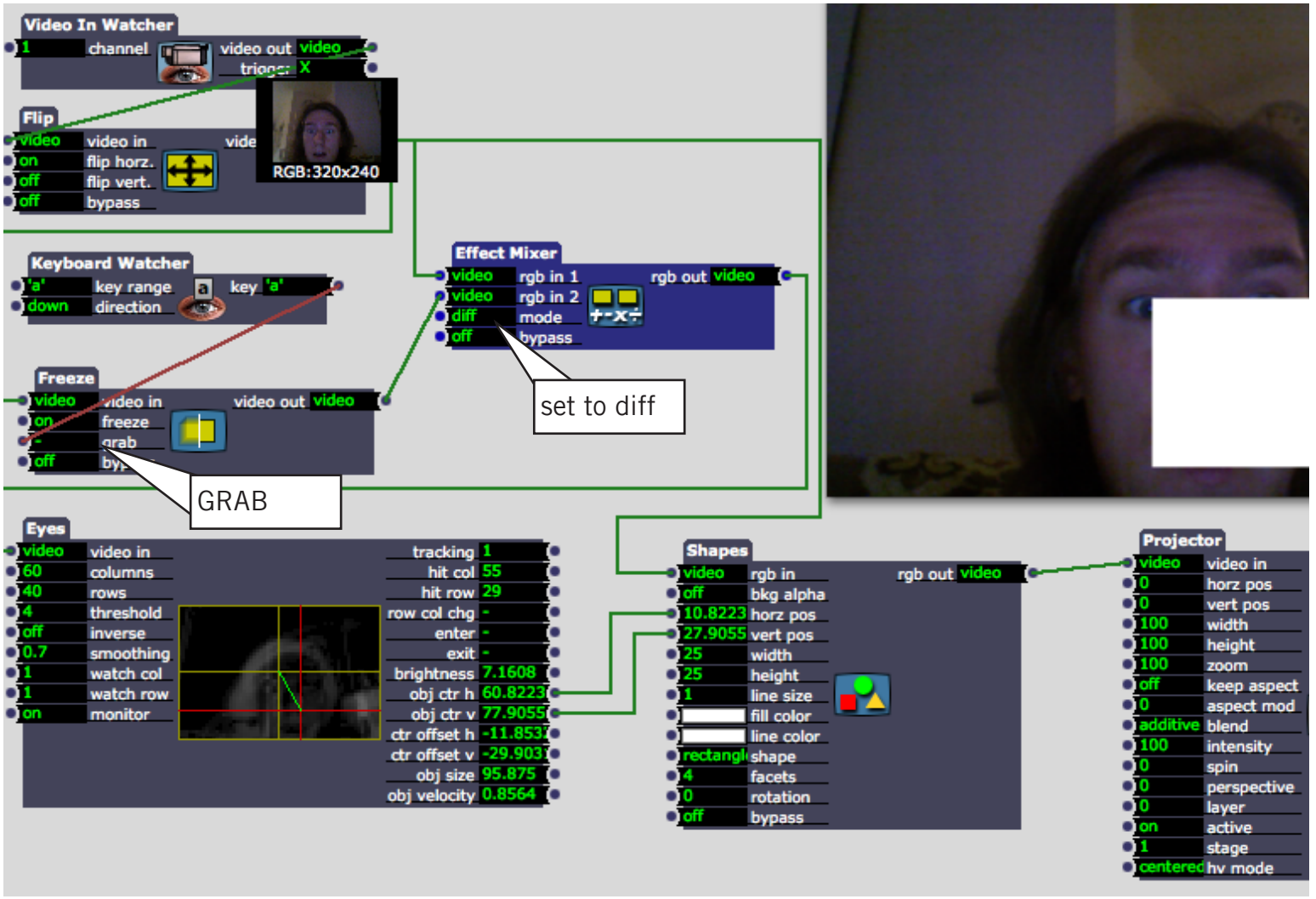
FREEZE

The FREEZE actor takes a Freeze Frame of the video feed passing through it.

By comparing a Freeze Frame with the live feed,
we can identify an objects that enter the filed of view since the Freeze Frame.

- Add a FREEZE actor
- Add an EFFECT MIXER and set the mode to DIFFERENCE
- wire your live camera to RGB1 of the EFFECT MIXER
- wire a second feed from your live camera to FREEZE
- wire the output of FREEZE to RGB2 of the EFFECT MIXER
- wire the EFFECT MIXER to EYES
- take a GRAB (Freeze Frame) from the FREEZE actor - either click on the GRAB trigger or wire a keboard watcher

The monitor of the EYES actor should go black when you update the GRAB - any object entering into view will show up as white, and will be tracked



TIP - stand out of sight of the camera feed when you take your FREEZE GRAB!

TIP - dont move your camera after the GRAB

TIP - be aware of exposure - keep clear of back lights, and set your camera to manual exposure if possible.

TRACKING 03 - COLOUR

CHROMA KEY

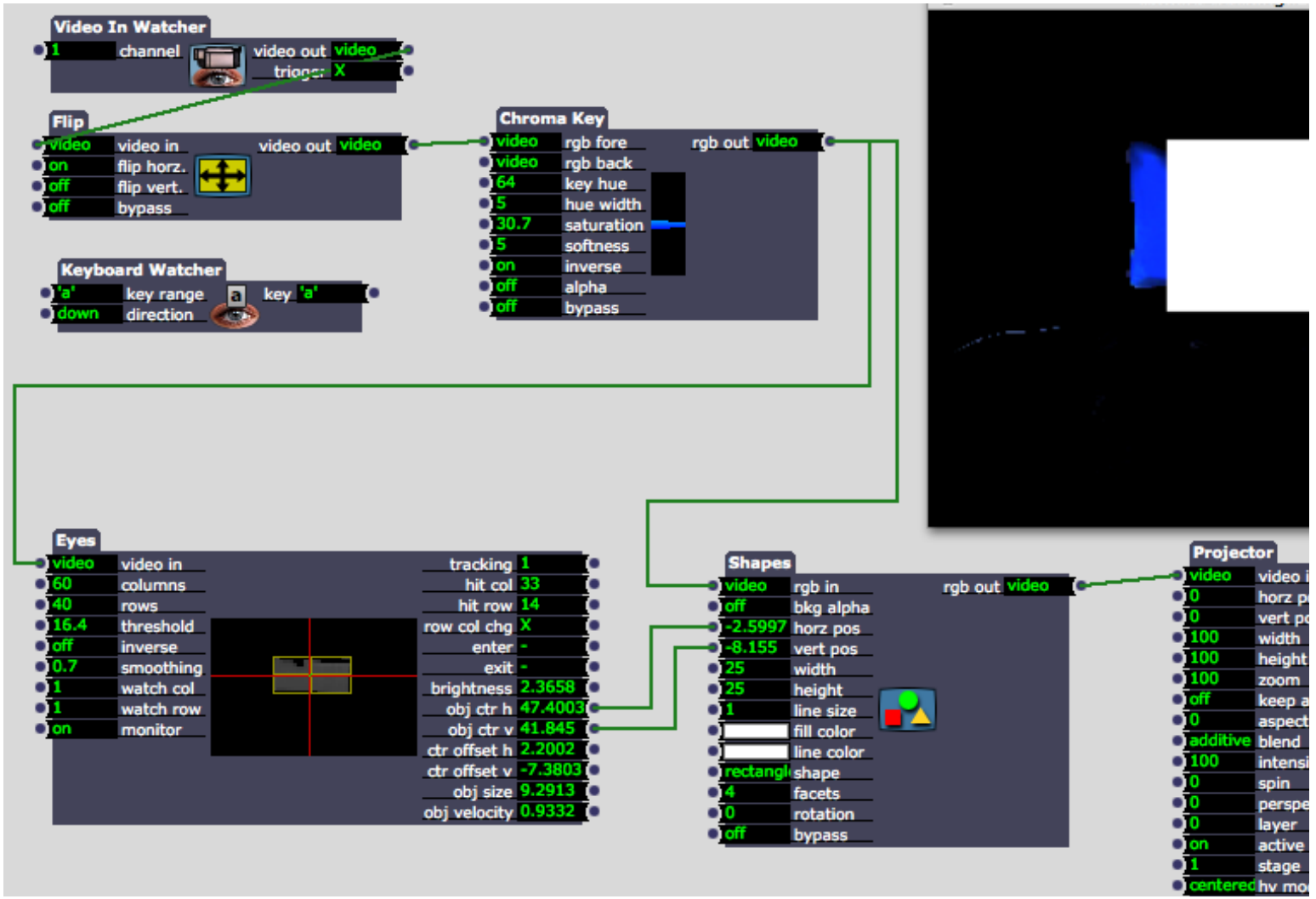
We can use the CHROMA KEY actor to either remove a colour from the feed or isolate it.

For tracking, we isolate the chosen colour so that EYES can only see that colour information.

- wire up a CHROMA KEY actor
- set INVERSE to ON
- hold up your coloured object infornt of the camera
- select the KEY HUE of the colour you are looking for
- wire the output of CHROMA KEY to EYES

The monitor of the EYES actor should go only show the object that you have isolated by colour.

By isolating separate colours we can track multiple objects. Simply use a second set of CHROMA and EYES actors.



TIP - CALIBRATE - carefully adjust hue, saturation, softness and width to get the best colour match. Dont make the hue width too wide or soft

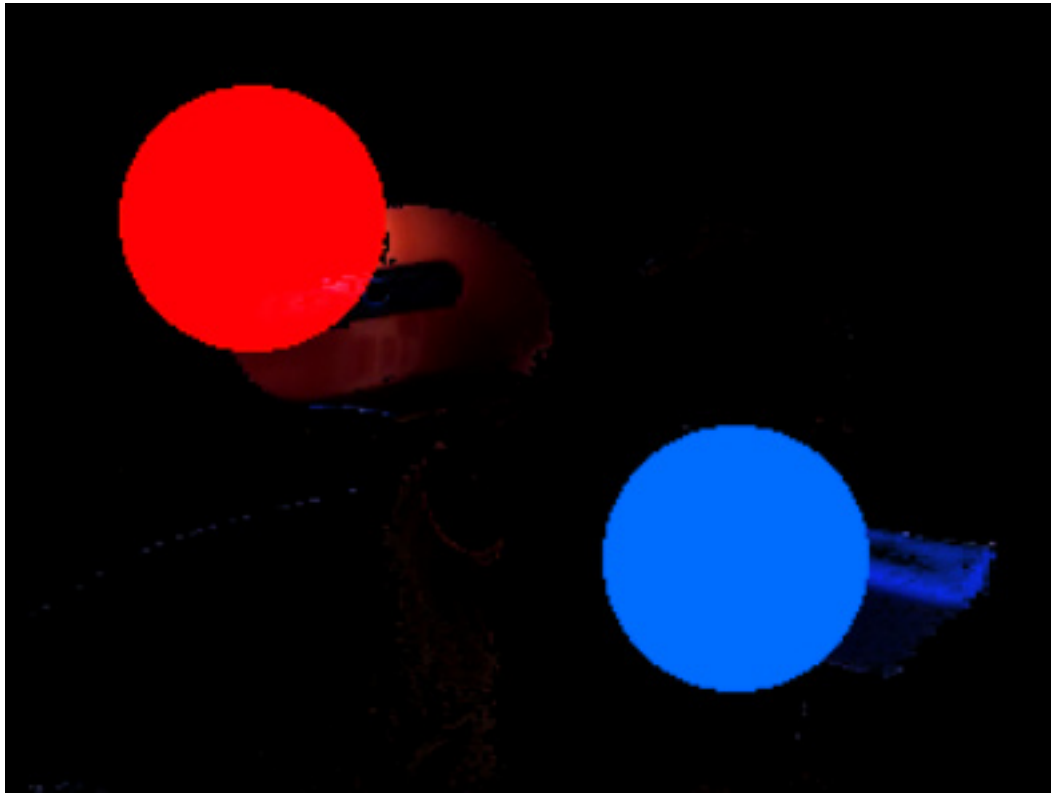
TIP - you can add another tracking patch (CHROMA > EYES > output) from the same video feed in order to track a second colour.

TASK 02 - TRACK & REACT

INPUT, PREPARE, ANALYSE, APPLY

Tracking an object using a live camera feed is straightforward as long as you remember these four steps:

1. INPUT - you need a reliable live camera feed
2. PREPARE - you must adapt that live feed to show a certain kind of information that you are looking to track - eg colour, movement. Use the video FX actors to do this.
3. ANALYSE - use the EYES actor to analyse the prepared feed - tweak it further - caibrate your threshold and set your smoothing to 0.7 to get the best data.
4. APPLY - what will you do with the tracking data? You can apply those numbers to almost anything!



TASK - tracking-reactive patch

Create a tracking patch that uses either movement, position or colour to track an object in the camera feed. Apply that tracking data to another piece of media or effect variable. Try and make the tracking interaction as pleasing as possible.

OTHER HELPFUL TOOLS:
Limit Scale Value