

# Isadora (for users)

## General information

Isadora is a graphical programming environment we will be using to control digital media.

Isadora has a pretty intuitive feel, however for first time users it may be unclear which actors to use for specific purposes. Isadora has created a few [tutorial videos](#) that are extremely useful for first time users.

If you are looking for more information or are seeking advice there is a lot of information on the [Isadora forums](#).

## Custom Actors

Isadora uses modules (called actors) to control the flow of data within its interface. We have created two new actors

### Face Tracker

To download the plugin only click [here](#).

To download the full file including the source code click [here](#).

This actor allows for facial tracking with a use of a webcam.

In order to use this actor we first need to enable our webcam within Isadora.

Steps:

1. Input > Live Capture Settings
2. Scan for Devices
3. Video Input (works well with the following settings in Roberts lab)

- Device: Choose a webcam
- Resolution: 320x240 (NTSC Half)
- Quality: Normal Quality

4. Start Live Capture
5. Output > Force Stage Preview

Inputs:

- VideoIn - A video source (like video in watcher)
- Bypass - An on/off switch that decides whether to apply the face tracking to the video feed
- Rectangle - An on/off switch that decides whether to apply a red rectangle around the face

Outputs:

- VideoOut - The processed video feed. Can be sent on for more manipulation or for display (projector)
- X Pos - The x-position of the face on the screen (may need to control the scaling when using it with other actors)
- Y Pos - The y-position of the face on the screen (may need to control the scaling when using it with other actors)

### Python Interpreter

This actor allows Isadora to call a python function located anywhere on the system. There are a few restrictions that have been implemented to allow this framework to be possible.

File restrictions and rules:

- Must be a python file (".py" extension)

Function restrictions and rules:

- Functions can have at most 10 parameters
- Default values are not supported
- Parameters have to be of the type "int", "float", or "string"
- Parameter names must end with "\_int", "\_flt", or "\_str" corresponding with their type. For example:

```

def add( x_int, y_int):
    """
    This function adds 2 values
    @x_int: an integer
    @y_int: an integer
    @return: an integer
    """
    return x_int + y_int

```

- Multiple input types is allowed
- Output types are also restricted to "int" or "float" but they can be a tuple (i.e. (0,1,2,3) )

```

def count(iters_int):
    """
    This function counts from 1 to iters_int
    @iters_int: the number of values to count to
    @return: a tuple of integers ranging from 1 to iters_int inclusive
    """
    L = []
    for i in range(1,iters_int + 1):
        L.append(i)
    return tuple(L)

```

- Maximum of 20 outputs
- No string outputs

Inputs:

- Path - The directory containing your python file
- File - The python file without the extension (i.e. example not example.py)
- Func - The name of the function
- GetParams - An on/off switch that creates or destroys the python parameters within Isadora
- The parameter names of your python function will appear in the Isadora actor.

Outputs:

- Output - The number of outputs will change depending on how many outputs the python function returns.

## Future work

Python Interpreter

- string outputs
- handle python inputs with default values
- handle video input to the python program