

IMCA 221
Programming for Artists
winter 2026

lee wilkins
l.wilkins@concordia.ca

**Class is on Zoom even in the classroom
for sharing, find the details on Moodle**

<https://moodle.concordia.ca/>

Download the slides!

Midterm: Transform - Groups of 2-3, 25%, February 26

In this project you are invited to look beyond the computer screen and transform a space or atmosphere. Using primarily audio and video (and other if you want to) MaxMSP tools, bring us into a transformed within (or nearby) our classroom. This could mean changing the mood, forcing us to change perspectives, or imagine something new. Your project should **not** appear as a max patch, but as a piece for people to approach and engage with through a linear progression or interactive element. Your work should in some way have an arch or experience that builds or changes throughout the experience.

Be intentional. What do you want us to experience, and how are you bringing us there?

This work should feel complete - take note of where wires and cables are. Use projectors, lights, staging, curation etc to create a space. The work should be approaching gallery-ready state. Free to re-arrange any nearby space or reserve a critique room.

Midterm group making

**Midterm: Transform - Groups of
2-3, 25%, February 26**

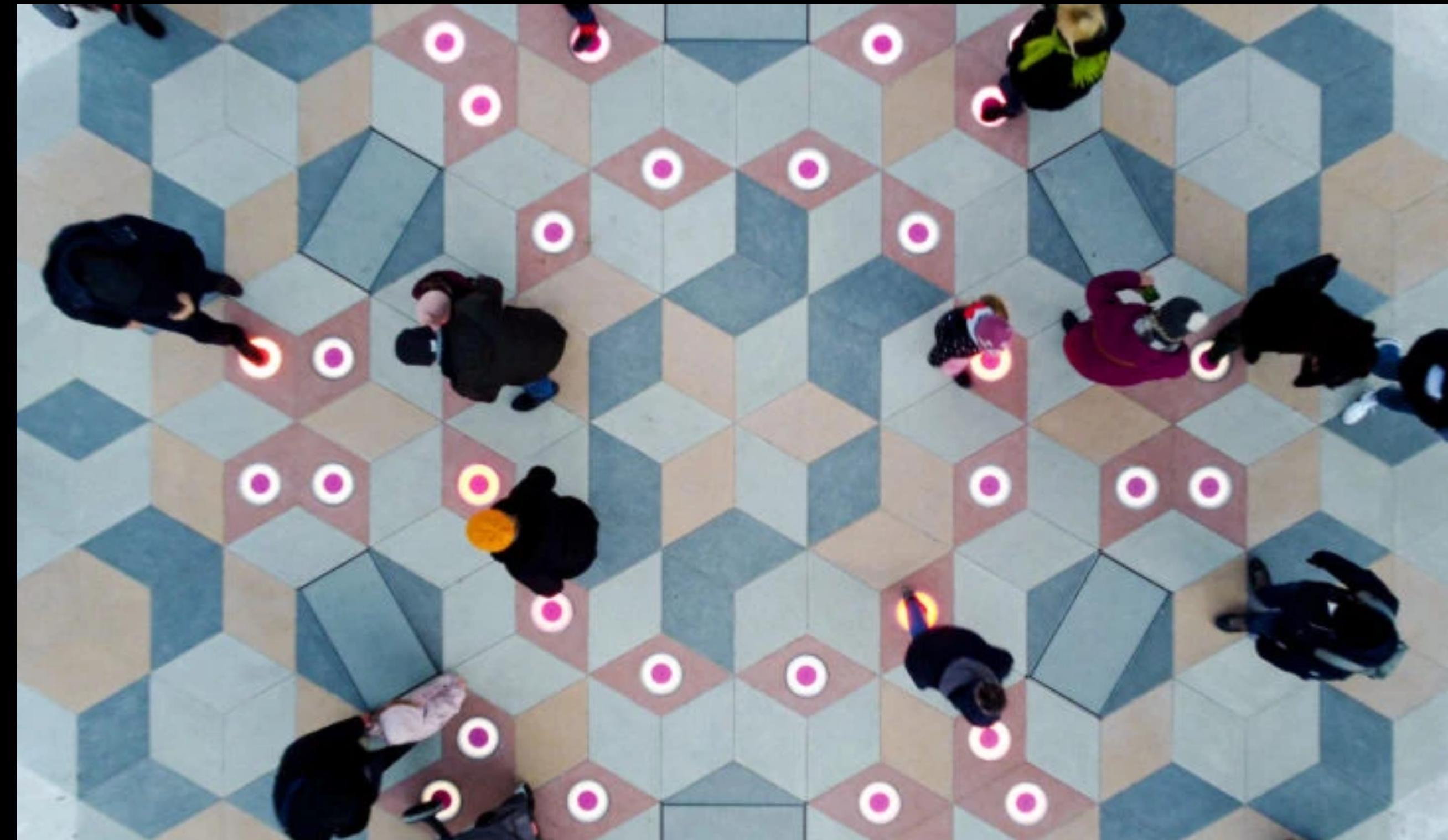
Sign Up Here -

https://docs.google.com/spreadsheets/d/1wxLqPLcGetGB4Q1BJZN32lovei6hk-xUEtaqF_8HGw/edit?usp=sharing



[https://macm.org/
en/exhibitions/
rafael-lozano-
hemmer-unstable-
presence/ Raphael
Lozano Hemmer](https://macm.org/en/exhibitions/rafael-lozano-hemmer-unstable-presence/)

[https://www.lozano-
hemmer.com/
images.php](https://www.lozano-hemmer.com/images.php)



Daily Tous
Les Jours
[https://
www.dailytou
slesjours.com
/en/work](https://www.dailytouslesjours.com/en/work)



Mapp
Montreal
Festival
[https://
www.mappmt
l.com/en](https://www.mappmtl.com/en)

GitHub

Github is a place you can store and edit code. It is version control so you can go back and look at old code or collaborate with others.

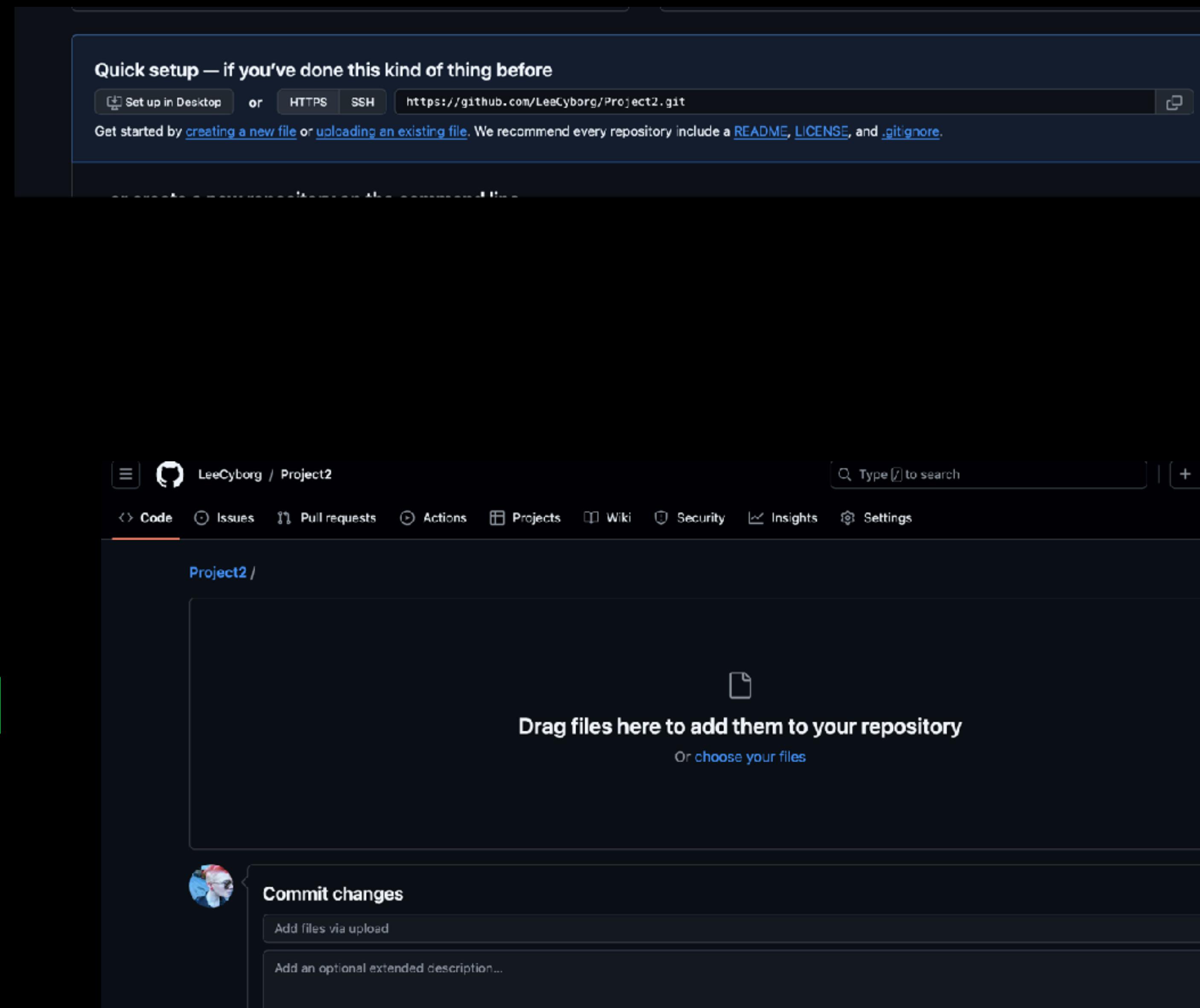
Our class has a github!

Repositories are like projects that hold code. Create a new repository for each project.

The screenshot shows a GitHub profile for the user 'LeeCyborg'. The profile picture is a circular photo of a person with red and white hair wearing sunglasses. Below the photo, the name 'Lee Wilkins' and the handle 'LeeCyborg' are displayed. A sidebar on the right contains pinned repositories: 'CART253-F-22' (Public, JavaScript), 'soft-speaker-spiral-calculator' (Public, JavaScript), 'DMX-Pretends-To-Be-Neopixel' (Public, C++), 'OrigamLee' (Public, Python), and 'Liquid-Dress' (Public, C++). At the top right, there is a search bar and a menu with options: 'New repository', 'Import repository', 'New codespace', 'New gist', 'New organization', and 'New project'. A large arrow points from the top right towards the 'New repository' option. In the bottom right corner of the main area, there is a 'Create a new repository' form. The form includes fields for 'Owner *' (set to 'LeeCyborg'), 'Repository name *' (empty input field), and 'Description (optional)' (empty input field). Below these fields, there is a section for repository visibility: 'Public' (selected) and 'Private' (unselected). The 'Public' option is described as allowing anyone on the internet to see the repository while choosing who can commit. The 'Private' option is described as allowing the user to choose who can see and commit to the repository.

GitHub.com

You can use a variety of ways to add files to your repository. For now, we can just use drag and drop in the browser. But you can use GitHub Desktop or the command line if you want.



GitHub

**Submit your repository link for
your project (if you want). Create
a new repository of each project.**

Keyboard Shortcuts

<https://docs.cycling74.com/max8/vignettes/keycommands>

a: attrui.

b: button.

c: comment.

f: floating point number box.

h: briefly highlights a small area around the cursor.

H: A capital letter "H" briefly highlights a larger area around the cursor.

i: integer number box.

j: object box containing "jit." for creating Jitter objects.

l: object box containing "live." for creating Live objects.

m: message.

n: new blank object with the cursor active. Typing the name of any object and pressing enter or clicking outside of the object box will transform it into that object.

r: bring up a list of the most recently created objects, including any arguments and attributes typed in. Selecting an element from the list creates an object with the corresponding text and with the cursor active at the far right. Hitting a carriage return or clicking away from the object instantiates the object.

p: create an object box containing the message newobj @presentation 1 @text and a cursor. When you type the name of an object (e.g. dial) and hit a carriage return, the object will transform itself into a copy of the object whose name you type in, and the object will be automatically added to the Presentation Layer.

s: slider.

t: toggle.

x: shows a menu describing the key commands, including those added by external packages.

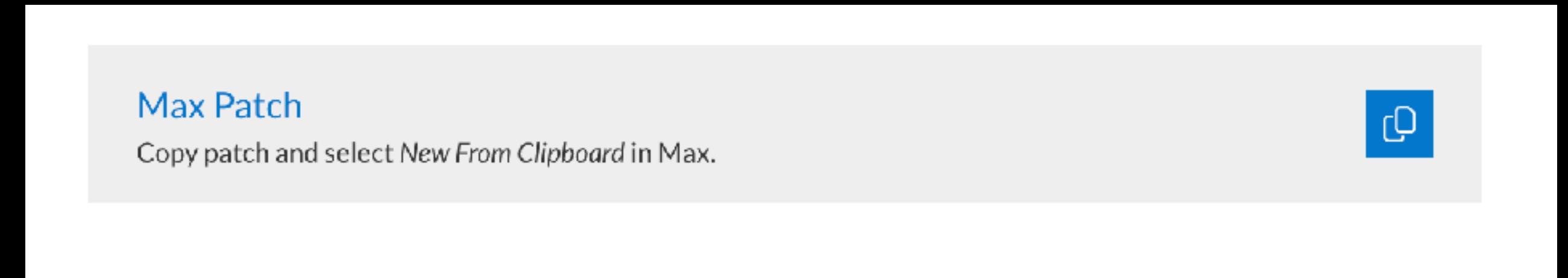
z: zooms the patcher in around the cursor.

Z: A capital letter "Z" zooms the patcher out around the cursor.

You can copy Max code and paste it directly into your patch as text.

CMD + V (paste)

```
{  
  "boxes": [  
    {  
      "box": {  
        "maxclass": "gain~",  
        "patching_rect":  
          [ 385.792366743087769,  
            357.923513054847717, 22.0, 140.0 ],  
        "outlettype": [ "signal", "" ],  
        "multichannelvariant": 0,  
        "id": "obj-114",  
        "parameter_enable": 0,  
        "numinlets": 1,  
        "numoutlets": 0  
      }  
    }  
  ]  
}
```



Video Experiment next week (midnight, after class)

- Explore audio tools we worked on in class
- Practice and explore tutorials online
- Create an experiment, which could be the beginning of a future project
- Your experiment should have a concept, even though it is not fully developed.

To hand in your project, use the project template on Moodle saved file (File > Save as Project) .maxpat

- A PDF that contains project documentation. See Project_Documentation_template
- A clear, strong image of your project.
- A screen capture of your max patch
- A link to video or audio recording of your project working (can be a video or a link to a private video on YouTube, Vimeo or Google)
- A 50-100 word explanation of your project inside your maxpatch Be sure to name files properly (no untitled-1.zip) All files are expected to be cleaned up and arranged in a reasonable, legible way. Videos should be clear, well light and show your project working.

All files are expected to be cleaned up and arranged in a reasonable, legible way. Videos should be clear, well light and show your project working.

My Project Title

Lee Wilkins



Main Image:

Include a clear, strong image of your work. If the work is just audio, include an image of whatever context you imagine it in.

Artist Statement:

Write an artist statement that describes your work. Describe the work as though it is on a gallery wall, what would you read? 50-100 words. Remember, even a small project should have some kind of theme or concept. What do you want people to experience while viewing your work?

A good place to start is:

[Project Name] is an exploration of [concept]. By using [something, audio, video, samples from something?] viewers are able to experience [what do you want them to feel?].

Project Template on Moodle has everything you need, just replace the text and images with your own.

Video Experiment next week (midnight, after class)

25% Functionality / technical

25% creativity / concept

25% execution and quality

25% documentation

My Project Title

Lee Wilkins



Main Image:

Include a clear, strong image of your work. If the work is just audio, include an image of whatever context you imagine it in.

Artist Statement:

Write an artist statement that describes your work. Describe the work as though it is on a gallery wall, what would you read? 50-100 words. Remember, even a small project should have some kind of theme or concept. What do you want people to experience while viewing your work?

A good place to start is:

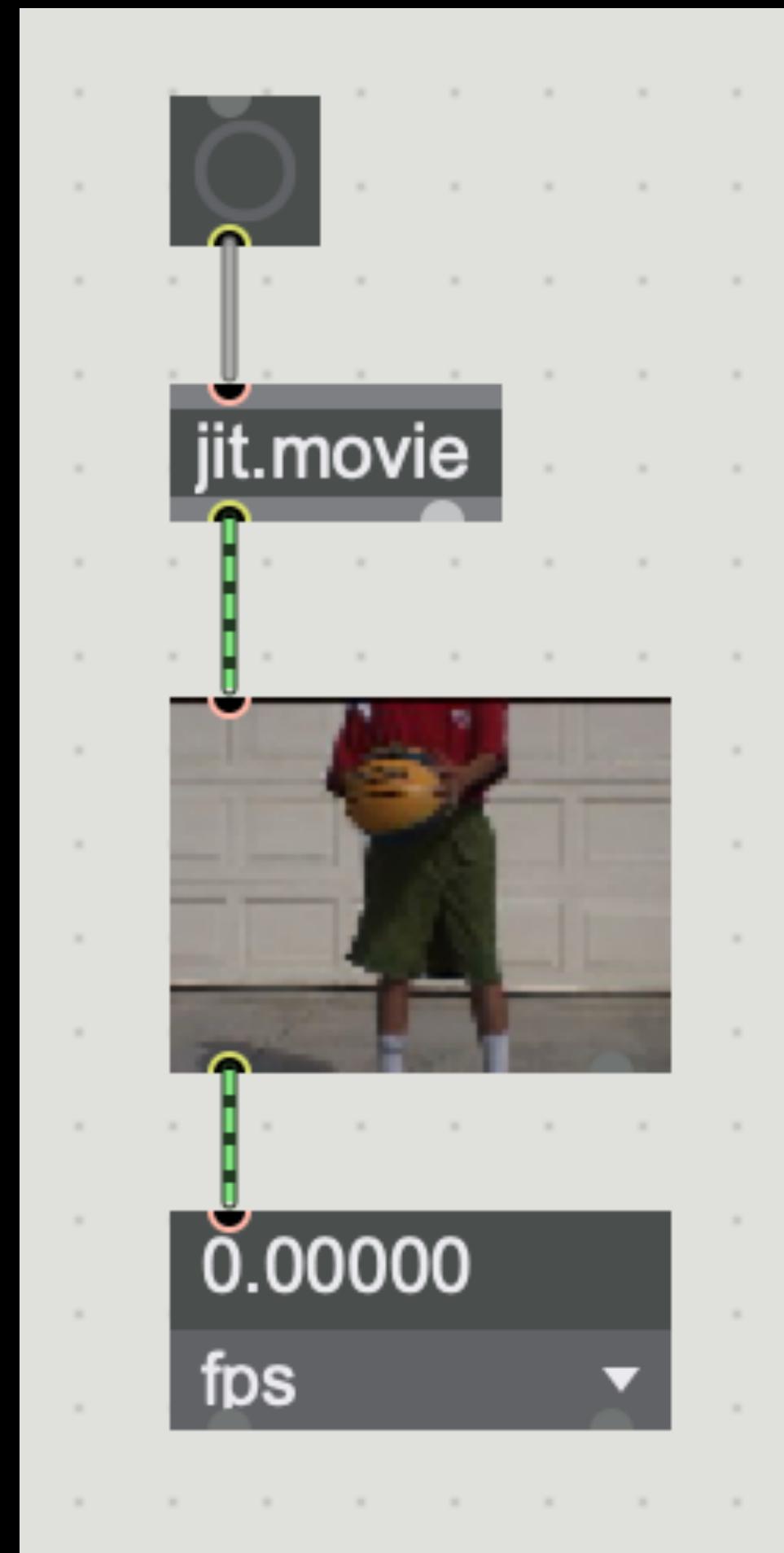
[Project Name] is an exploration of [concept]. By using [something, audio, video, samples from something?] viewers are able to experience [what do you want them to feel?].

Project Template on Moodle has everything you need, just replace the text and images with your own.

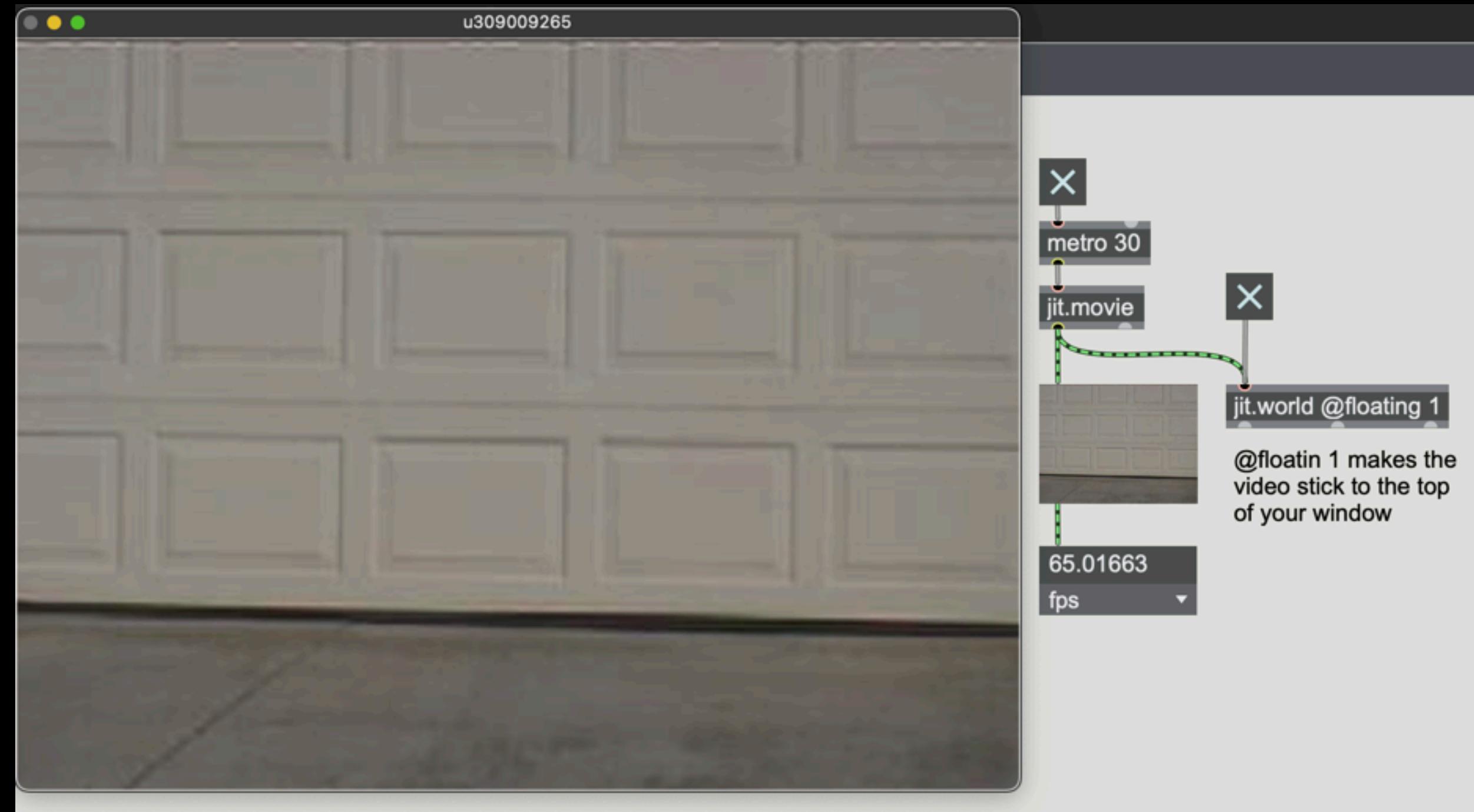
**Jitter is the video/
visual aspect of
maxMSP**

**All jitter objects
start with jit.**

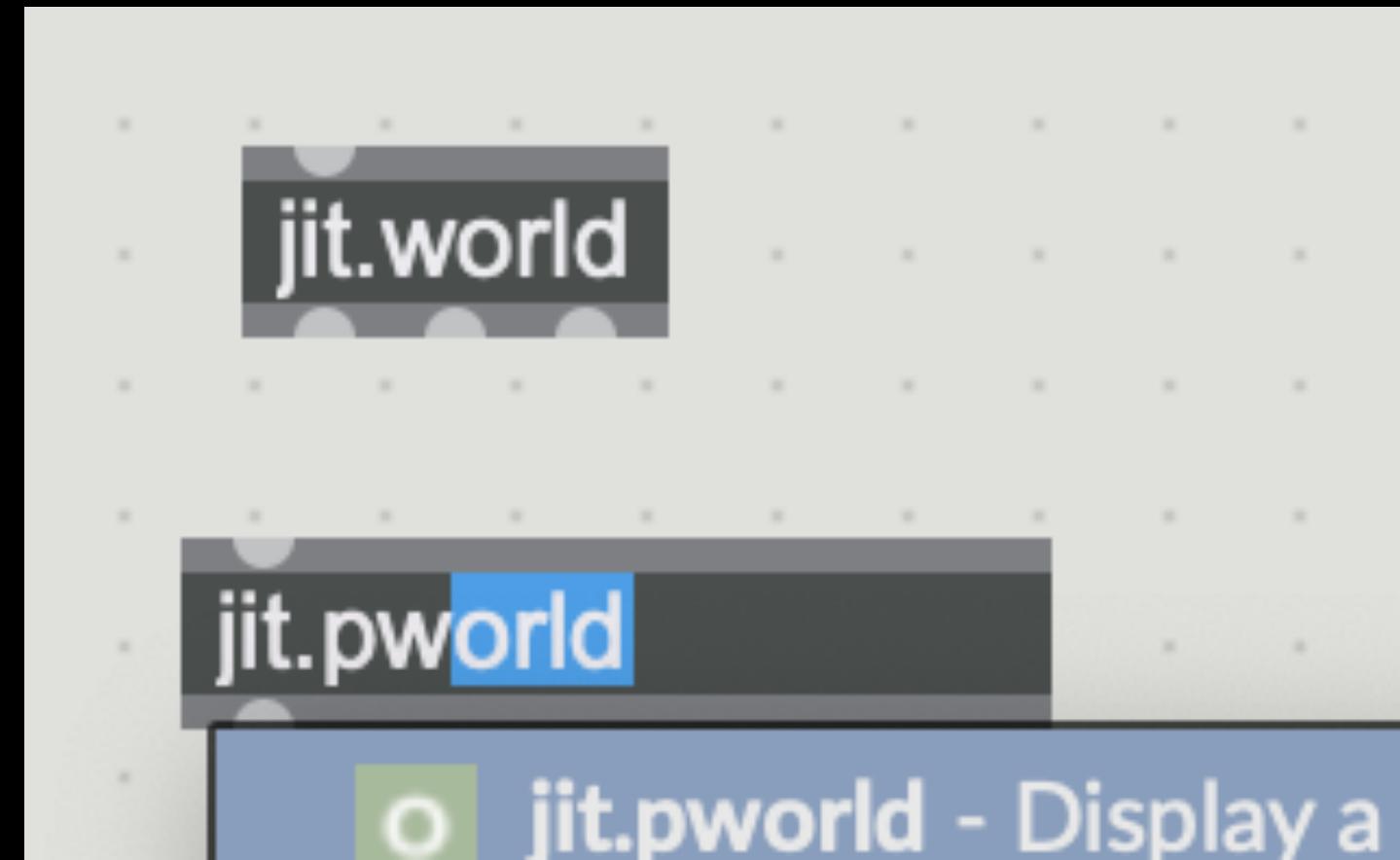
**Jitter objects
usually have green
or blue patch cords.**



Use jit.world to
make a window.
@floating 1 makes
the window stick
to the top.



Make a view port by
making a `jit.world` object,
which creates an
external window. Or
`jit.pworld` which creates
a window inside your
patch.

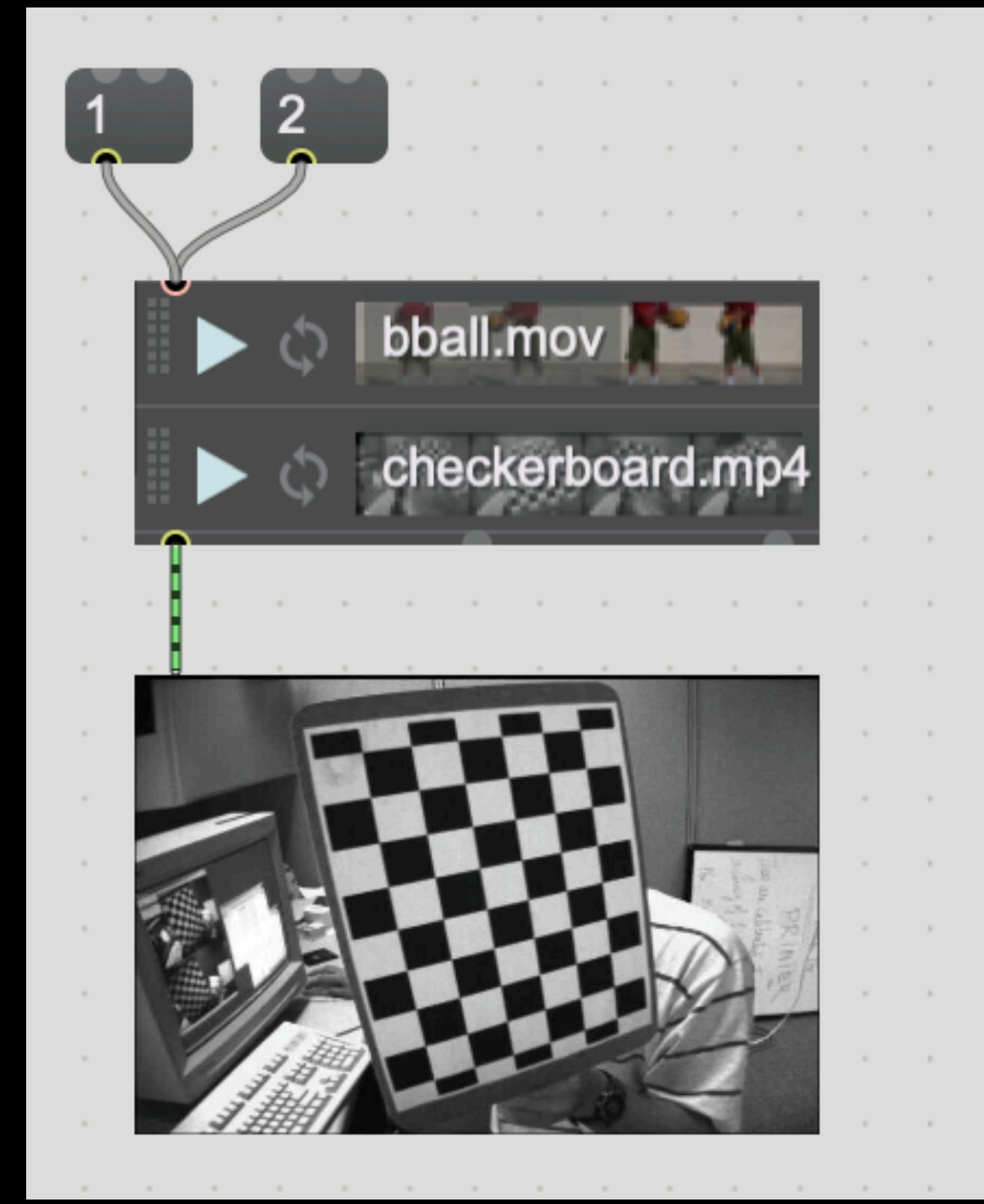


We can see a sub-set of
those features by using
`jit.pwindow`

Jitter has an object similar to playlist. Called jit.playlist.

Drag and drop videos similar to sound files, connect them to the pworld or pwindow

Notice the green patch cords, they are from jitter matrices!



Matrix

Jitter uses a matrix to

display graphics.

Matrices are grids with

cells. Each cell is

labeled like this. It is

not like a cartesian
plane.

1	2	3
4	5	6
7	8	9

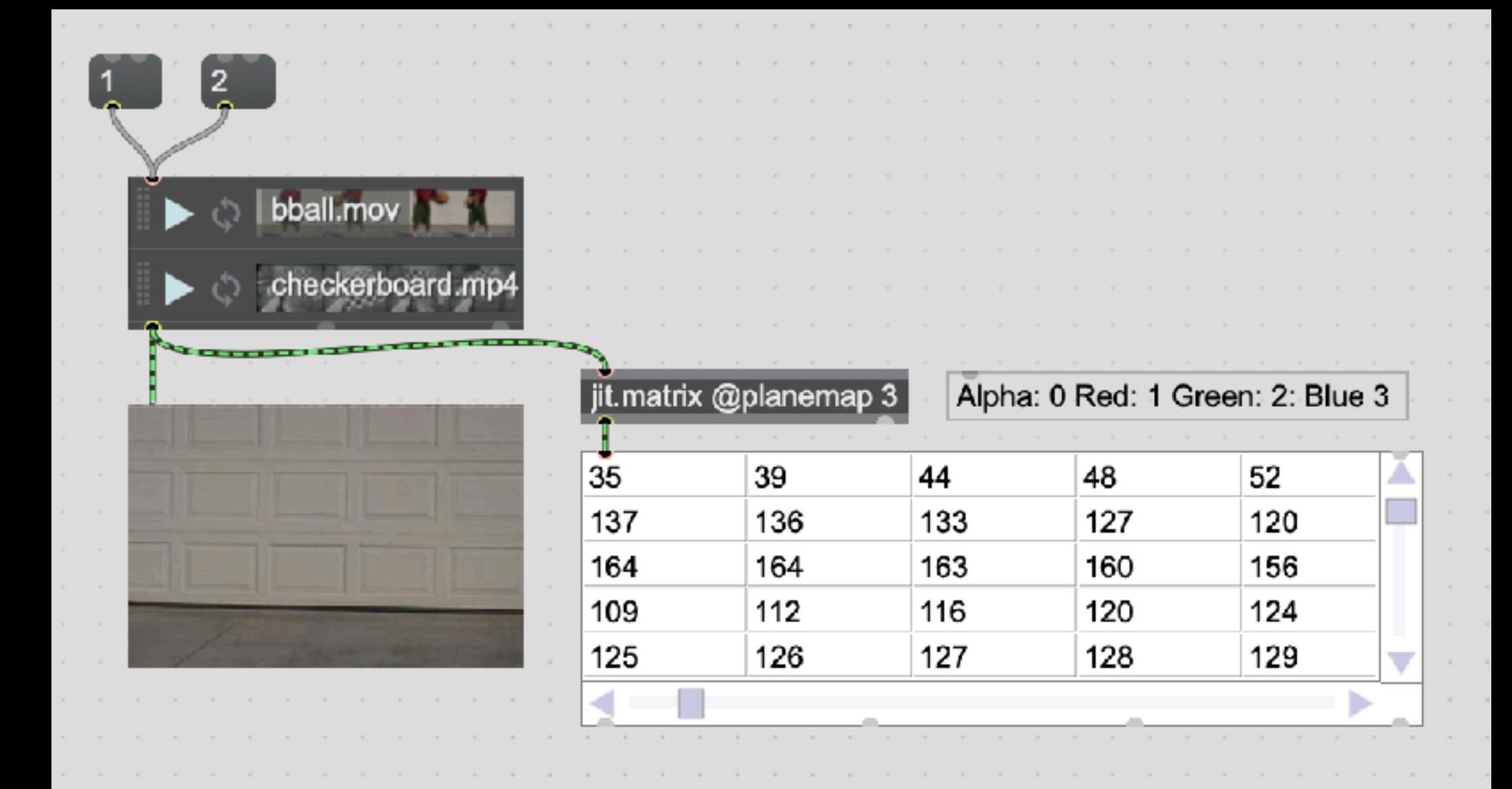
Matrix

Each matrix can have multiple planes. Planes are basically maps that describe each pixel.

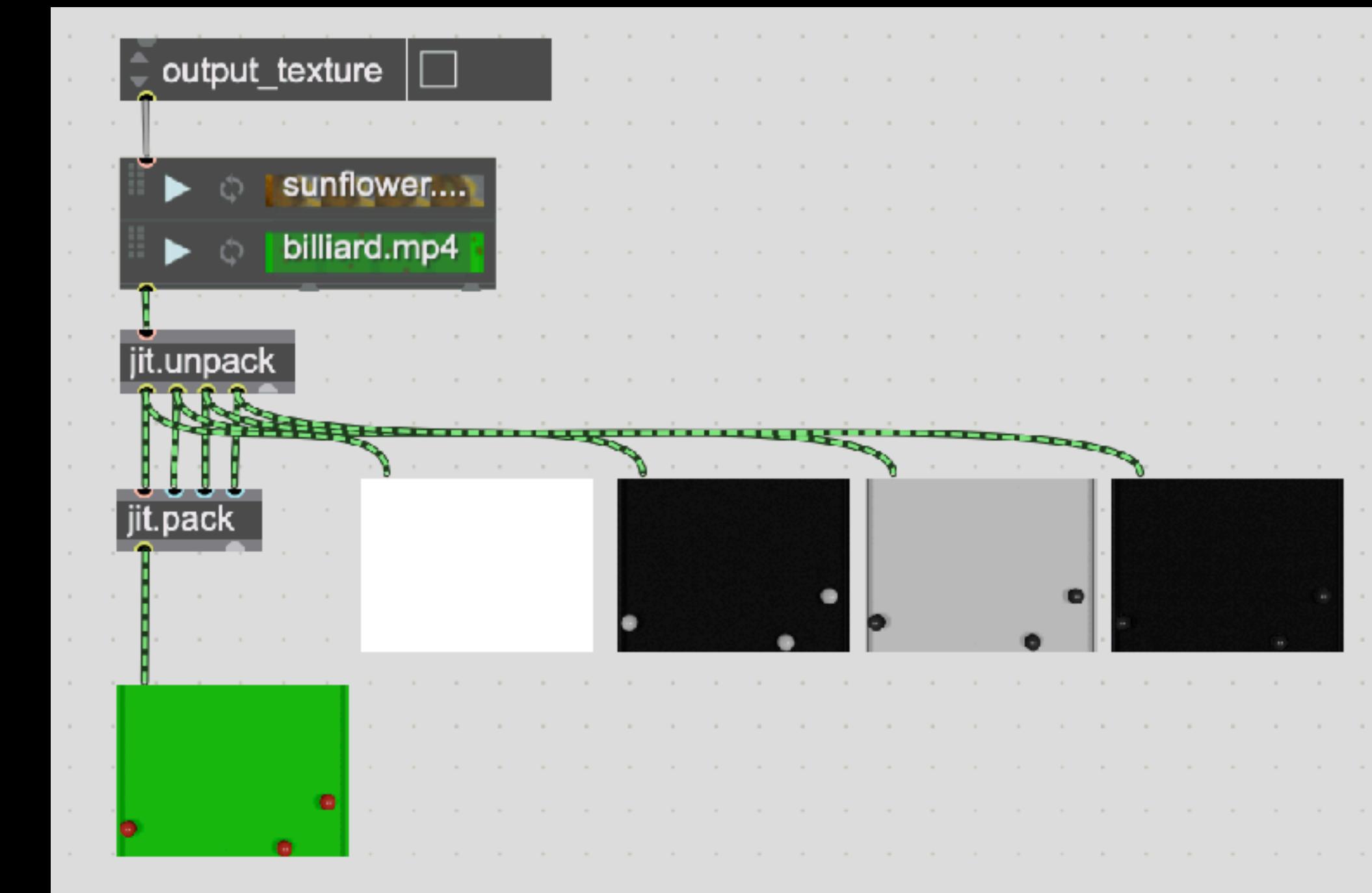
There are 4 here: RGBA, Red, Green, Blue, Alpha.
Alpha is transparency.
They are

A	1	2	3	3	3	3	3	3
B	1	2	3	3	3	3	3	3
G	1	2	3	3	3	3	3	3
R	1	2	3	3	3	3	3	3

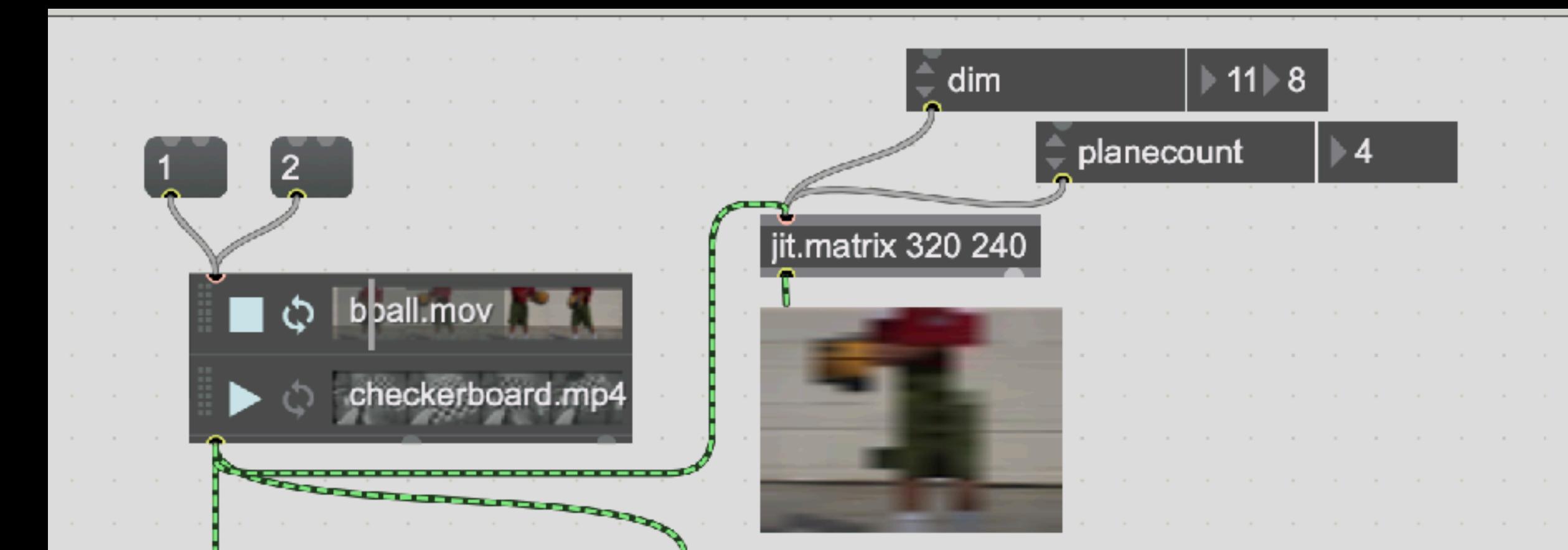
We can view this matrix using `jit.cellblock`. Add plane map attribute to see each plane. This just lets us understand what exactly a matrix is.



You can unpack each layer and manipulate it individually using `jit.unpack`, then `jit.pack`. Try using `jit.rota` on each matrix layer and then repacking them.



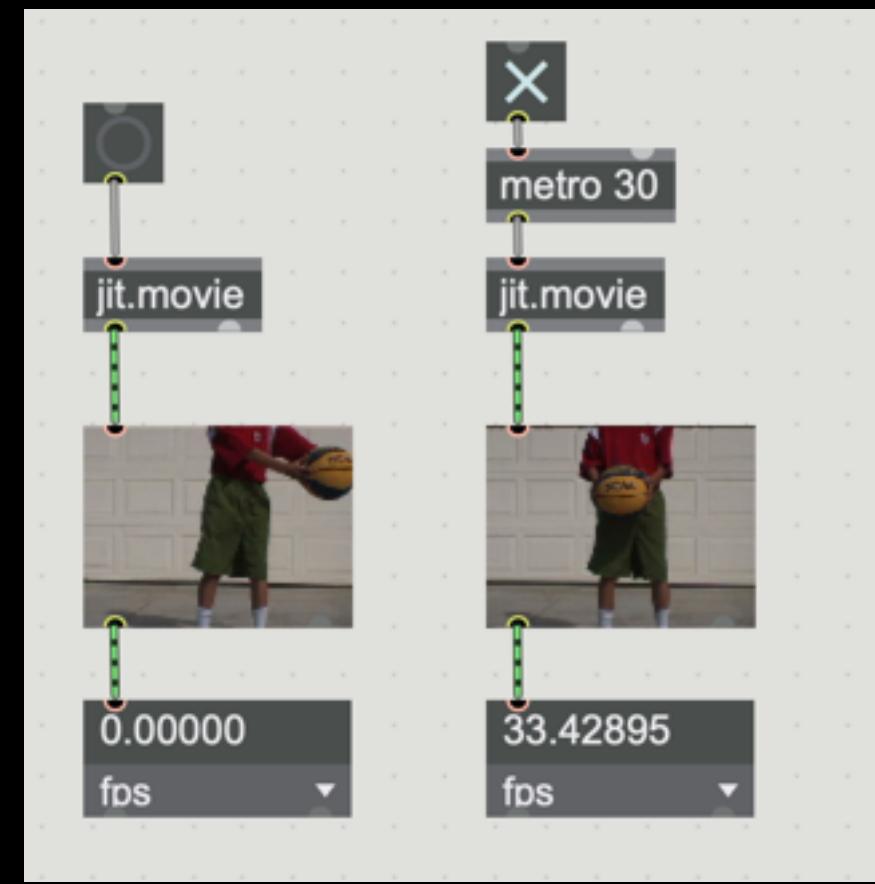
Matricies can be manipulated manually by using attrui



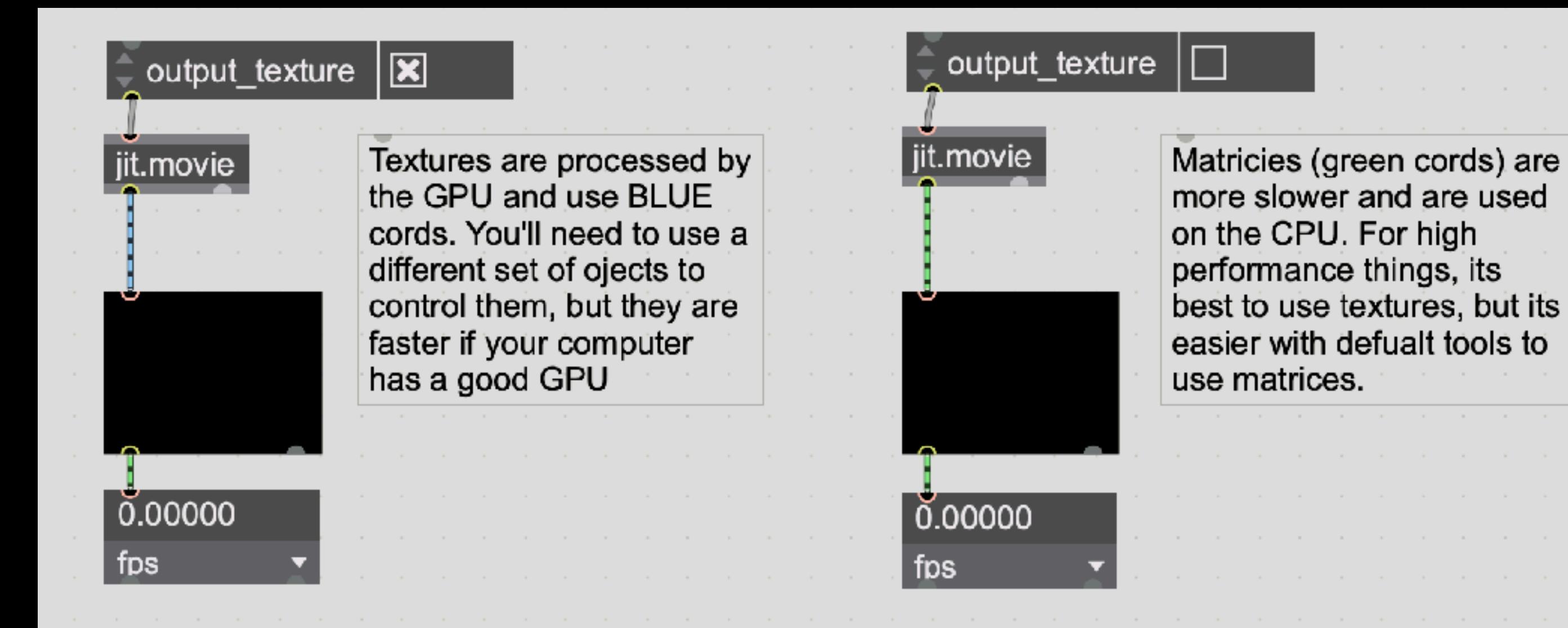
We can also use more powerful objects to play movies, such as `jit.movie`.

Try with a button, a single frame advances. With a metro we can keep triggering it. Metro 30 is around 30 FPS (give or take).

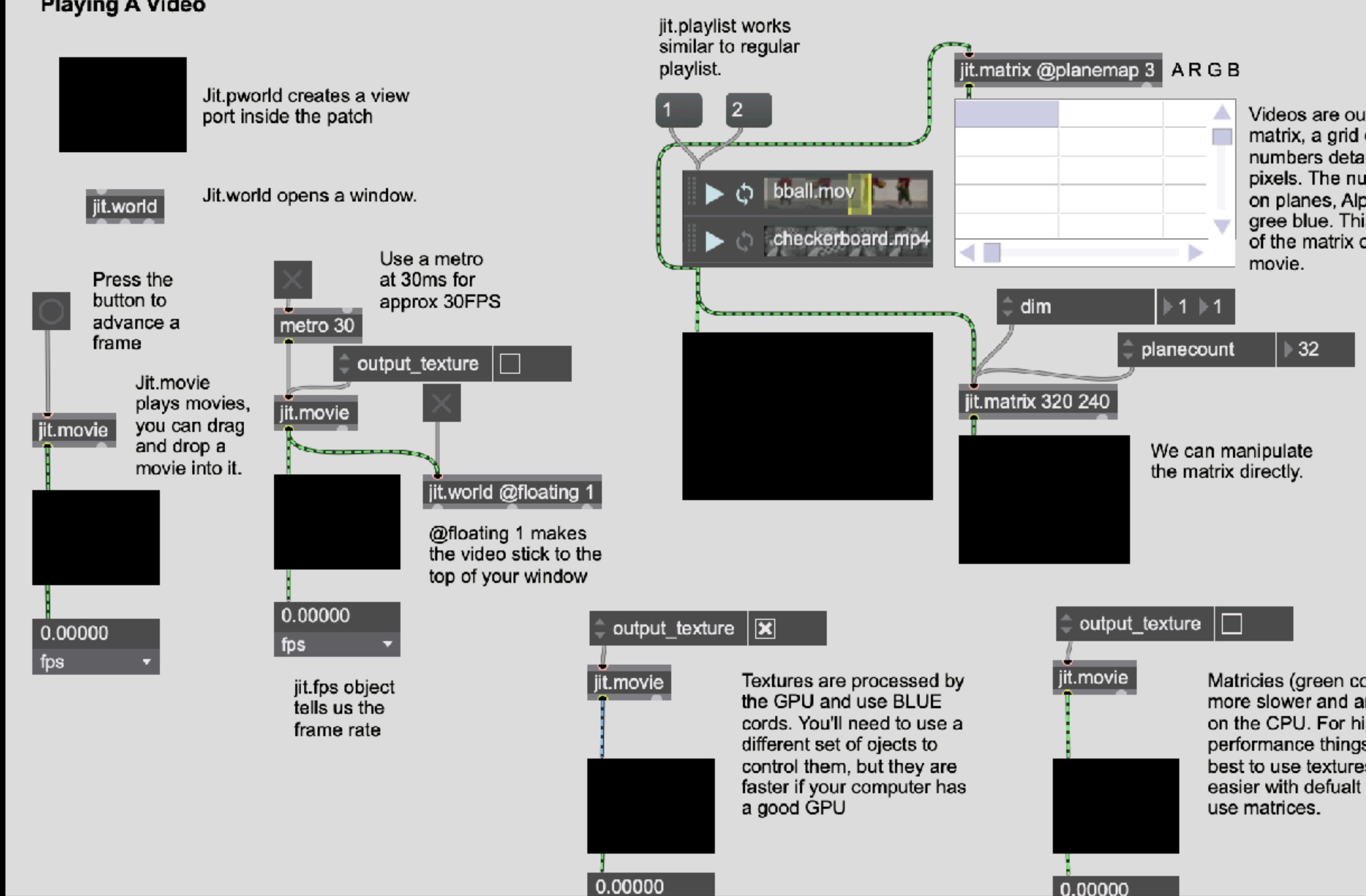
View this with `jit.fps` object



Jitter can use matrices OR textures to play movies. Each has pros and cons. Textures use your GPU, matrices use your CPU. They are each used differently. By default, many effects are used with matrices.



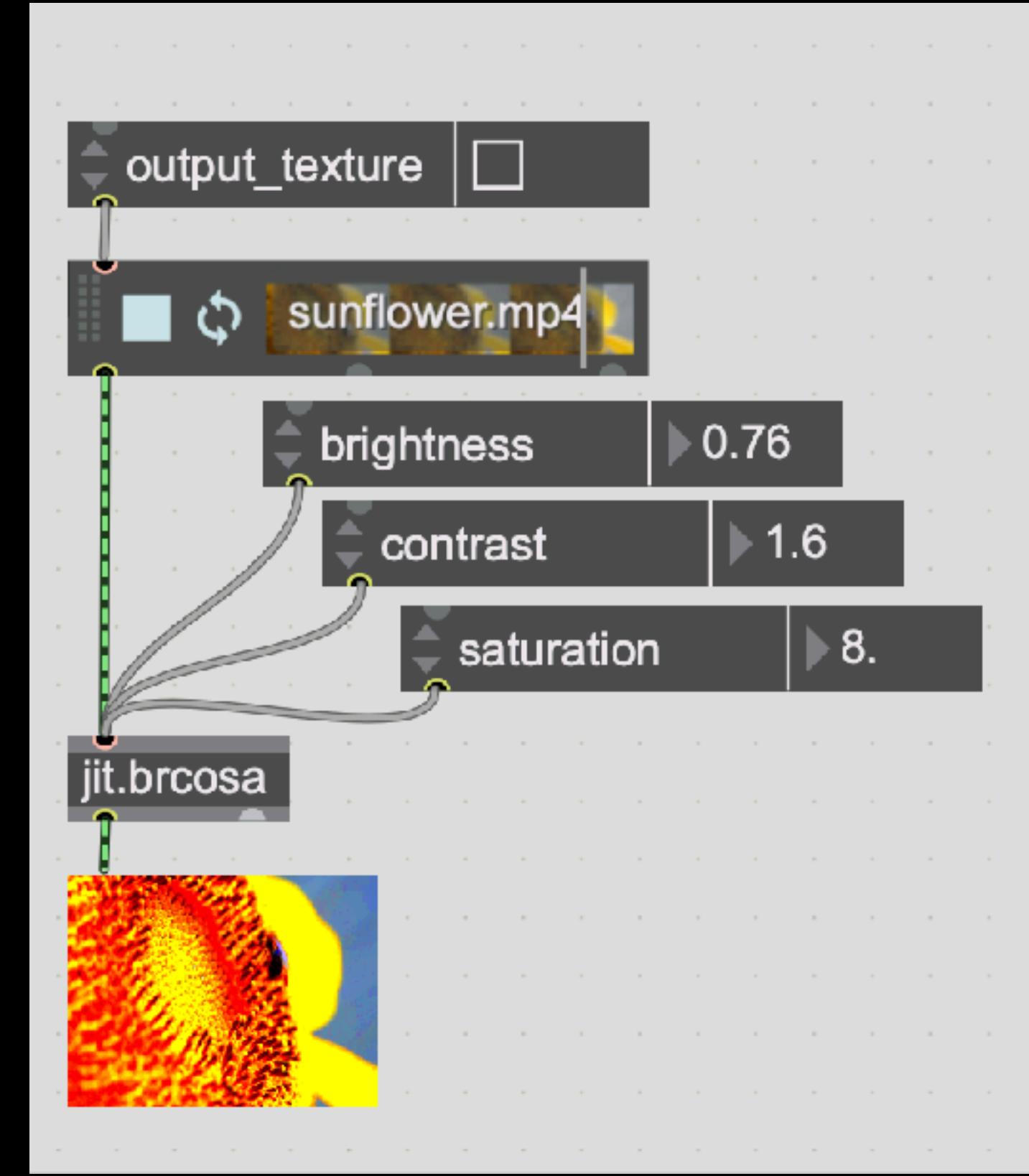
Playing A Video

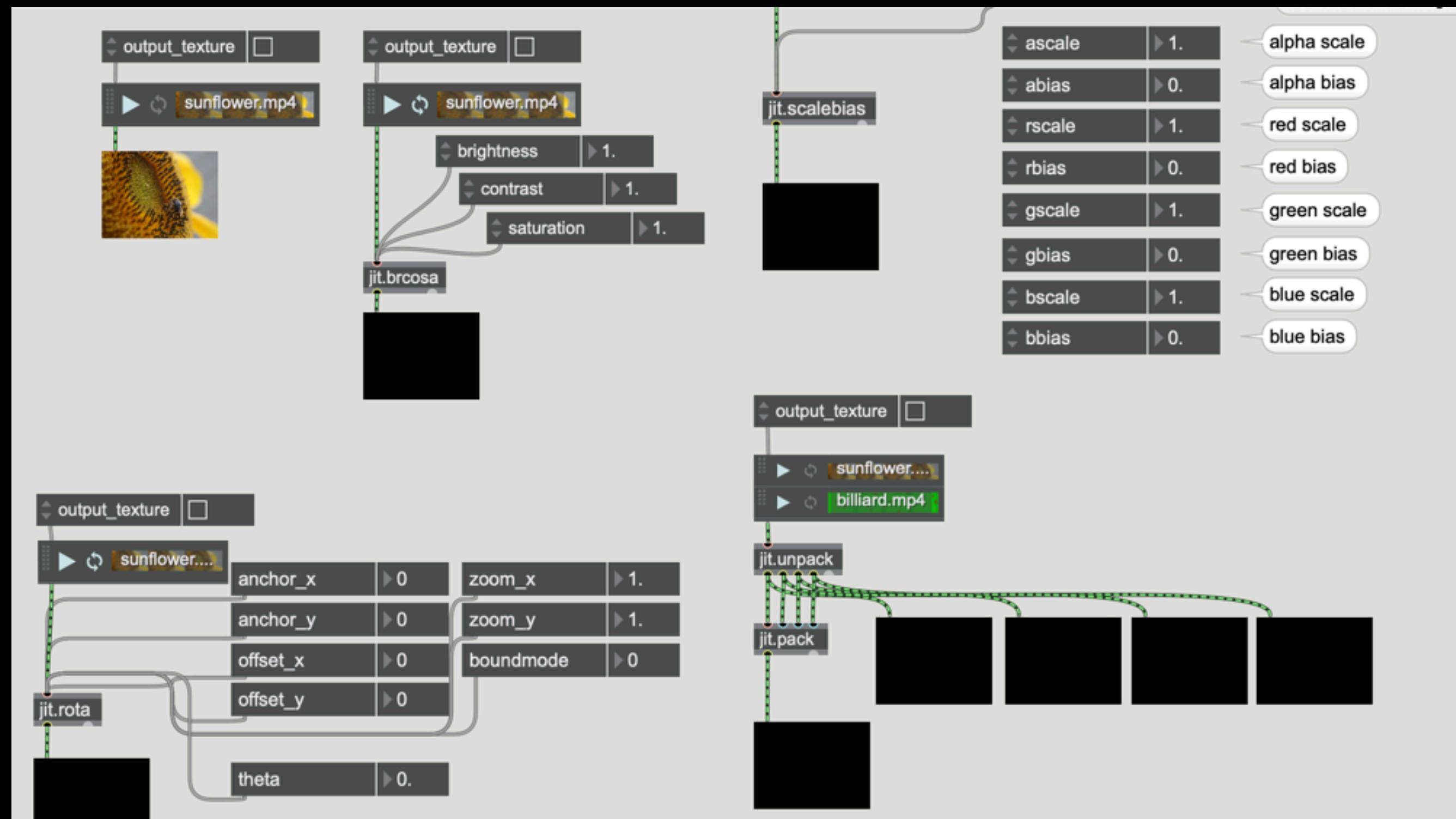


Playing a video maxpatch

Use the attrui object to ensure output_texture is NOT checked in order to use default processing tools.

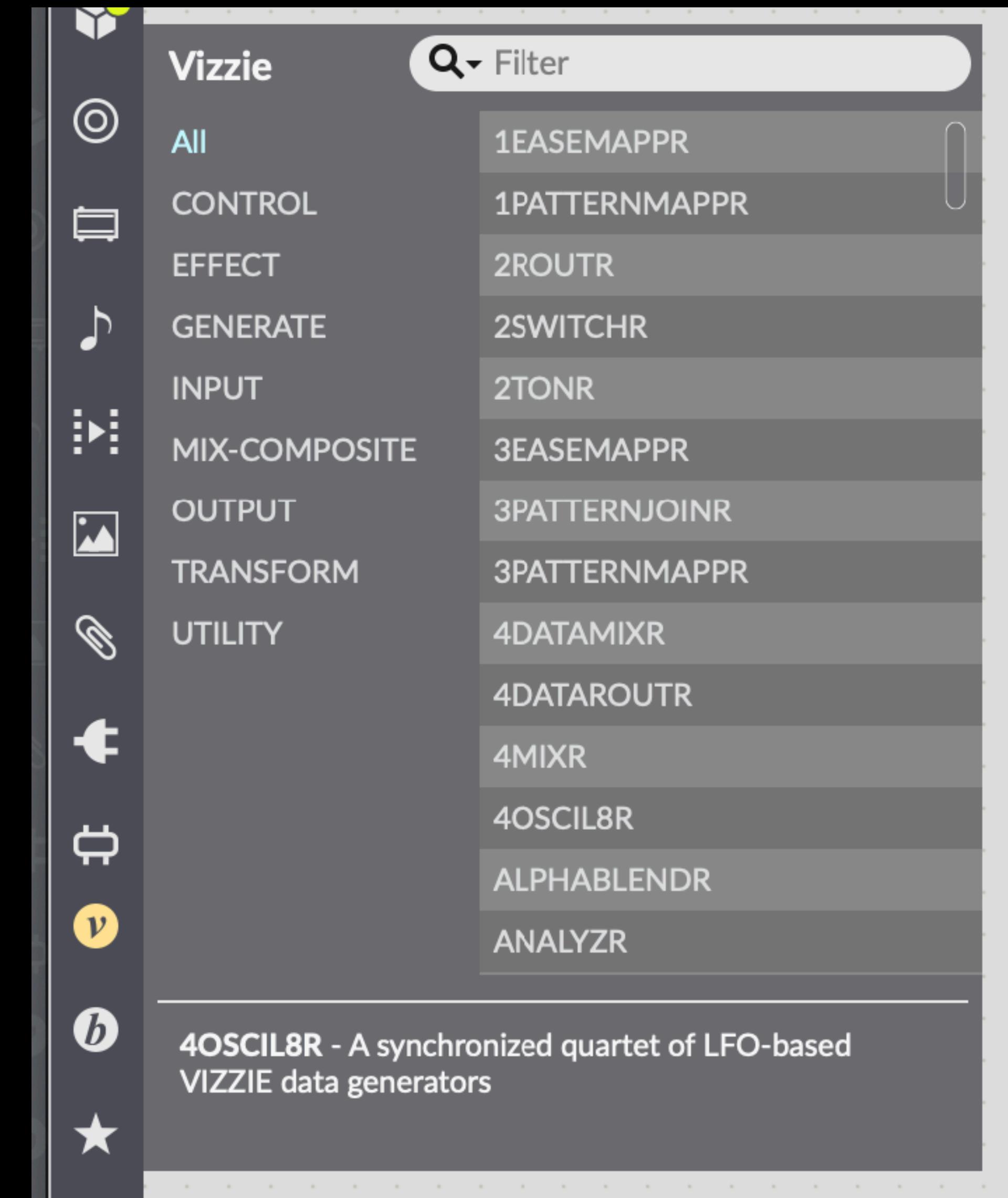
jit.brcosa is a good tool to change brightness, contrast, and saturation.





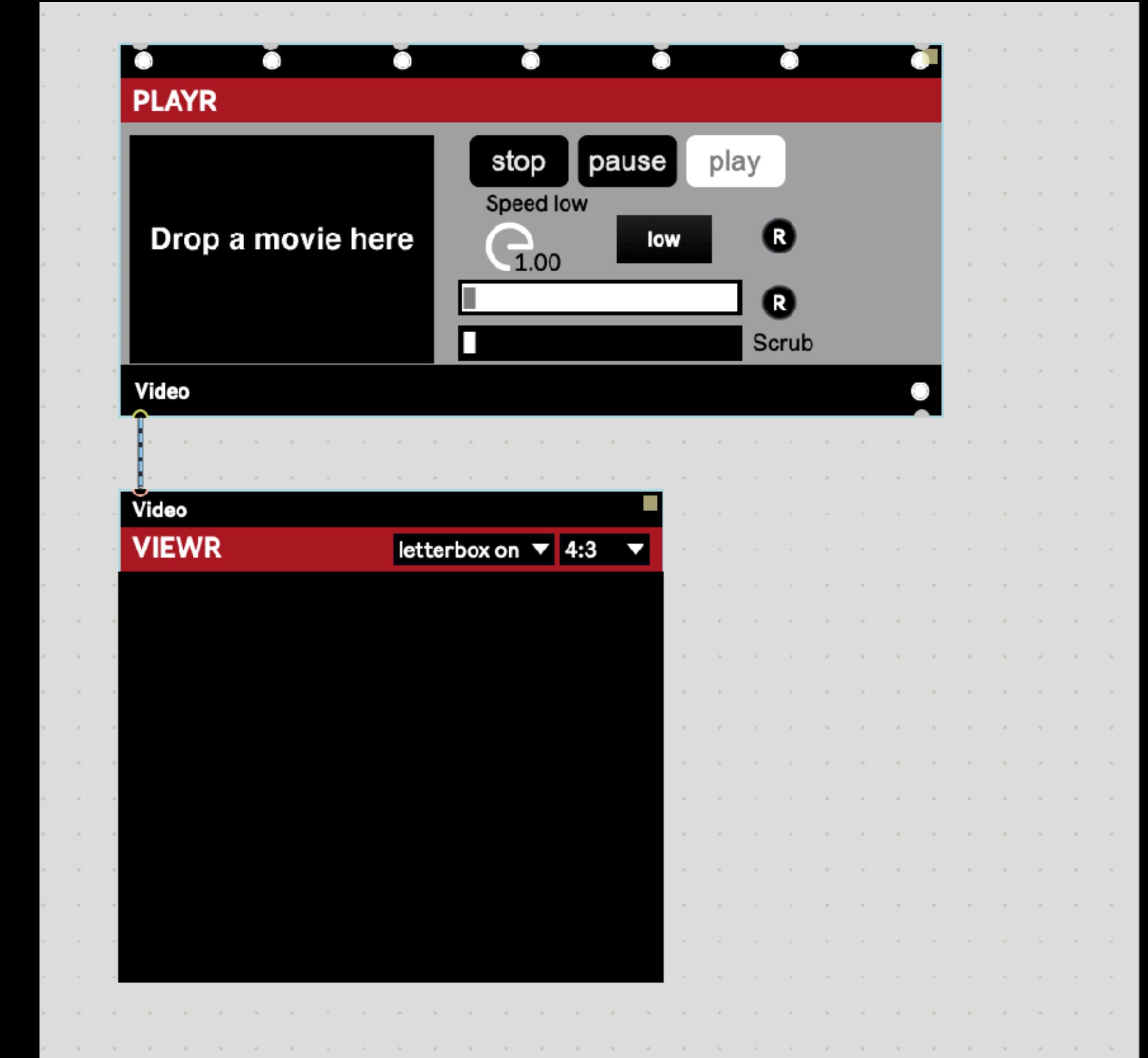
Video processing patch

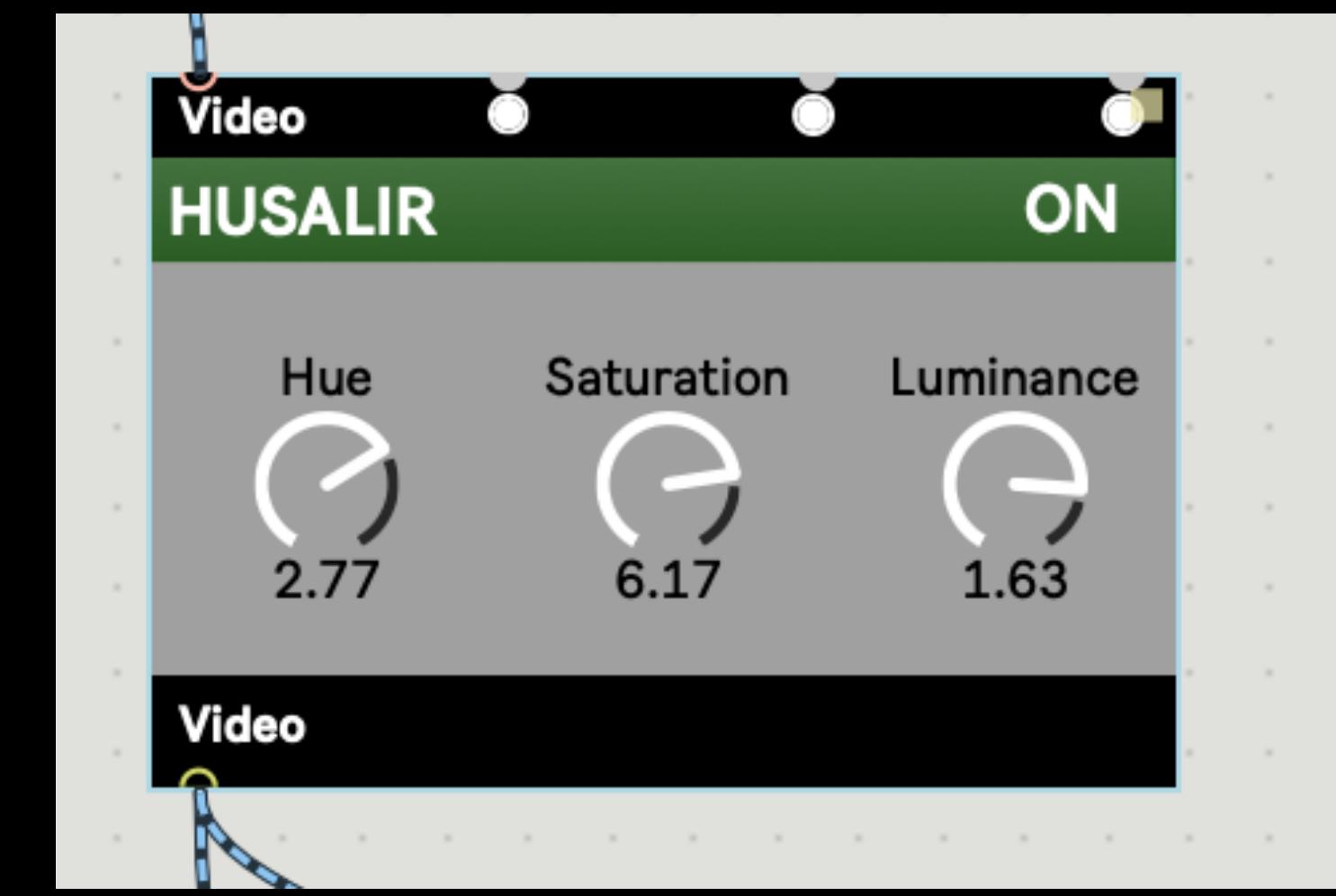
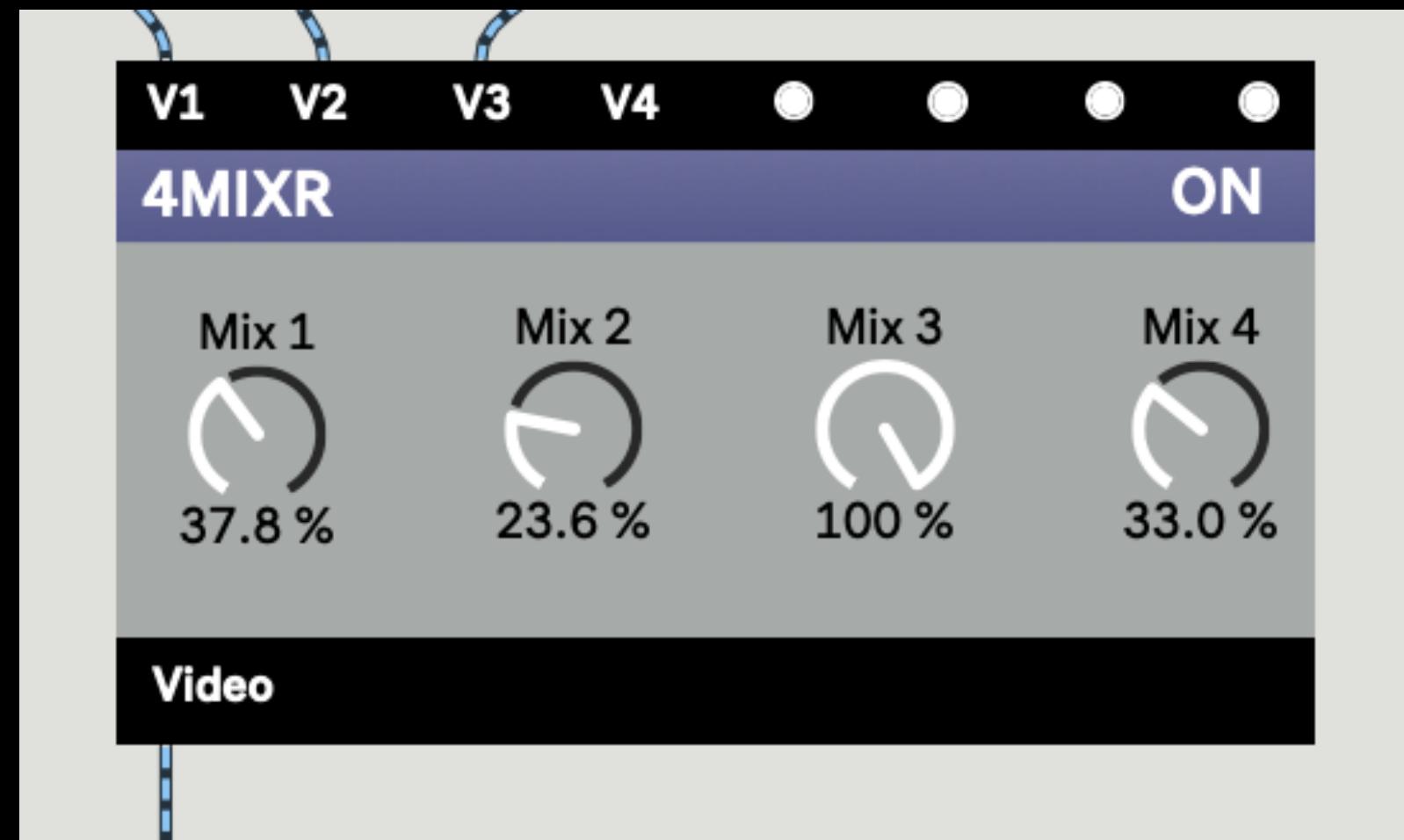
**Vizzie is a collection
of modules used to
manipulate video
and its very
powerful! Find it in
the lower left corner
if your tool bar.**



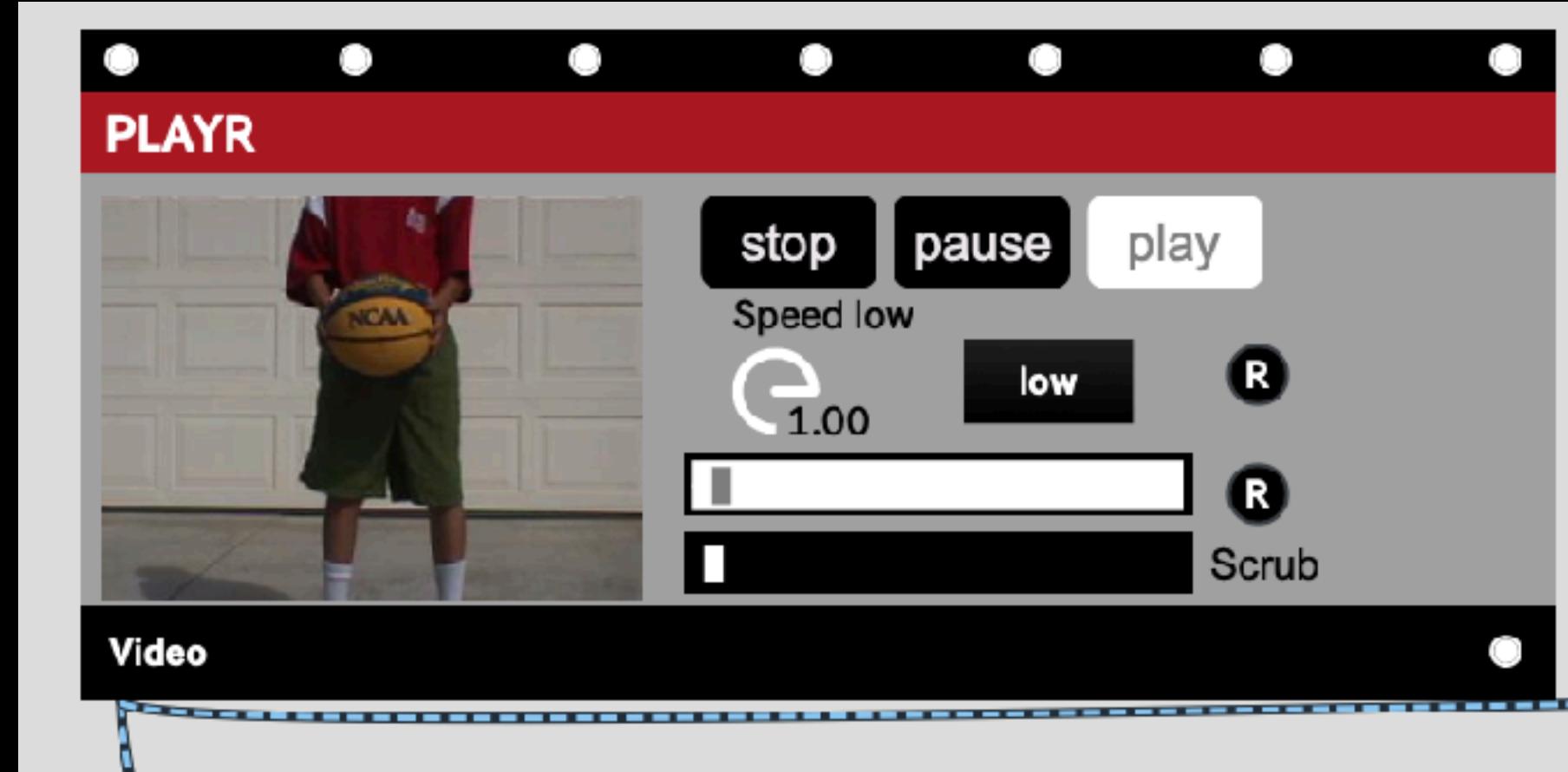
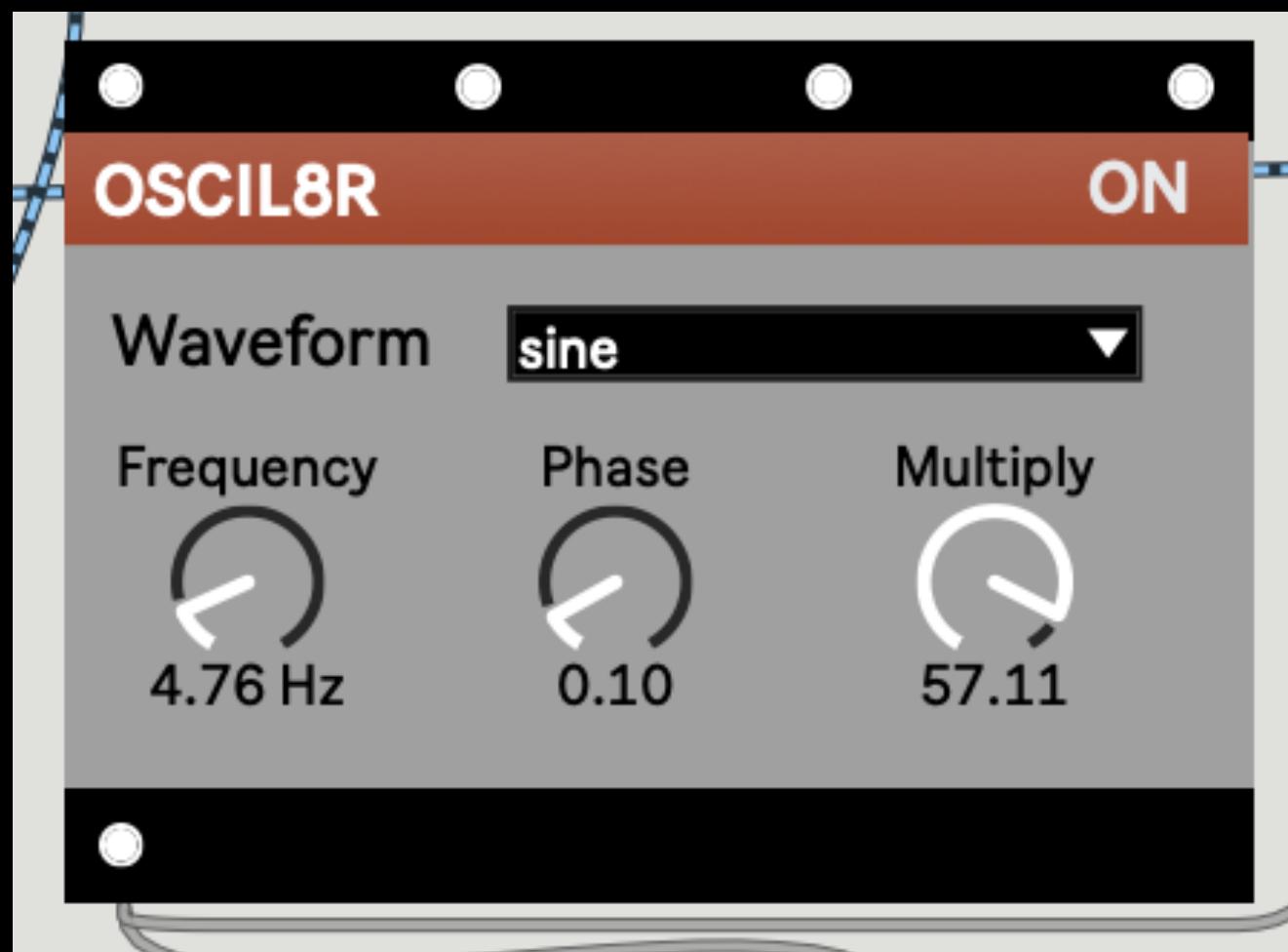
Vizzie models are just patches, but they are arranged in an way that makes them easy to use.

Start by making an input (`playr`) and output (`viewr`)





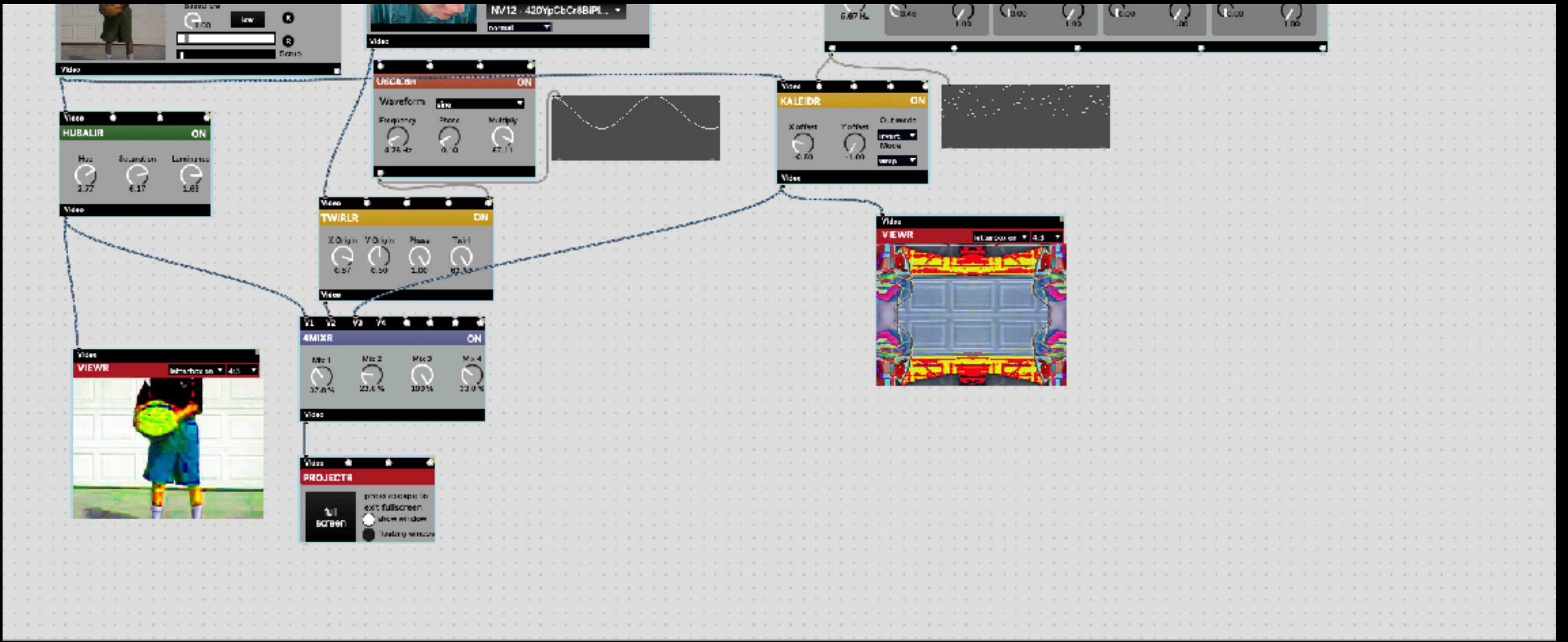
Mix



Generate

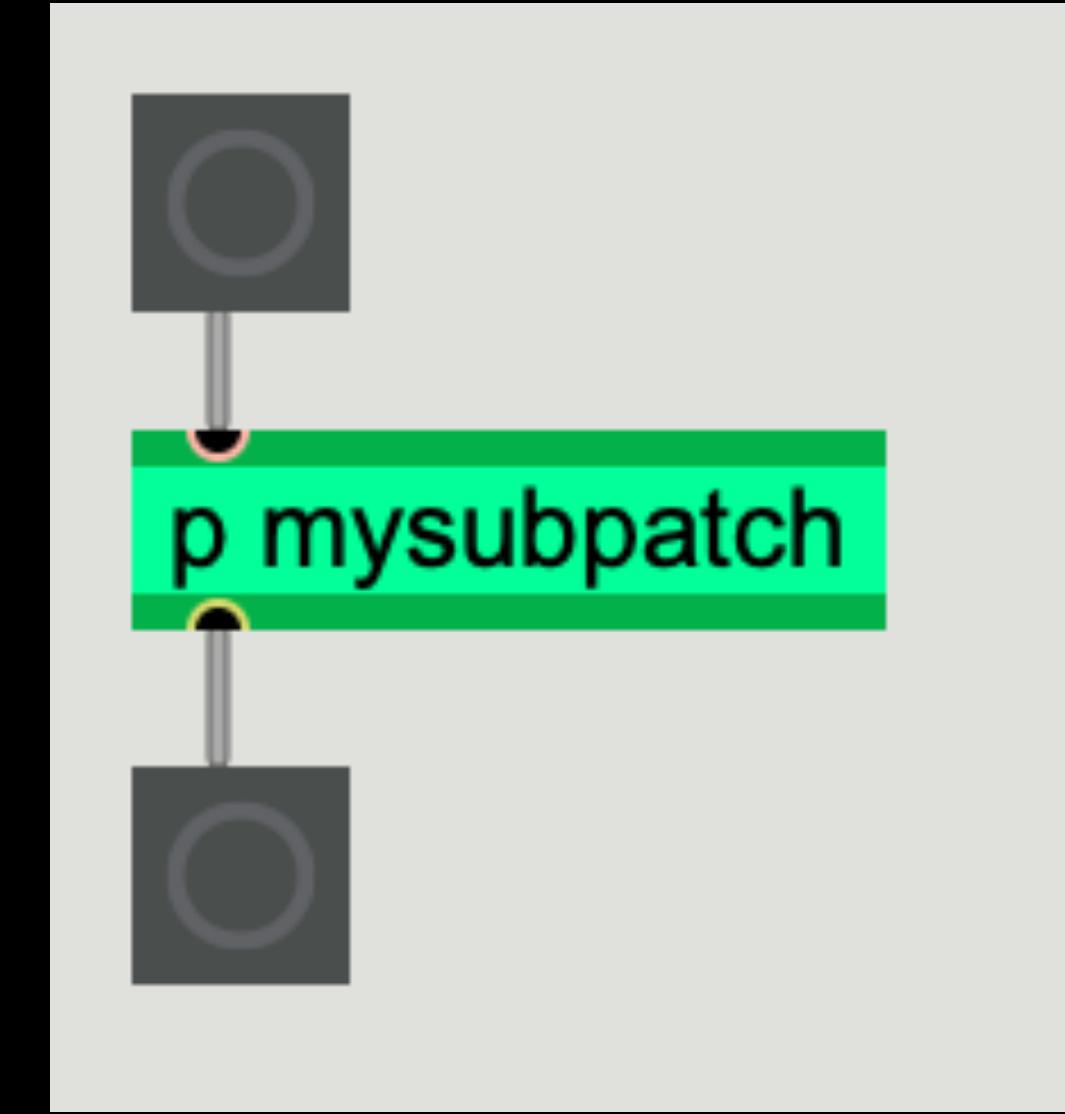
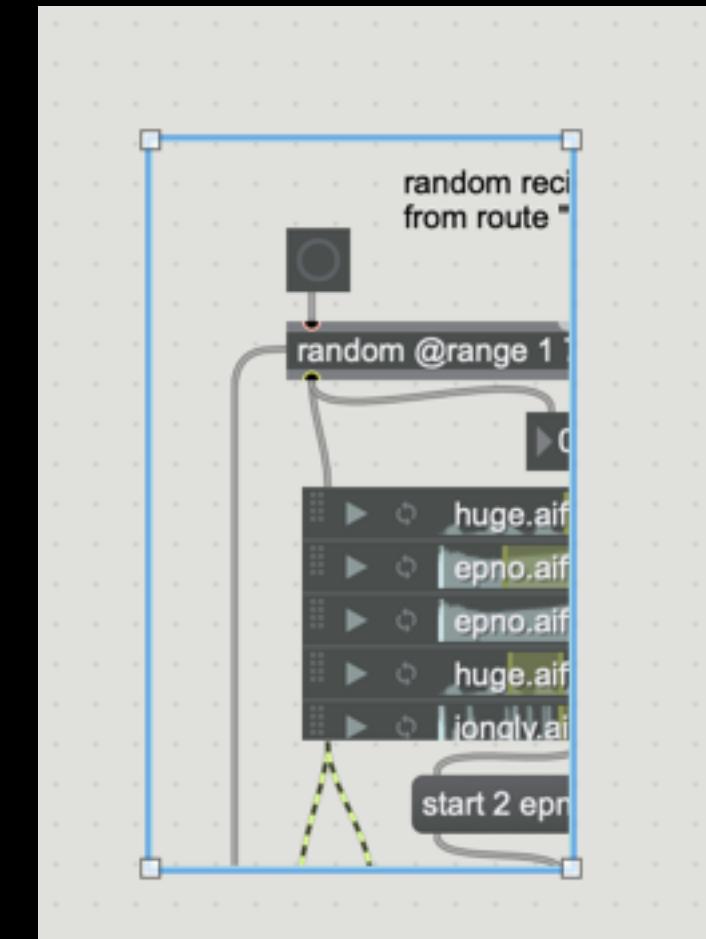
View

Effect



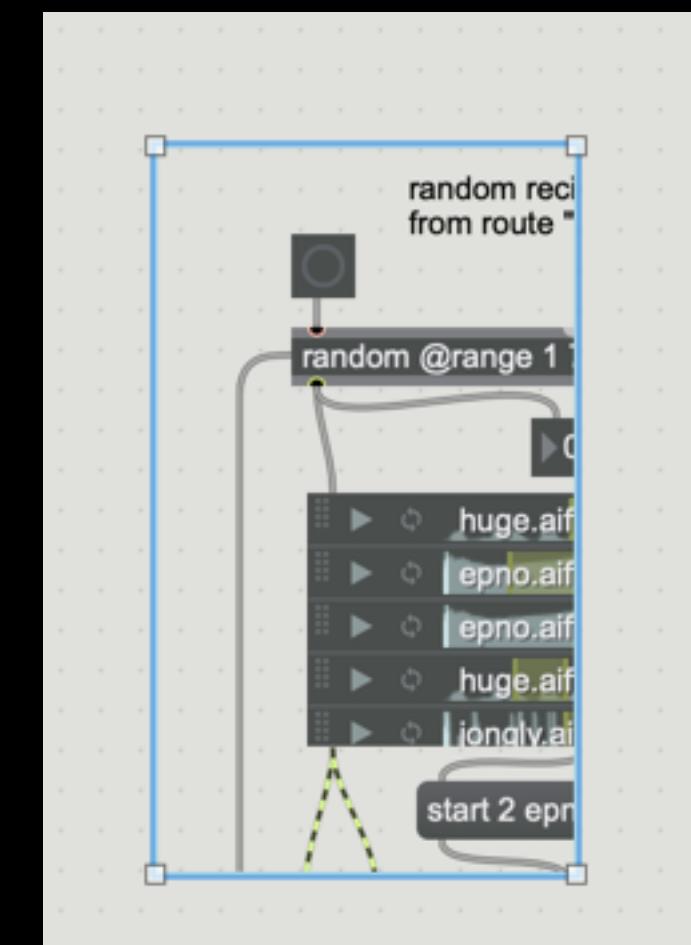
Vizzie Sample
patch, take some
time to play with
Vizzie;

**Subpatches can
be made to
contain larger
content inside a
single block**



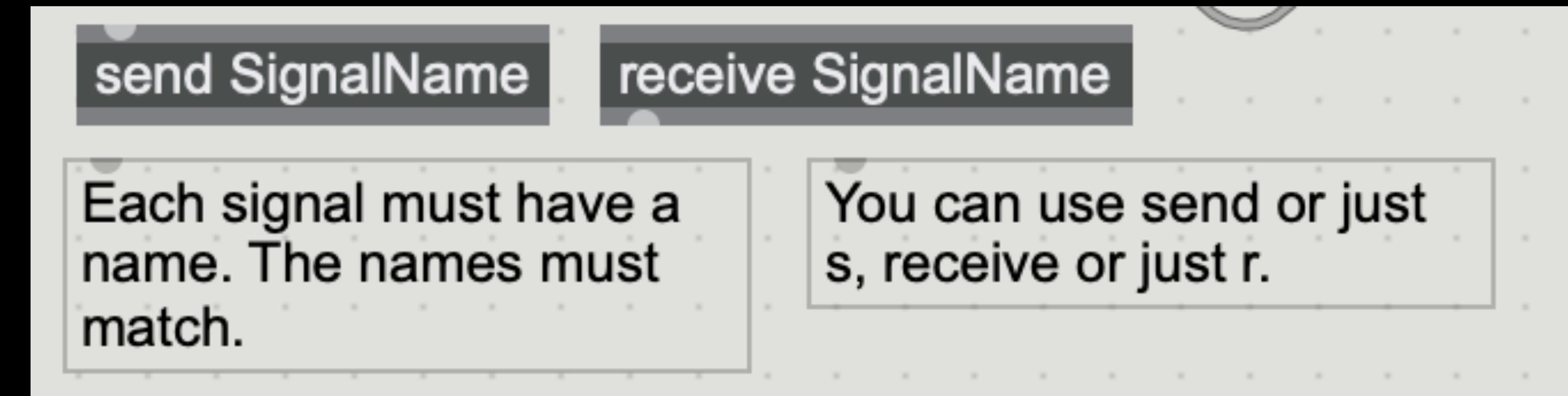
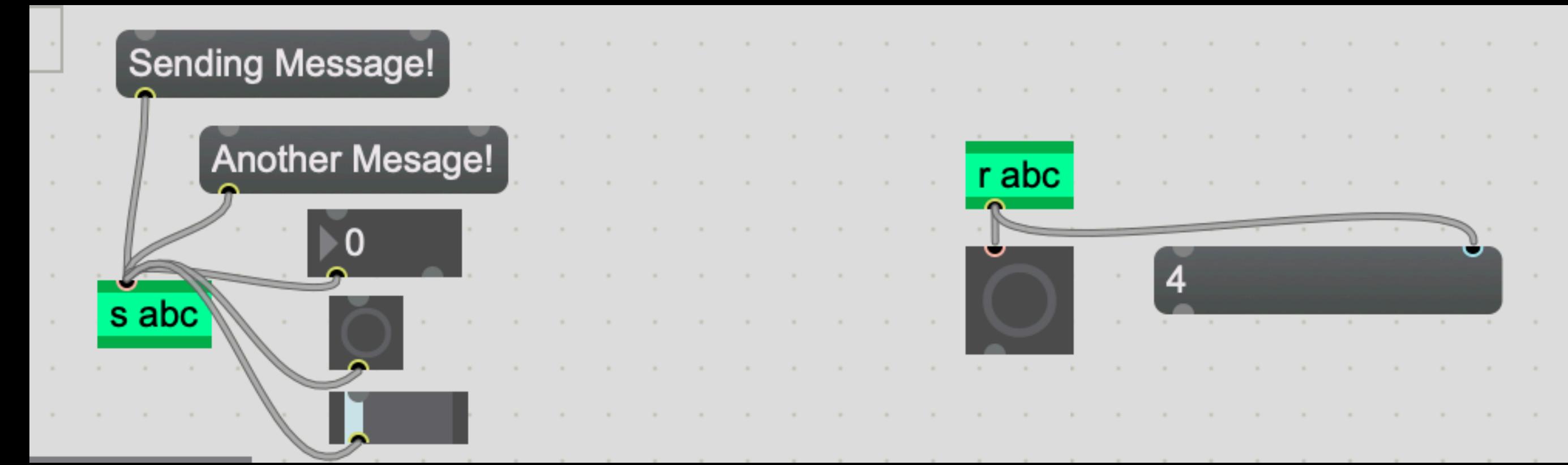
Patcher
Patcher File

BPatcher can be used to embed a patch inside your larger patch within a visible window.



Use the inspector panel to select the file

Send and
Receive can
be used to
send signals
without patch
cords
connecting



**Download todays patch
on Moodle**

**Download todays patch
on Moodle**

Midterm: Transform - Groups of 2-3, 25%, February 26

In this project you are invited to look beyond the computer screen and transform a space or atmosphere. Using primarily audio and video (and other if you want to) MaxMSP tools, bring us into a transformed within (or nearby) our classroom. This could mean changing the mood, forcing us to change perspectives, or imagine something new. Your project should **not** appear as a max patch, but as a piece for people to approach and engage with through a linear progression or interactive element. Your work should in some way have an arch or experience that builds or changes throughout the experience.

Be intentional. What do you want us to experience, and how are you bringing us there?

This work should feel complete - take note of where wires and cables are. Use projectors, lights, staging, curation etc to create a space. The work should be approaching gallery-ready state. Free to re-arrange any nearby space or reserve a critique room.

Homework:

Work on video Experiment (due next week)

Work on Midterm project

**Next week: Using the camera, computer
vision (open cv) and chromakey.**