PLAY WITH CODE: THE JOY OF P5.JS

PlayFest 2021

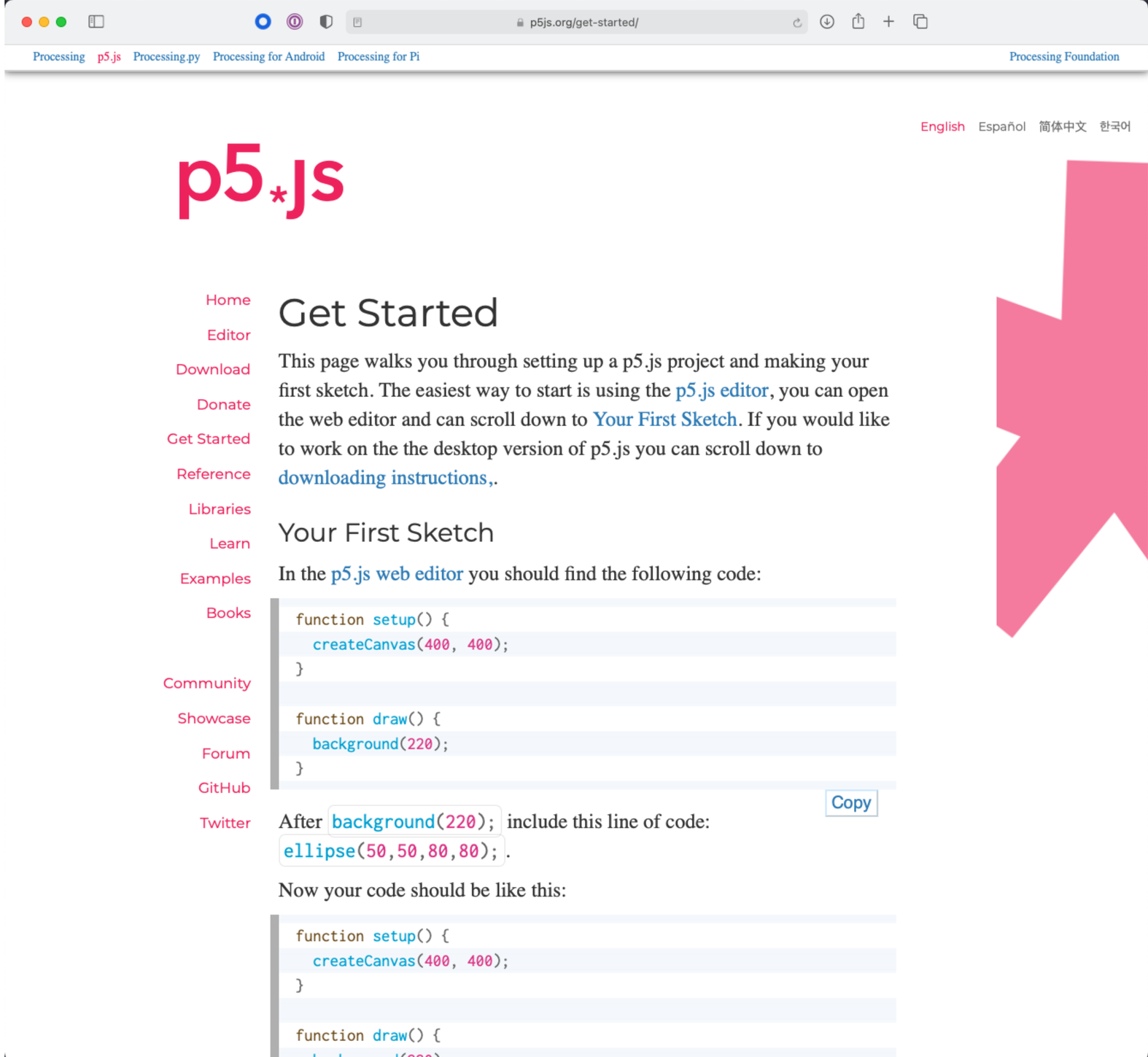
HELLO, I'M CAROL

- I love playing and creating with code.
- Ooh...cool. How did you make this?
- What happens if...
- I wonder if I can break it.
- People before code - always
- Learn, Build, Share - Openly

HELLO, I'M AMANDA

- I love creating and exploring the world with code.
- If possible, I choose to fix.
- Stop. Breathe. Examine.
- So many connections!
- So many possible spaces!
- Ephemeral >> permanent
- Expression >> expert

- Intros
- Why
- Connect to the Real World
- Play with p5.js
- Celebrate creations
- Share with friends and family

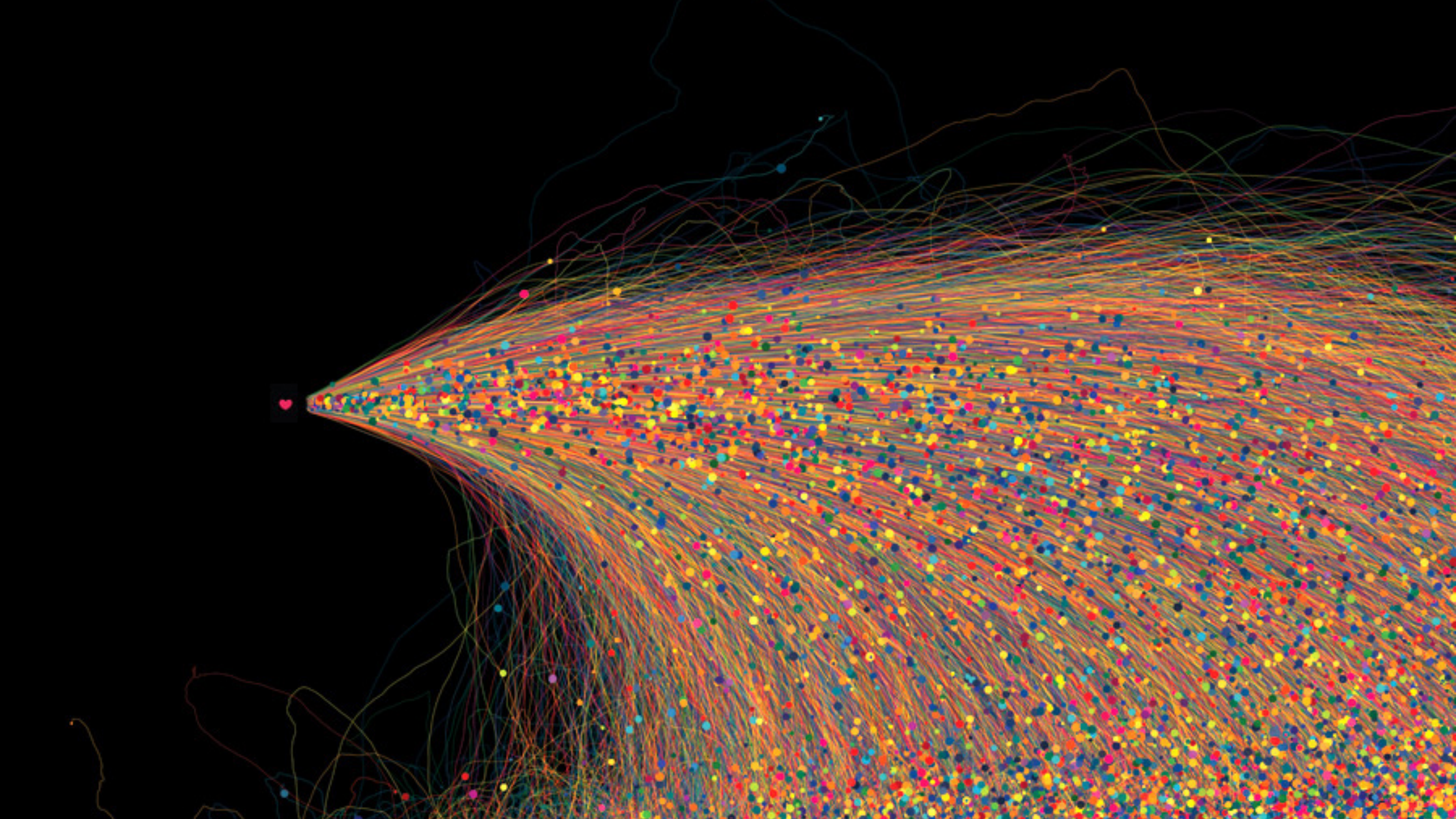


WHY P5.JS

Joy. Exploration. Confidence.

view the projects →


LOVE BUN
MY BEAR
DEAR ME
MY MY
LOVE BOT
BE MY BEAR
TIME BEAR
WINK BEAR
BEAR BEAR
LOOK BEAR
BOOK
YOU ARE BARE
MAGE LOVE
YAK O WAY
IN A FAN



SEVERE SYMPTOMS
3,270

DECEASED
373

RECOVERED
8,961

LAGUNA HONDA HOSP
REHABILITATION CEN
135 FILLED / 135 AVAIL

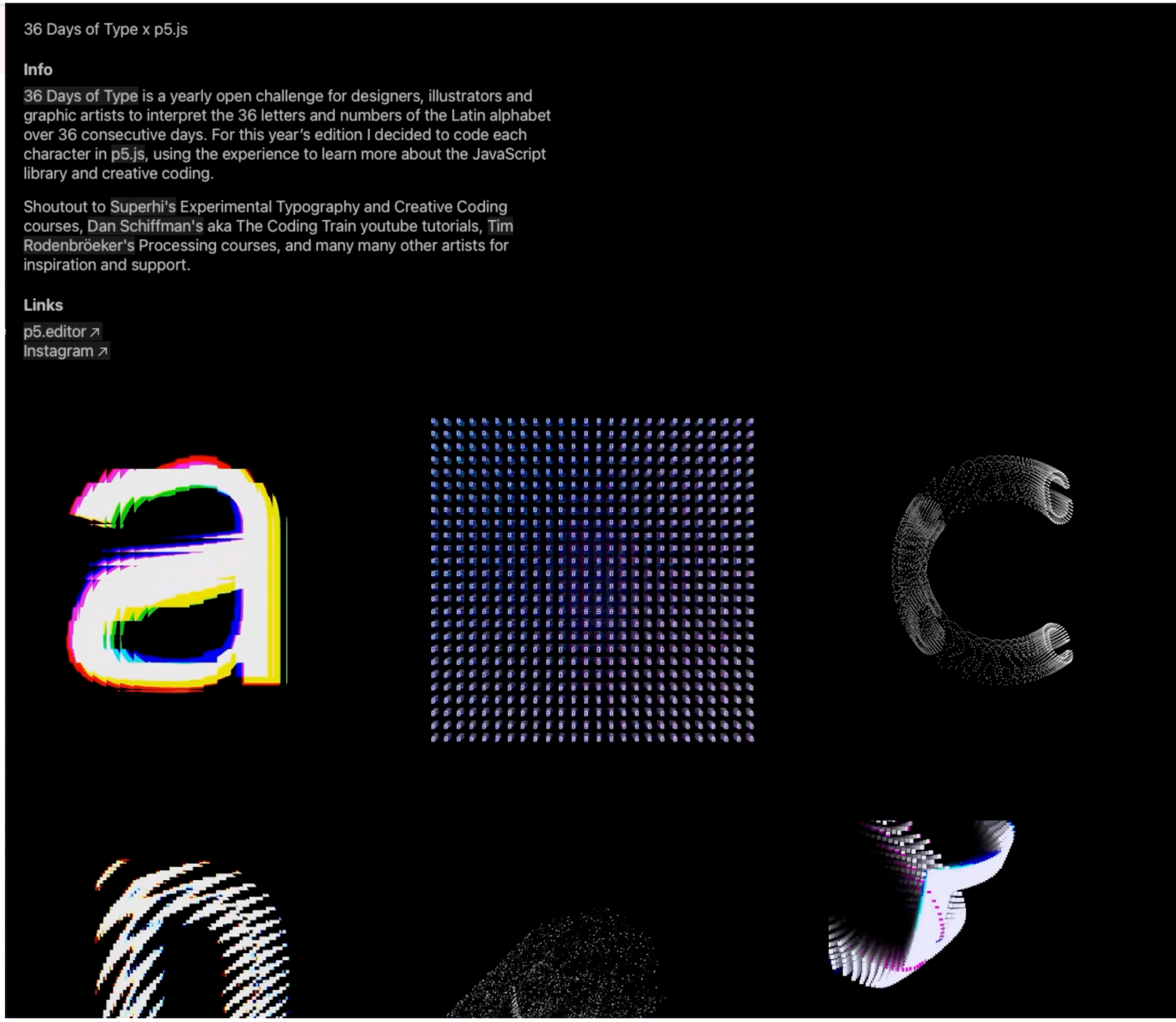
ES BY AGE GROUP

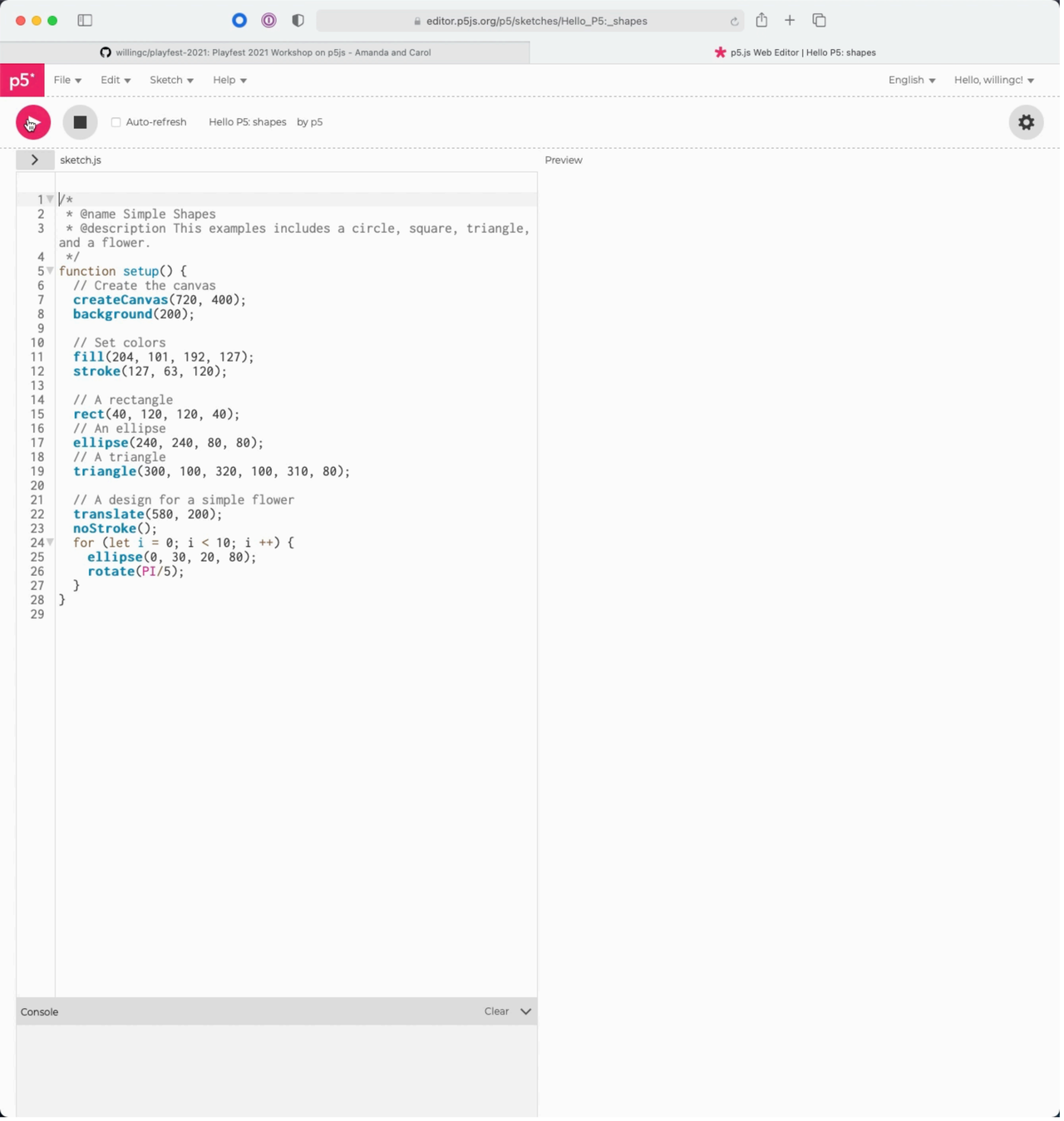
INFECTED CASES BY DAY

Joy Buolamwini - "Poet of Code"

PLAY WITH P5.JS

Exploration and Possibilities

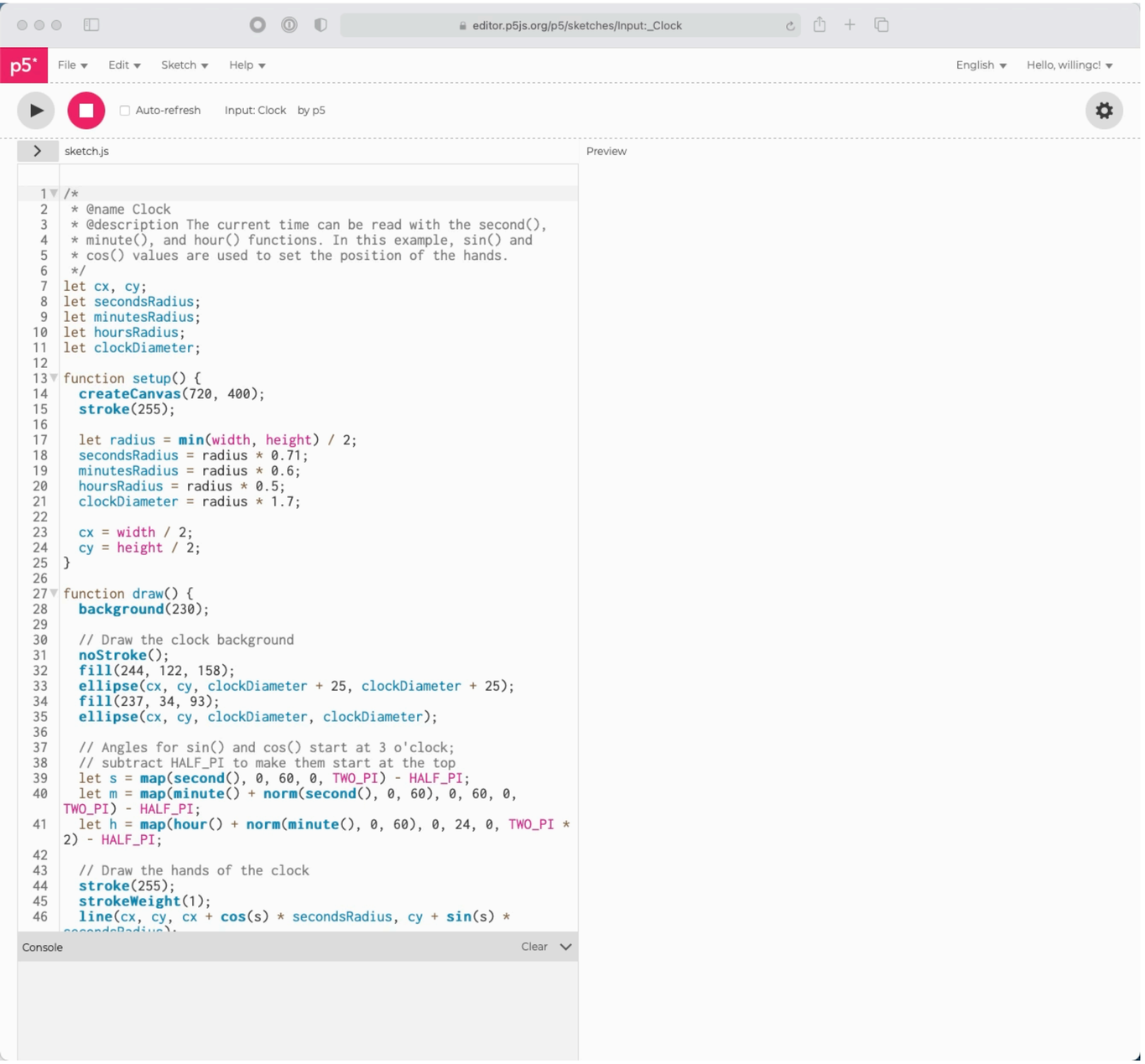




P5.JS

- No installation required. Web Based IDE
- Lots of examples. Try it, change it, explore.
- Great documentation. Translations. Accessible.
- Appeals to the Senses
- Choose your own adventure. Empower the learner.
- Share it with friends

editor.p5js.org



YES, YOU CAN...

- Set up / prep
- Production
- Clean up

- Parties
- Plays
- Cooking
- Writing
- and more...

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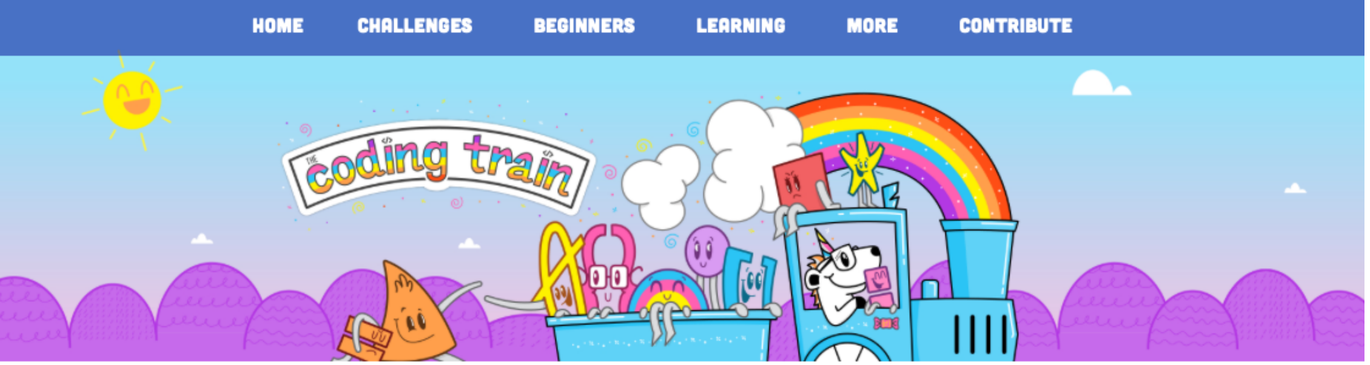
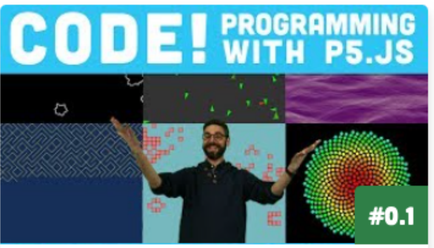
Choice, confidence, engagement…PLAY



CODE! PROGRAMMING WITH P5.JS

This video series focuses on the fundamentals of computer programming (variables, conditionals, iteration, functions & objects) using JavaScript. In particular it leverages the p5.js creative computing environment which is oriented towards visual displays on desktops, laptops, tablets or smartphones. The series is designed for computer programming novices.

Hopefully if you make it to the end you'll be able to explain how computational media is different from traditional media, demonstrate an understanding of computer programming, and learn how to learn the tools they need to accomplish the projects that interest them in computational media.

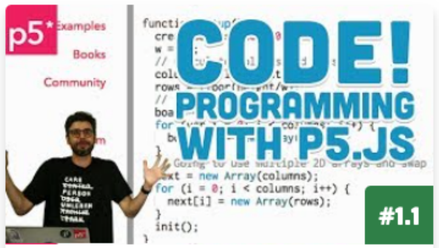


TRAILER

12 Apr 2019

Code! Programming in JavaScript with p5.js for beginners.

WATCH ON YT | TO THE LESSON



PROGRAMMING FOR BEGINNERS WITH P5.JS

05 Sep 2018

In this video, I talk about the p5.js basics course, what I hope you will learn and the goals of the course.

WATCH ON YT | TO THE LESSON

P5.JS WEB EDITOR

06 Sep 2018

In this video, I cover getting set up with and using the p5.js Web Editor.

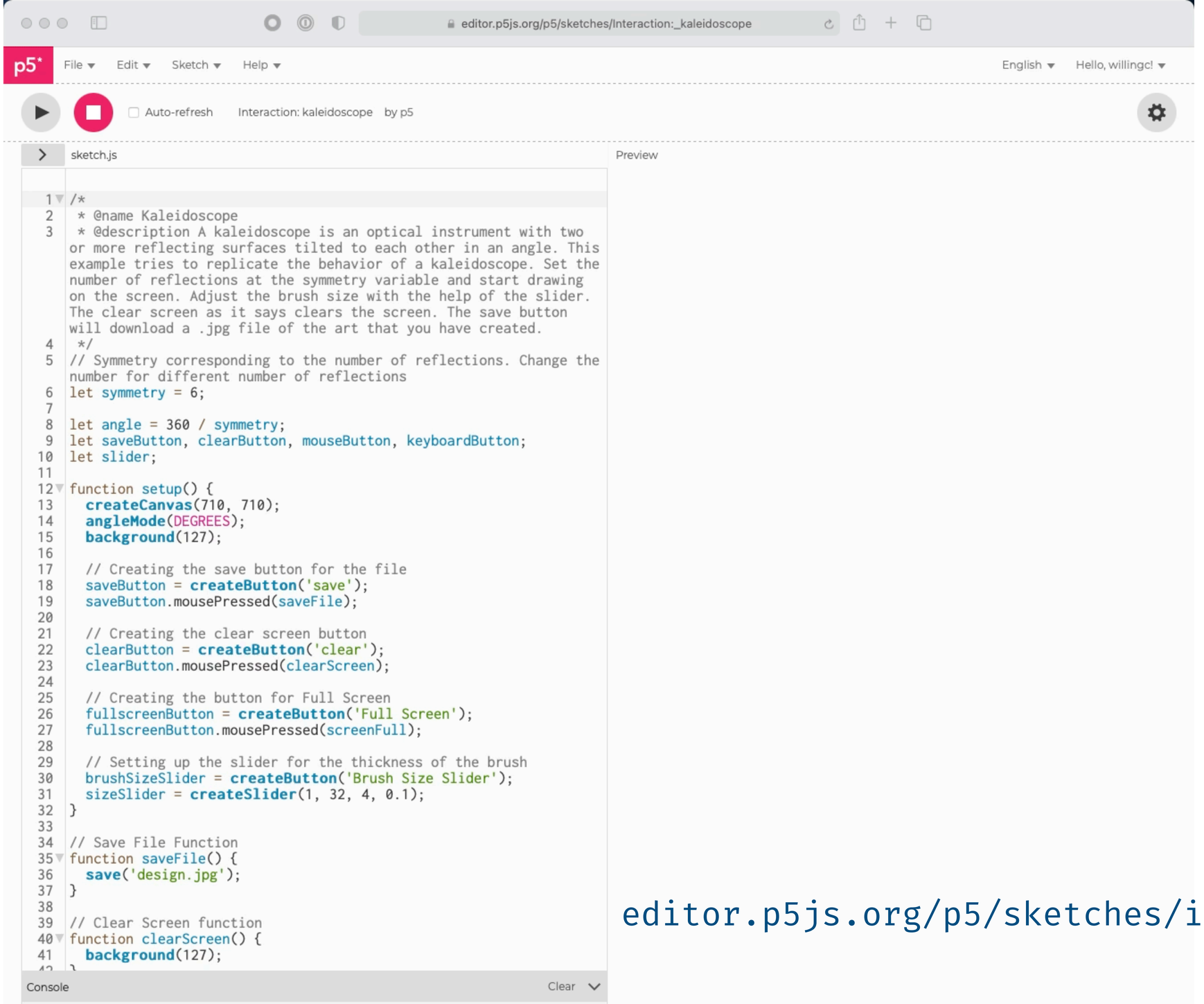
WATCH ON YT | TO THE LESSON

LET'S PLAY

- Interact
- Appealing
  - Visual
  - Sound
  - Motion
- Individual - explore at your pace
- Excitement

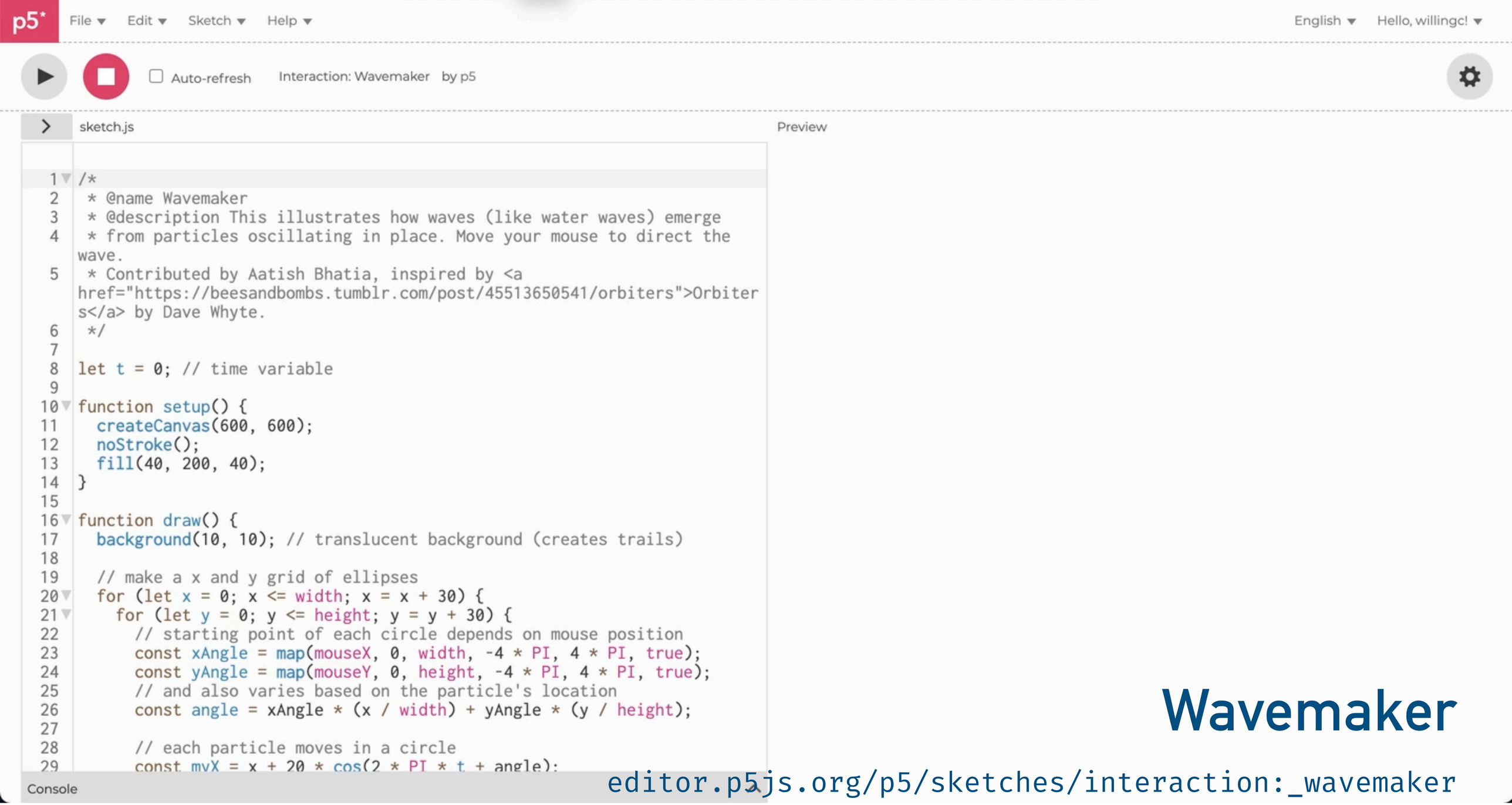
editor.p5js.org

thecodingtrain.com



Kaleidoscope

editor.p5js.org/p5/sketches/interaction:_kaleidoscope



Wavemaker

editor.p5js.org/p5/sketches/interaction:_wavemaker

p5* File Edit Sketch Help English Hello, willingc!

Auto-refresh 3D: orbit control by p5

sketch.js

```
/*
 * @name Orbit Control
 * @description Orbit control allows you to drag and move around the
world.
 */
function setup() {
  createCanvas(710, 400, WEBGL);
}

function draw() {
  background(250);
  let radius = width * 1.5;

  //drag to move the world.
  orbitControl();

  normalMaterial();
  translate(0, 0, -600);
  for (let i = 0; i <= 12; i++) {
    for (let j = 0; j <= 12; j++) {
      push();
      let a = (j / 12) * PI;
      let b = (i / 12) * PI;
      translate(
        sin(2 * a) * radius * sin(b),
        (cos(b) * radius) / 2,
        cos(2 * a) * radius * sin(b)
      );
      if (j % 2 === 0) {
        cone(30, 30);
      } else {
        box(30, 30, 30);
```

Preview

Console

Orbit Control

https://editor.p5js.org/p5/sketches/3D:_orbit_control

p5* File Edit Sketch Help English Hello, willingc!

Auto-refresh Simulate: penrose tiles by p5

sketch.js

Preview

```
/*
 * @name Penrose Tiles
 * @frame 710,400
 * @description This is a port by David Blitz of the "Penrose Tile"
example from processing.org/examples
 */

let ds;

function setup() {
  createCanvas(710, 400);
  ds = new PenroseLSystem();
  //please, play around with the following line
  ds.simulate(5);
}

function draw() {
  background(0);
  ds.render();
}

function PenroseLSystem() {
    this.steps = 0;

   //these are axiom and rules for the penrose rhombus l-system
   //a reference would be cool, but I couldn't find a good one
    this.axiom = "[X]++[X]++[X]++[X]++[X]";
    this.ruleW = "YF++ZF----XF[-YF----WF]++";
    this.ruleX = "+YF--ZF[---WF--XF]+";
    this.ruleY = "-WF++XF[+++YF++ZF]-";
    this.ruleZ = "--YF++++WF[+ZF++++XF]--XF";

```

Console

Penrose Tiles

editor.p5js.org/p5/sketches/simulate:_penrose_tiles


PLAY WITH P5.JS
editor.p5js.org
https://editor.p5js.org/willingc/collections/GI3_u3qH0

FOUNDATION
MOTIVATION
CONNECTION

p5.js opens a world of possibilities

jupyter playfest-demo Last Checkpoint: 3 hours ago (unsaved changes)

Logout

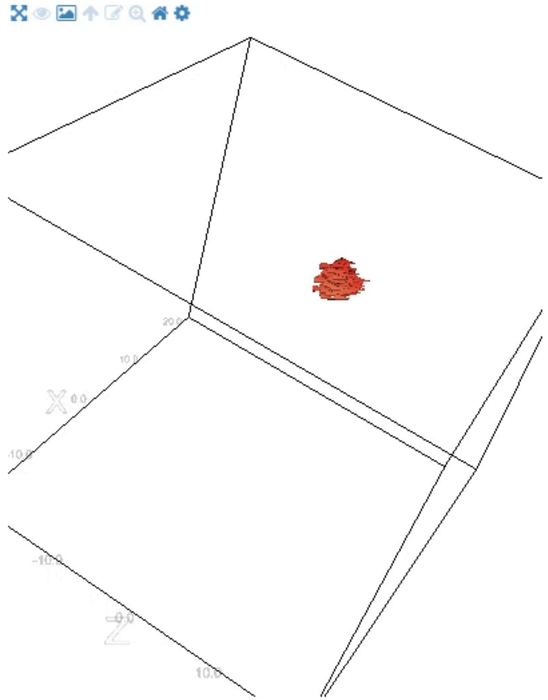
File Edit View Insert Cell Kernel Widgets Help

Trusted Python 3

Run Code

jupyter.org

```
# use just rgb colors, not rgba
quiver = ipv.quiver(x, y, z, vx, vy, vz, size=5, color=colors[:,:,:3])
ipv.show()
```



0.00

In [93]:
```
ipv.style.use('light')
```

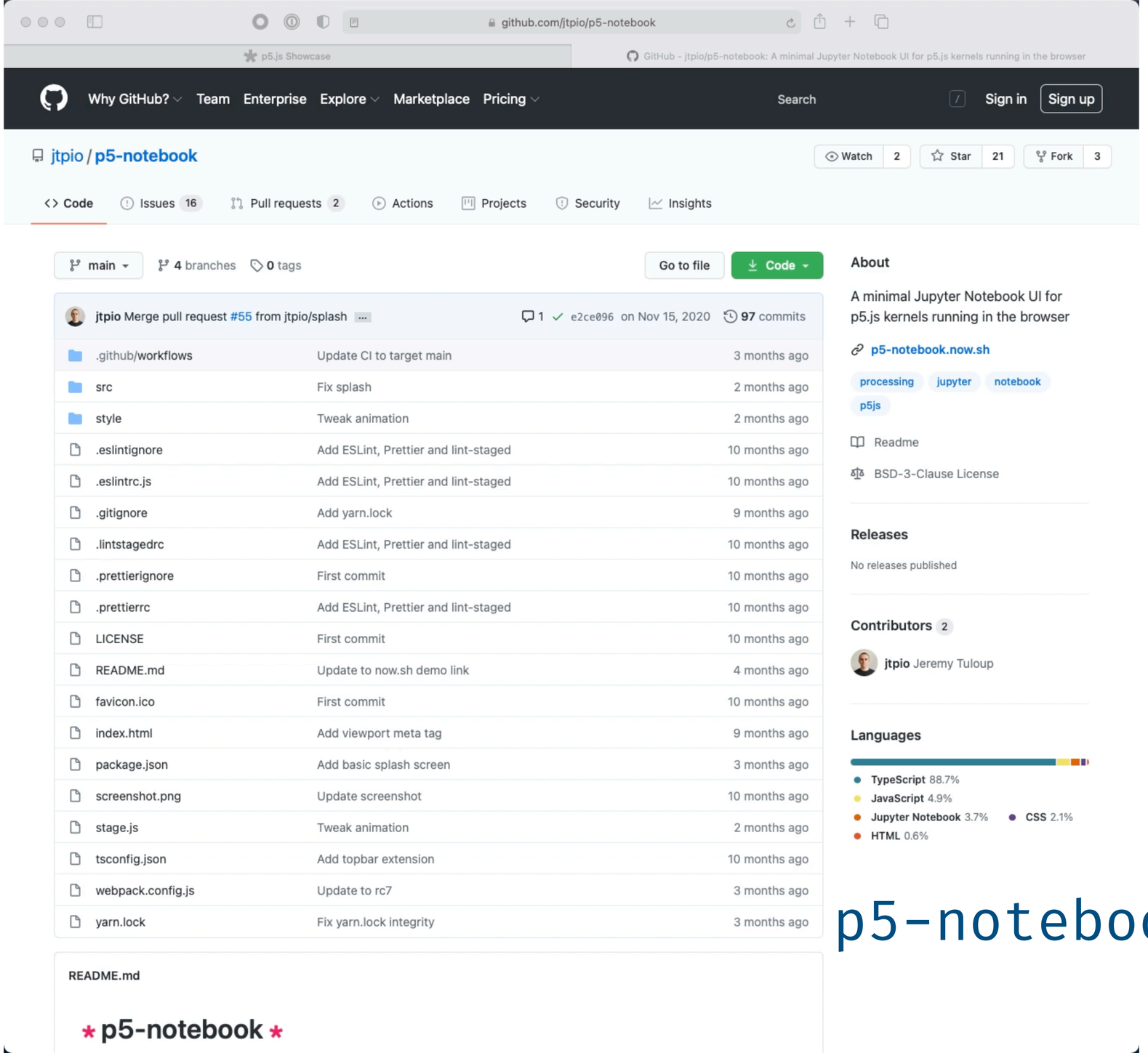
In [94]:
```
quiver.sequence_index = 3
```

In [96]:
```
ipv.animation_control(quiver, interval=300)
```

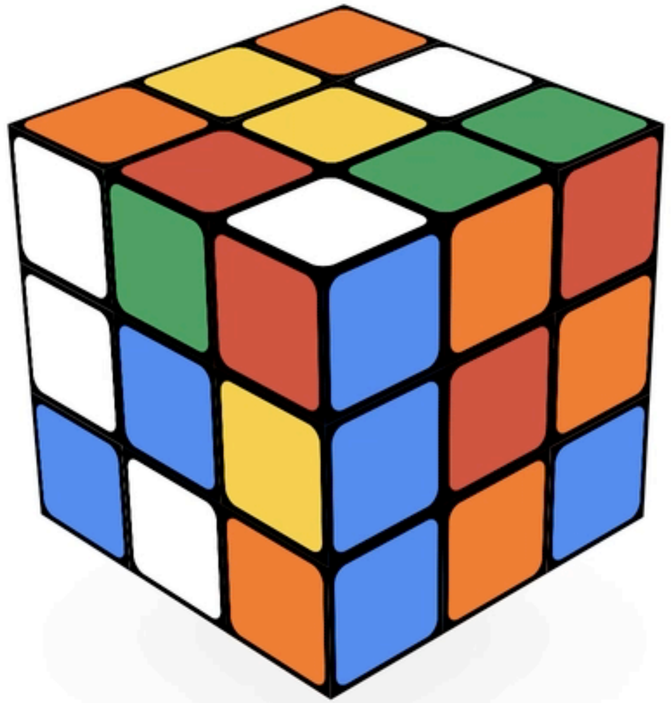
In [97]:
```
w = widgets.ToggleButtons(options=['arrow', 'sphere', 'cat'])
widgets.link((quiver, 'geo'), (w, 'value'))
w
```

arrow sphere cat

In [ ]:



p5-notebook.now.sh



google doodle

magenta

Get Started Studio Demos Blog Research Talks Community

Make Music and Art Using Machine Learning

Get Started | Try the Demos

magenta.tensorflow.org

WHAT IS MAGENTA?

An open source research project exploring the role of machine learning as a tool in the creative process.

p5* File Edit Sketch Help English Hello, willingc!

Auto-refresh PitchDetection_Piano by ml5

sketch.js

Preview

```
// Copyright (c) 2019 ml5
//
// This software is released under the MIT License.
// https://opensource.org/licenses/MIT

/* ===
ml5 Example
A piano using pitch Detection with CREPE
=== */

// Pitch variables
let pitch;
let audioContext;
let audioStream;

// Keyboard variables
const cornerCoords = [10, 40];
const rectWidth = 90;
const rectHeight = 300;
const keyRatio = 0.58;
const scale = ['C', 'C#', 'D', 'D#', 'E', 'F', 'F#', 'G', 'G#', 'A',
'A#', 'B'];
let currentNote = '';

function setup() {
```

Console Clear

p5* File Edit Sketch Help English Hello, willingc!

Auto-refresh Sentiment_Interactive by ml5

sketch.js

```
let sentiment;
let statusEl;
let submitBtn;
let inputBox;
let sentimentResult;

function setup() {
  noCanvas();
  // initialize sentiment
  sentiment = ml5.sentiment('movieReviews', modelReady);

  // setup the html environment
  statusEl = createP('Loading Model...');
  inputBox = createInput('Today is the happiest day and is full of rainbows!');
  inputBox.attribute('size', '75');
  submitBtn = createButton('submit');
  sentimentResult = createP('sentiment score:');

  // predicting the sentiment on mousePressed()
  submitBtn.mousePressed(getSentiment);
}

function getSentiment() {
  // get the values from the input
```

Preview

Console Clear

editor.p5js.org/ml5/sketches/XCFPKqlKrt

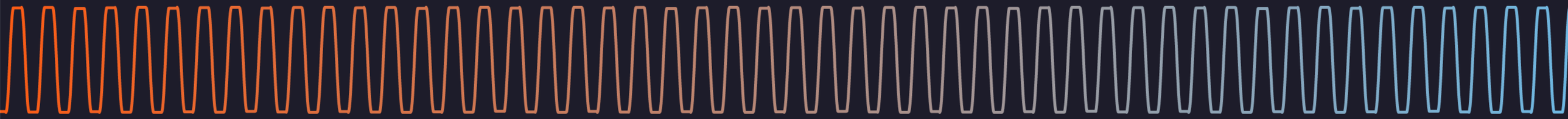
magic-sketchpad.glitch.me

NSYNTH:
SOUND MAKER

Make unusual new sounds
with machine learning.

PLAY

How it works



magenta.tensorflow.org/nsynth-instrument

This is an A.I. Experiment

Made with some friends from Google

Built using Magenta

magenta.tensorflow.org/nsynth-instrument

PLAY WITH MAGENTA

magenta.tensorflow.org

magic-sketchpad.glitch.me

ml5js.org

editor.p5js.org/ml5/sketches

Thanks for sharing the joy of p5.js with us.