

# Colorful Image of Sound

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What do we view  
on a regular  
basis?

//Music Building at UCSB.



What about  
people who are  
colorblind?

It would like this,



What about  
people who are  
colorblind?

this,



What about  
people who are  
colorblind?

and this.



## Inspiration

In his TED lecture "I Listen to Color," Neil Harbisson reveals that he is colorblind. Despite this, Harbisson can hear the colorful world through an antenna placed in his skull. (Btw, he is the first person did so in the world.) That is, when he goes close to different colors, he can hear distinct colors' noises.

What if we do the opposite? For instance, we view a similar visual when we hear a sound.

//image from  
[https://www.ted.com/talks/neil\\_harbisson\\_i\\_listen\\_to\\_color](https://www.ted.com/talks/neil_harbisson_i_listen_to_color)



## SCRIABIN'S KEY-COLOUR RELATIONSHIPS AS DOCUMENTED BY LEONID SABANEYEV

C	Red
G	Orange-pink
D	Yellow
A	Green
E	Blue-whitish
B	Similar to E
F#	Blue, bright
D b	Violet
A b	Purple-violet
E b, B b	Steely; metallic gleam
F	Red, dark

## Original Theory

In his article "The Sound of Light: Scriabin's Clavier à lumières," Edward Campbell-Rountree demonstrates Alexander Scriabin's definition: connections between note and color.

Campbell-Rountree claims in the passage that color-hearing may be used in literary writing.

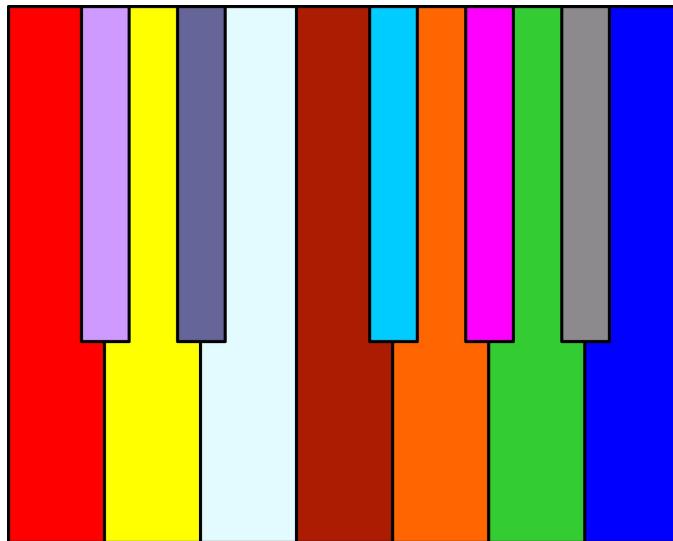
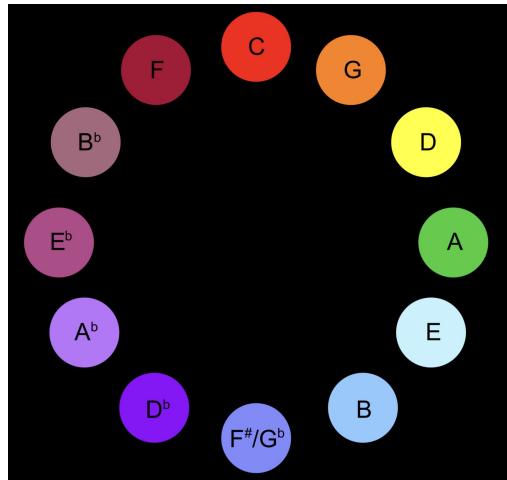
To broaden it, we may apply it to everyday sketching and painting.

//image from  
<https://edwardcampbellrountree.com/writing/the-sound-of-light-scriabins-clavier-a-lumieres>

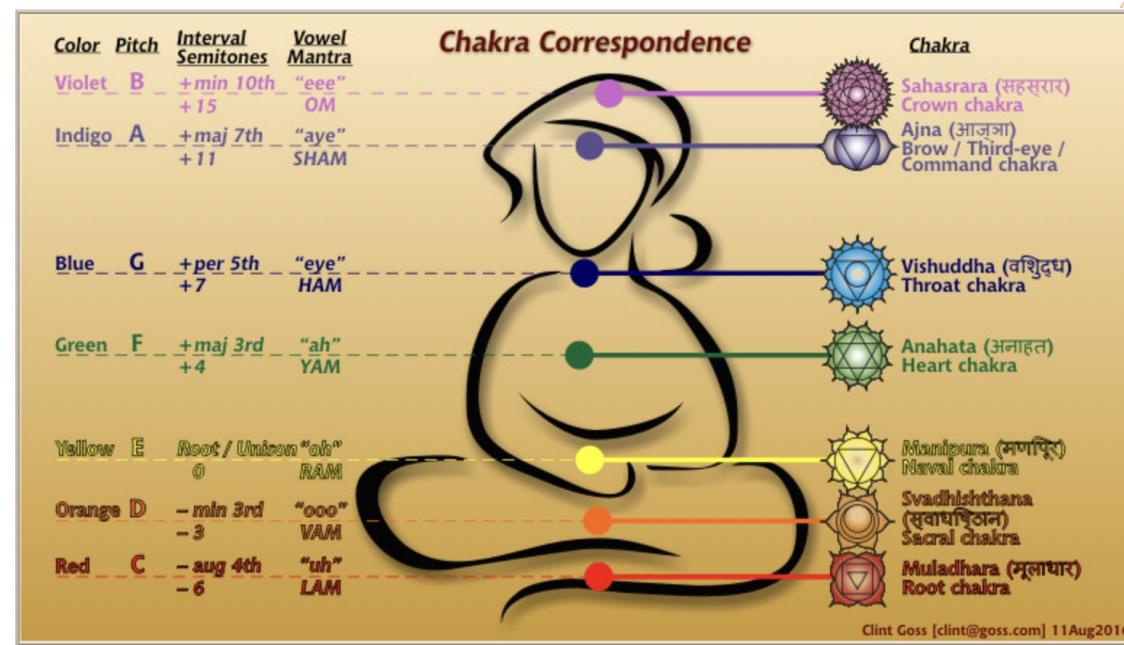
# Original Theory

Here are other forms to explain Alexander Scriabin's theory from the article "The Color of Sound." Nonetheless, the colors are too deep for me, and I would like to change them lighter to fit my artistic aesthetic more. (image in the next slide)

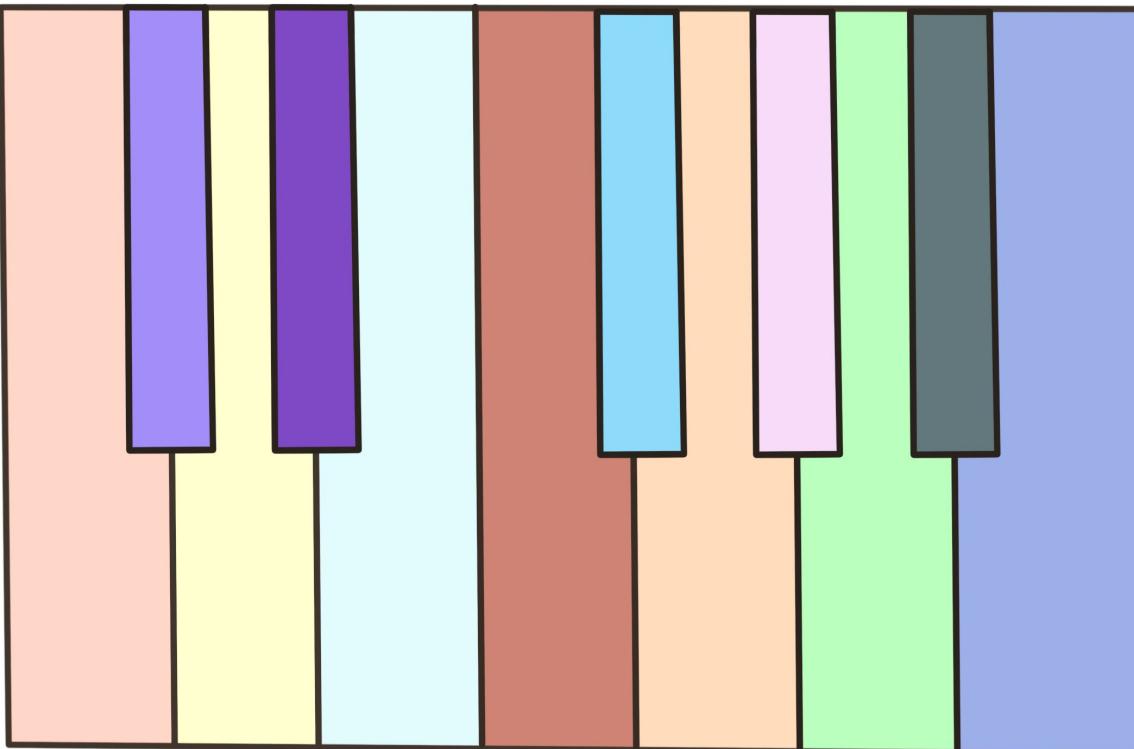
//images from  
[https://www.flutopedia.com/sound\\_color.htm](https://www.flutopedia.com/sound_color.htm)



Color	Frequency	Wavelength
violet	668–789 THz	380–450 nm
blue	631–668 THz	450–475 nm
cyan	606–630 THz	476–495 nm
green	526–606 THz	495–570 nm
yellow	508–526 THz	570–590 nm
orange	484–508 THz	590–620 nm
red	400–484 THz	620–750 nm



## Details for each color



C:	#ffccb8
C#/D <sup>b</sup> :	#ab8dff
D:	#ebe4a5
D#/E <sup>b</sup> :	#8745cc
E:	#dcfbfd
F:	#db7e70
F#/G <sup>b</sup> :	#72dcfd
G:	#fjdaab5
G#/A <sup>b</sup> :	#fdd9fb
A:	#a5ffb7
A#/B <sup>b</sup> :	#5b787d
B:	#9bafed

## Generators

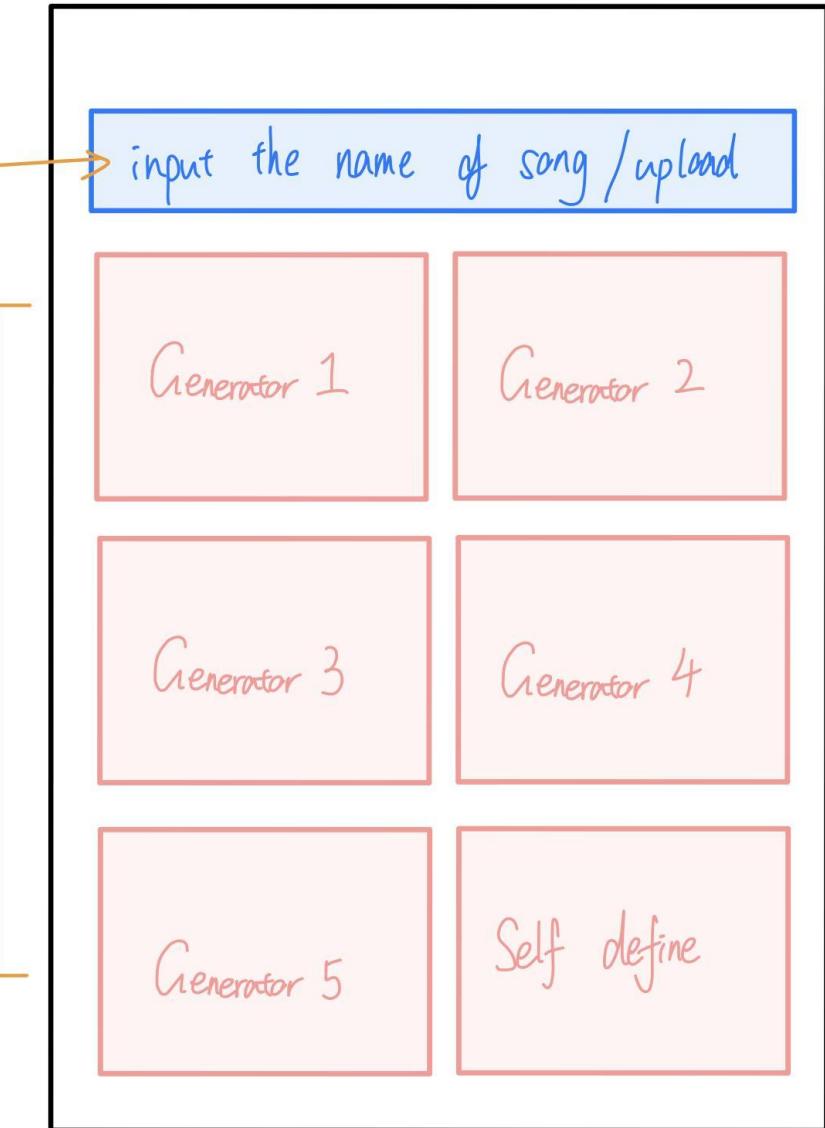
We can use a generator to translate the music to the colorful artworks, which would make things easier.

Set the supplied data to the tune of a song. For example, CDEFGAB stands for Do Re Mi Fa So La Ti. After receiving the input data, the generator will convert the music to the same color as the image in the previous slide presentation, for example, C to #ffc6b8. Finally, the generator will produce the desired artworks.

//images from <https://processing.org/> and <https://www.python.org/>



① input  
the name



## Generators

Users may enter the song's name and then select the generator type to generate the artworks with this prototype.

Generator 1: rectangle strips of color;

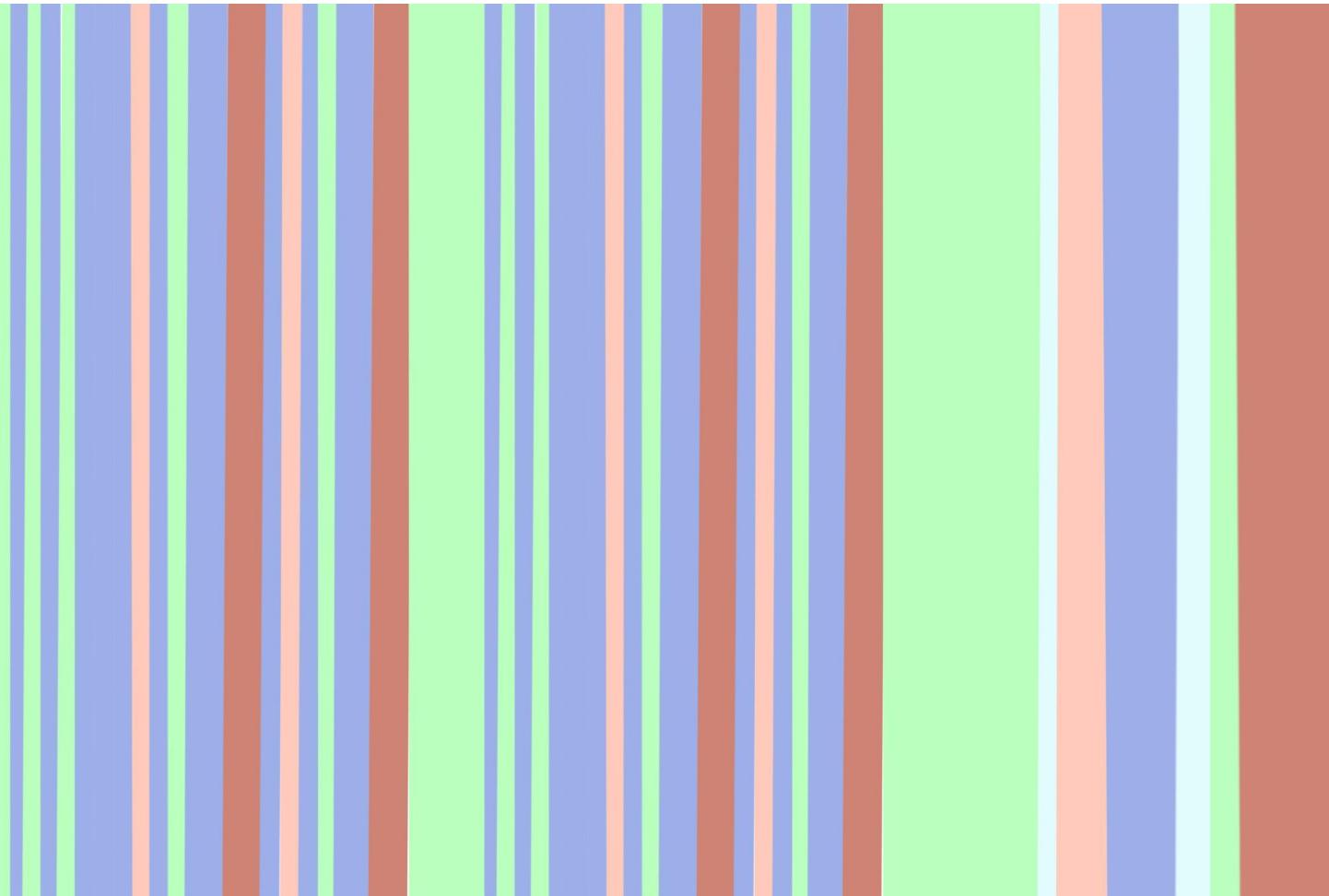
Generator 2: rectangle strips of color with figure elements;

Generator 3: square strips of color;

Generator 4: code wall combining with 1 & 0;

Generator 5: rectangle strips of colorful skin/feather of animals;

Self Define: users can customize their own thinking.



## Generator 1

Clicking Generator 1, we will have a rectangle strips of color.

In this example, it is a Color-Of-Sound image of a clip of Wildest Dreams by Taylor Swift.

Do u think is wild enough ?

ಡ್ರೆಂಡ್ ಡ್ರೆಂಡ್ ಡ್ರೆಂಡ್ ಡ್ರೆಂಡ್

The link of how it works demo:  
[https://drive.google.com/file/d/1411IfFUgJeUr8jfOeueEhVV4ka\\_fVIAb/view?usp=sharing](https://drive.google.com/file/d/1411IfFUgJeUr8jfOeueEhVV4ka_fVIAb/view?usp=sharing)

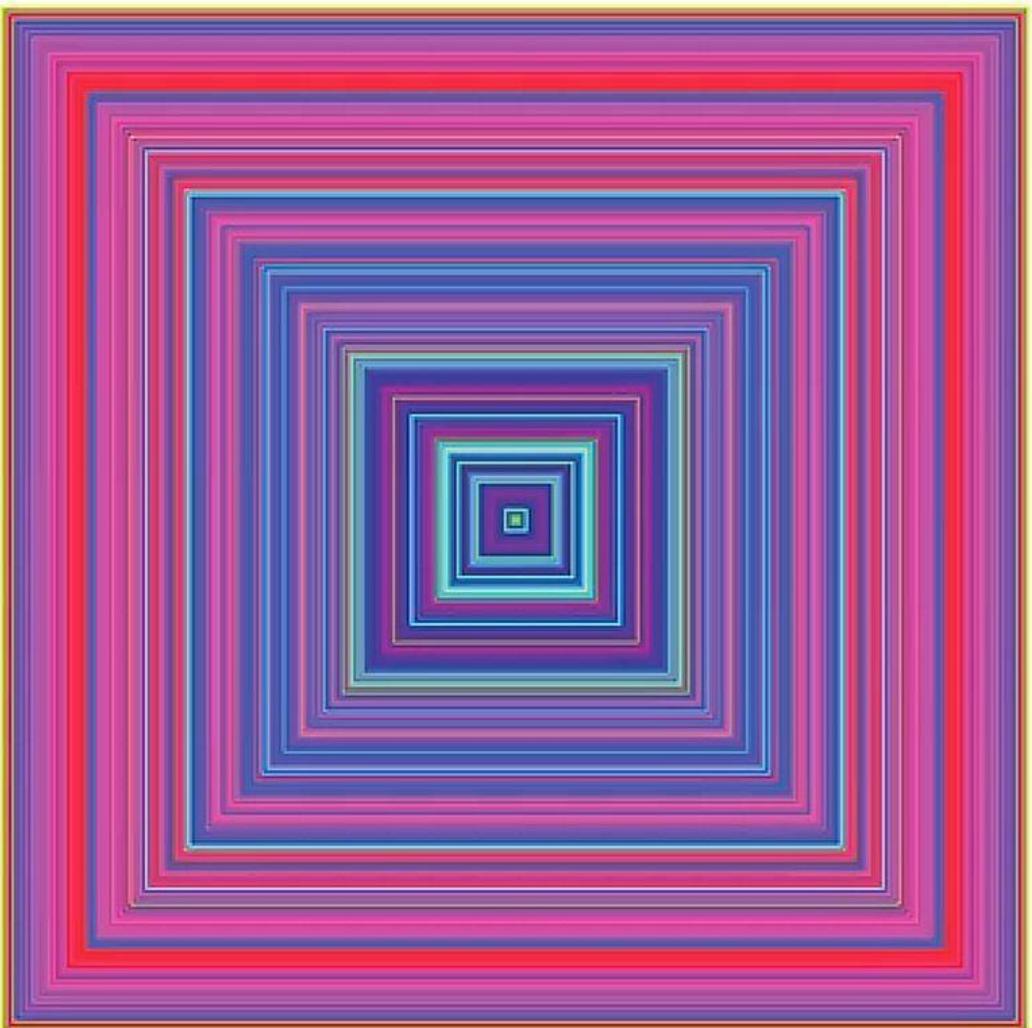
## Generator 2

Generator 2 can add some musical parts based on what we obtain from Generator 1.

The generator employs a traditional look on from the music video in this example, Taylor Swift's Wildest Dreams. And then (using photoshop) to have the generator 1 image as the background.

Similar works may be used to promote songs, allowing anybody who sees the image to envisage the song's melody.





## Generator 3

We will get square strips of color if we click Generator 3.

It is an existing work from Neil Harbisson, who provided this example. He quoted Martin Luther King Jr.'s "I Have a Dream" speech.

As you can see, any speech, not only music, may be utilized to create a picture. Any sound, in particular, may have a colorful picture rendition.

//image from  
<https://ted.tumblr.com/post/108553208767/this-is-martin-luther-king-jrs-i-have-a-dream>.

## Generator 4

CDEFGAB stands for Do Re Mi Fa So La Ti, as previously stated. In the realm of coding, each letter is represented as a binary string.

```
1 temp = input()
2
3 def split(word):
4     return list(word)
5
6 temp1 = split(temp)
7
8 for i in temp1:
9     if i == "A":
10        print("01000001", end = ' ')
11    if i == "B":
12        print("01000010", end = ' ')
13    if i == "C":
14        print("01000011", end = ' ')
15    if i == "D":
16        print("01000100", end = ' ')
17    if i == "E":
18        print("01000101", end = ' ')
19    if i == "F":
20        print("01000110", end = ' ')
21    if i == "G":
22        print("01000111", end = ' ')
23
```

As the coding image shows here,  
A is the string "01000001";  
B is the string "01000010";  
C is the string "01000011";  
D is the string "01000100";  
E is the string "01000101";  
F is the string "01000110";  
G is the string "01000111".

We'd utilize Taylor Swift's Wildest Dreams again.  
The picture on next slide is what we got after  
typing the entire song.

//The language here is Python.  
//The code is typed by myself.

```
0100000101000001010000010100000101000001010000010100000  
010100000101000001010000010010000110100001101000011010000100100  
000101000010010001001000110100011010001101000010100000101  
000001010000010100000101000001010000011010000110100001101000011  
01000001001000010010000010100010001000001010000010100000101  
010100010101000011010000110100001001000010001000001010000010100  
01010001010100001101000011010000100100001000100000101000010101  
000101010000110100001101000010101000101010001010100010101000101  
01000101010000101010001010100010101000101010001010100001010000  
010100000101000001010000010100000101000001001000011010000010100  
00010100000101000001010000010100000101000001101000011010000110100  
00000101000001010000010100000101000001010000010010000110100000101  
010000010100000101000001010000010100000110100001101000011010000100100  
0101000101010000101000001101000011010000110100001101000011010000100100  
01010001010100001010000011010000110100001001000010001000011010000110100  
0001010000010100000101000001010000010100000110100001001000011010000110100  
0001100100011001000110010001000100011010001000100001101000010  
01000100010001000001010001010100001101000001010000010100000101000  
0101000001010000010100000101000001010000010010000110100000101000010100  
000101000001010000010100000110100011101000111010001100100001010000101  
00000101000001010000010100000101000001010000011010000101000001010000101  
010000010100000110100011101000111010001100100010101000101010001  
010100010101000100011010001000100001101000010010000100100000101000  
001001000010010001001000100100010010000110100001001000010010000101  
0000100100000101000010010001001000100100001010001100100001  
0100001101000010100001010000101000001010001110100001110100001110100001  
1001000101010001000100010001000100010000110100001101000011010000  
00010100011101000111010001100100011001000101010001010100010001  
0001000100010000110100001101000001010000010100000101000011101000011  
01000110010001010100010001000100010000110100001101000011010000
```

## Generator 4

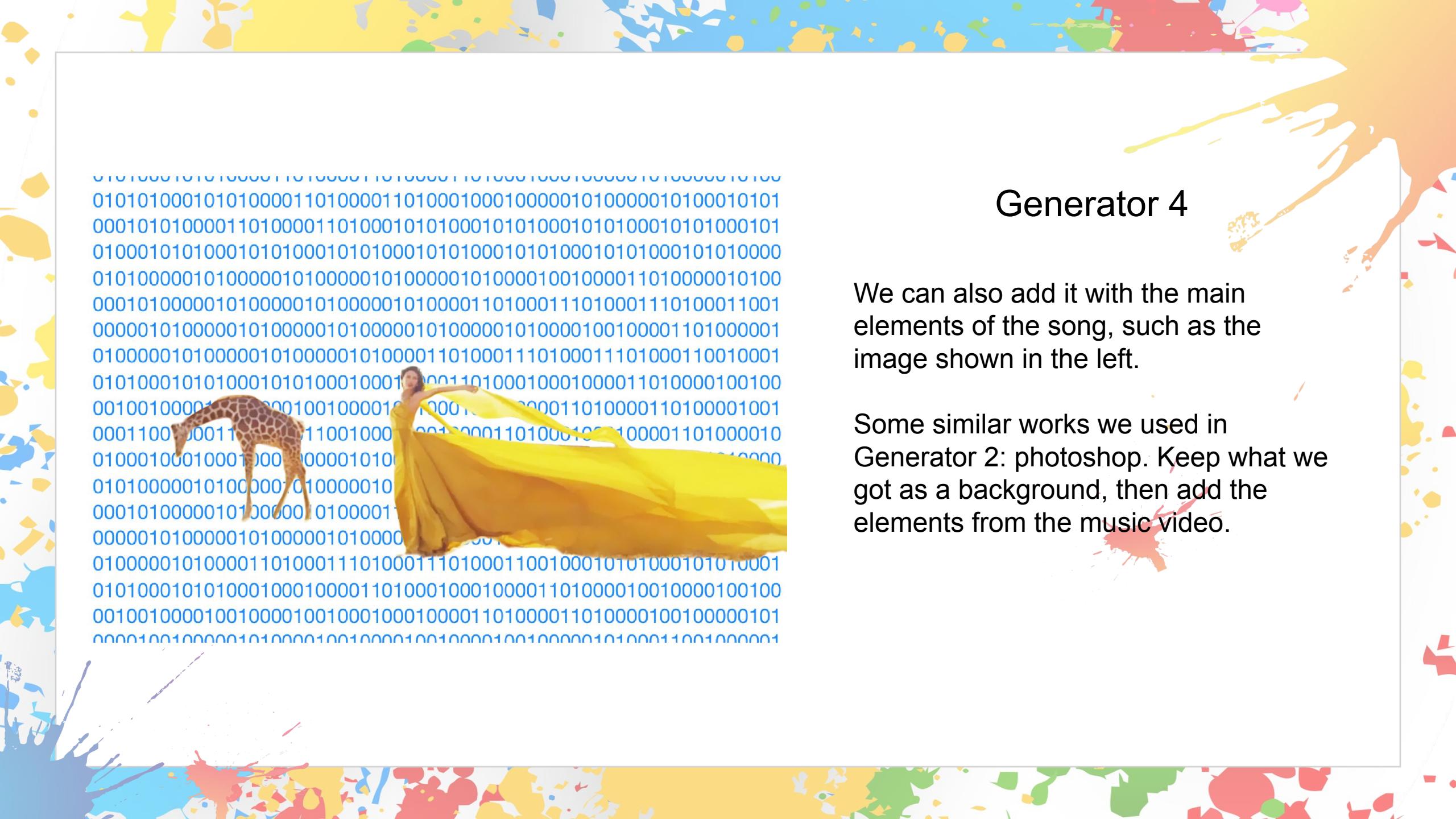
After clicking Generator 4, users will get a wall full of 1 & 0 which represents the music note of the song.

The image on the left is the image of the song: Wildest Dreams by Taylor Swift.

Viewers can infer the particular pitch because the background is full of binary strings. If you do not want to ruin the mystique by figuring out the song's real pitch, swap the binary to octal or hexadecimal, and do not let the public know the exact method you are using. It may also be considered propaganda when everyone is actively guessing and elevating the level of conversation.

The link of how it works demo:

<https://drive.google.com/file/d/1OJw2g0k5GAMXOMTYc4NZ3v9AnBe2Ap-J/view?usp=sharing>



01010001010000110100011010001000100000101000010101  
00010101000011010001101000101010001010100010101000101  
010001010100010101000101010001010100010101000101010000  
01010000010100000101000001010000010100001001000011010000010100  
00010100000101000001010000010100001101000111010001110100011001  
00000101000001010000010100000101000001010000100100001101000001  
01000001010000010100000101000011010001110100011101000110010001  
01010001010100010101000100011001101000100010000110100000100100  
00100100001100100011001000110010001100100011010000100100001001  
000110010001100110010001100100011001000110010001101000010001101000010  
0100010001000100010000010100000101000001010000010100000101000001010000010  
010100000101000001010000010100000101000001010000010100000101000001010000010  
00010100000101000001010000010100000101000001010000010100000101000001010000010  
0000010100000101000001010000010100000101000001010000010100000101000001010000010  
0100000101000011010001110100011101000100010101000101010001  
010100010101000100001101000100010000110100001001000010010000  
00100100001001000010010001000100001101000011010000100100000101  
0000100100000101000001001000010010000100100001001000010100001100001

## Generator 4

We can also add it with the main elements of the song, such as the image shown in the left.

Some similar works we used in Generator 2: photoshop. Keep what we got as a background, then add the elements from the music video.



## Generator 5

The animals with colorful skin/feather will be used to symbolize the relevant symbol in Generator 5. Every time a new note is played, it switches amongst colorful animals.

When users click Generator 5, they will get an image similar to Generator 1, but change the color to the colorful part of animal as the image shows on the left here.

## Generator 5

It is also Bio-Art if we employ genuine animals from all over the world. For example, we can use the real yellow duck or blue fish, and arrange them to the arrangement we need in the artwork. Nonetheless, that would be too cruel.

In the passage “What Ethics for Bioart?” Nora S. Vaage states that Bioartworks, as well as audience comments, might help to broaden or narrow the realms of possibility that artists are attempting to raise awareness of, possibly influencing future decisions on what our society should look like. As a result, the debates sparked by these works of art are inextricably linked to those about technology appraisal and technoscience philosophy.

Thus, we will leave it digital for the time being. Meanwhile, it is also possible if there are enough specimens.

## Works Cited

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# Thanks!

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