

# Creativity in Code

COMS 1002

# Data visualization and computational art

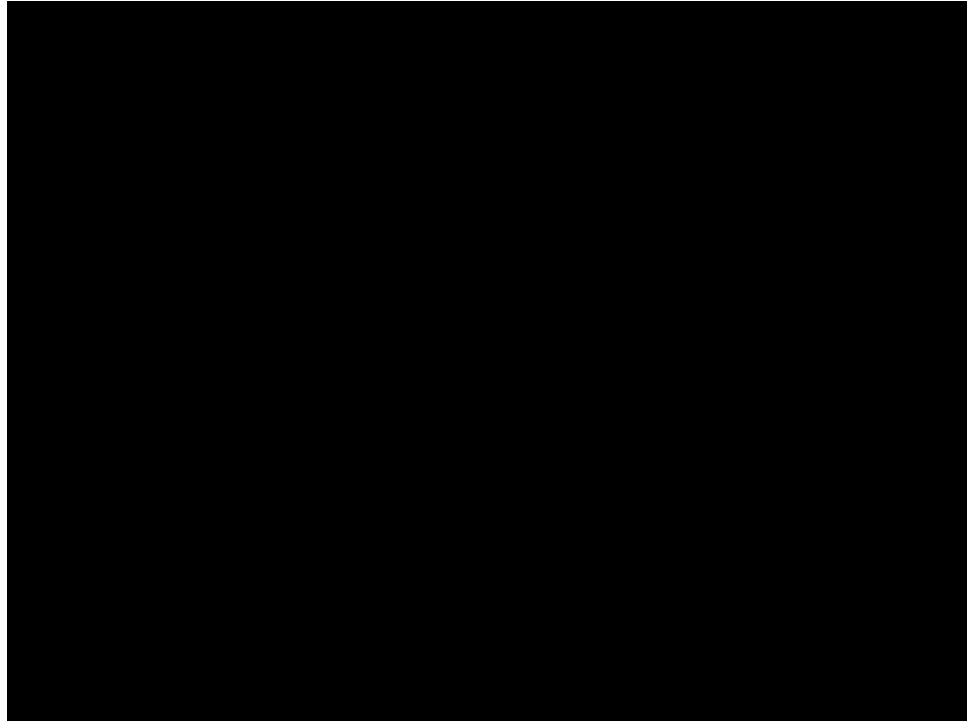
Data visualization - the art of effectively communicating data through graphical representations

Computational visual art - not that

Not all data visualizations are computational art...

*and*

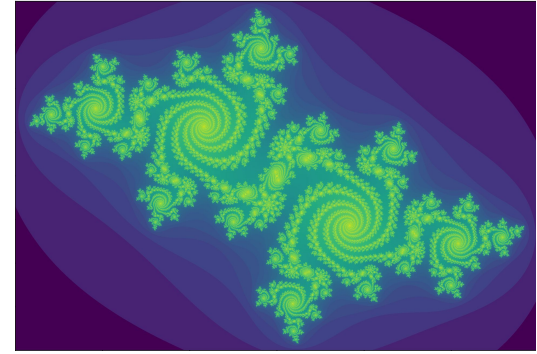
...not all computational art is data visualization



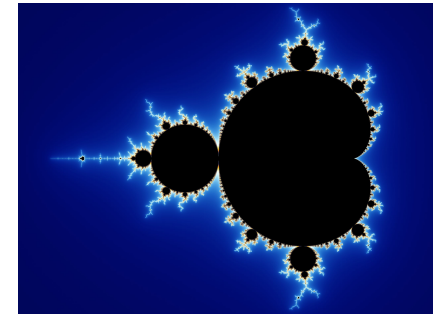
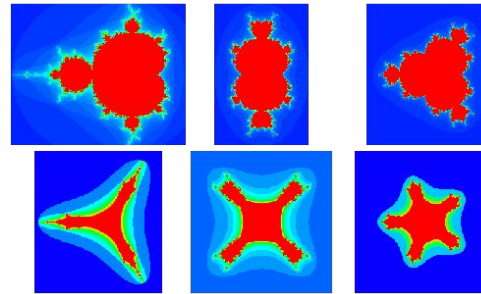
# Regularity and Randomness - Theme and Variations

The two foundations of generative art

The images to the left technically do not have randomness from a mathematical perspective

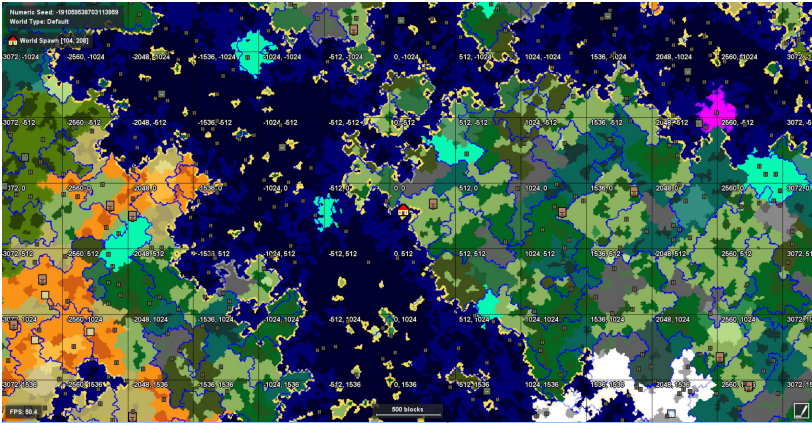


Julia set



Mandelbrot set

# Procedural Generation



Minecraft seed -191059538703113959

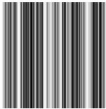
# Procedural Generation and the myth of randomness

Generative processes that use randomness  
are repeatable: demo time

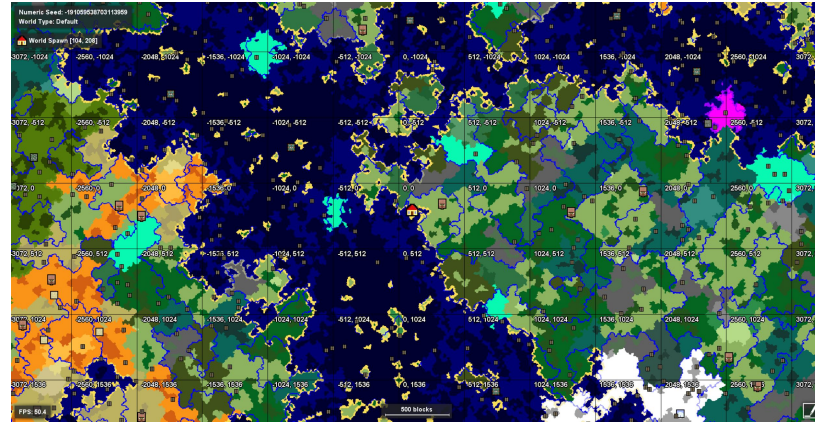
```
random.seed(a=None, version=2)
```

Initialize the random number generator

<https://docs.python.org/3/library/random.html>

Name	randomSeed()
Examples	 <pre>randomSeed(0) for i in range(100):     r = random(0, 255)     stroke(r)     line(i, 0, i, 100)</pre>
Description	Sets the seed value for random(). By default, random() produces different results each time the program is run. Set the seed parameter to a constant to return the same pseudo-random numbers each time the software is run.

<https://py.processing.org/reference/randomSeed.html>

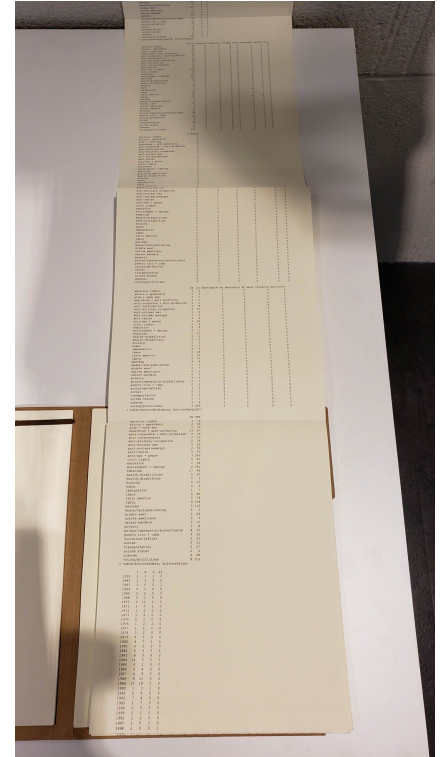


Minecraft seed -191059538703113959

# Scope of the artistic product

How can code itself be a visual artistic object?

Can we treat code as literature?



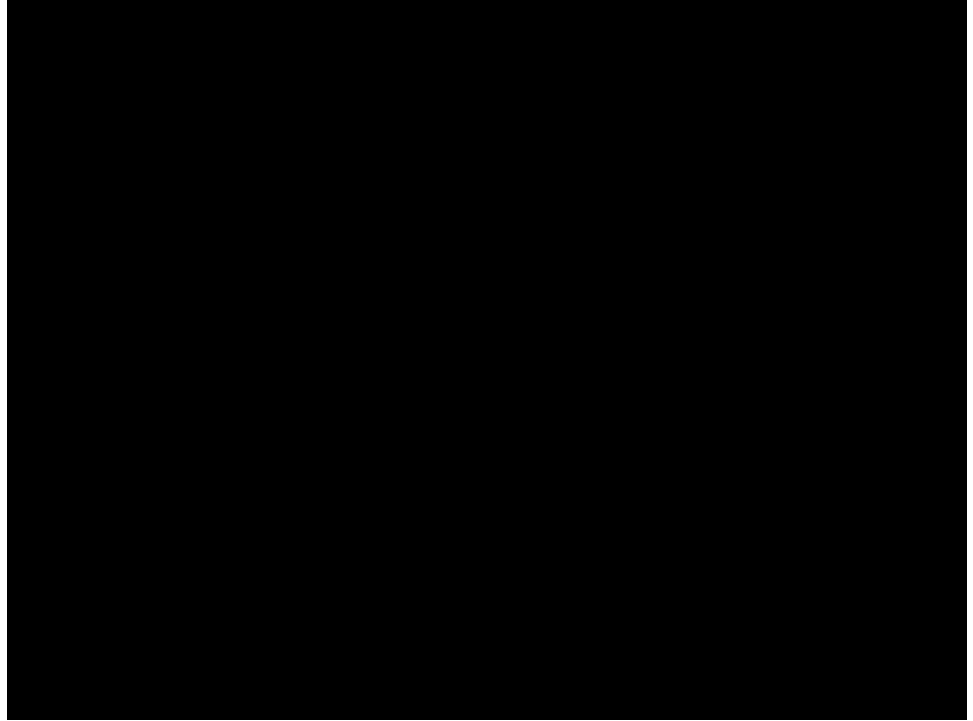
# Demo of working in Processing

It is hard to start from a blank canvas

Let's start with example code

In general, it is **ok** to start with example code, but **not so ok** to start with code for a complete work someone else has written.

But, it depends.



# plagiarism, derivatives, fair use, rights, ownership, ...

What is “derivative work” in code?

What does it mean to “steal” code?

Where do we “draw the line”?

See Google LLC v. Oracle America, Inc.

To consider:

How much effort does it take to create a forgery of a painting vs code?

Given code is (essentially) freely reproducible, how does supply impact value?



Chris McMahon <https://www.deviantart.com/chr15t0ph3l35/art/Mountain-Monster-144163976>



# Portrait of Edmond Belamy

sold at Christie's for \$432,500 in Oct 2018

Parties involved:

- Ian Goodfellow, inventor of GANs (Generative Adversarial Networks)
- *Obvious* - a collective comprising three people, Pierre Fautrel, Hugo Caselles-Dupré and Gauthier Vernier
- Robbie Barrat, who implemented the GANs software package used by *Obvious* to create this work
- The artists whose works went into the training set



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- The artists whose works went into the training set
- The algorithm itself?



# In-class Reading

Read this shared google doc and leave comments as you go

take ~10 mins to read, and then we will come back together to discuss

[https://docs.google.com/document/d/1zGzCjrsYz4dE6krNmChTs\\_LRNMTk6neJAiIbdmr3EK8/edit?usp=sharing](https://docs.google.com/document/d/1zGzCjrsYz4dE6krNmChTs_LRNMTk6neJAiIbdmr3EK8/edit?usp=sharing)

# More resources

<https://aiartists.org/generative-art-design>

<https://vimeo.com/298000366>

<https://whitney.org/exhibitions/programmed>

[https://www.digitalartarchive.at/database/exhibition-detail.html?tx\\_vafe\\_pi1%5Bexh%5D=2331&cHash=3a4fa2f810a0553d9caeab26f75af857](https://www.digitalartarchive.at/database/exhibition-detail.html?tx_vafe_pi1%5Bexh%5D=2331&cHash=3a4fa2f810a0553d9caeab26f75af857)