FERMENTING DATA: AARHUS 8000-8220
city-wide data exhibition

17/09/2021–16/10/2021

FERMENTING DATA

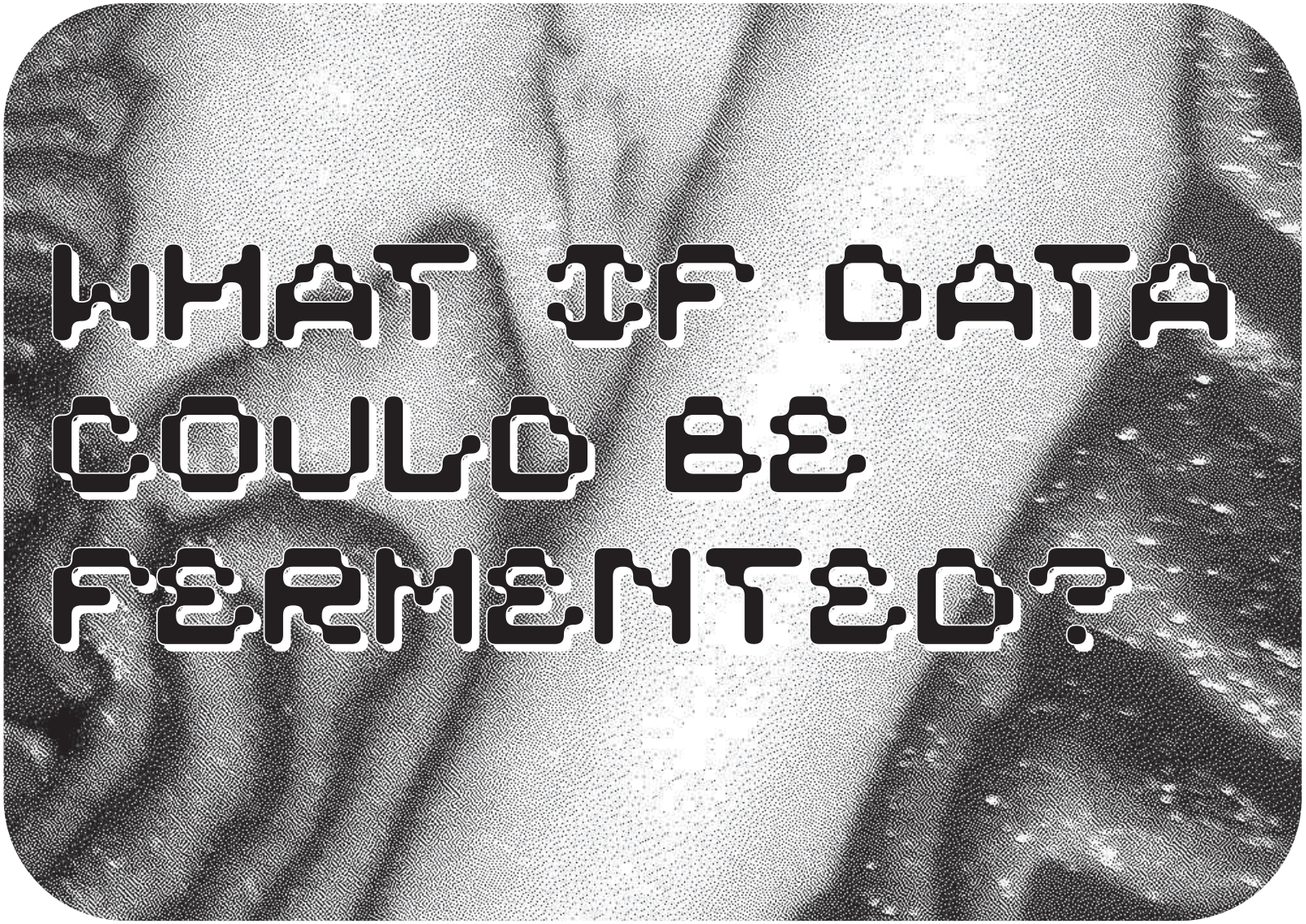
Spanien19C
Jægergårdsgade 164a,
8000 Aarhus

Andromeda 8220
Gudrunsvej 78,
8220 Aarhus

& across
different locations
in the city map on fermentingdata.net
and ask for it at Andromeda and Spanien19C

in collaboration with:
https://dobbeltdagger.net

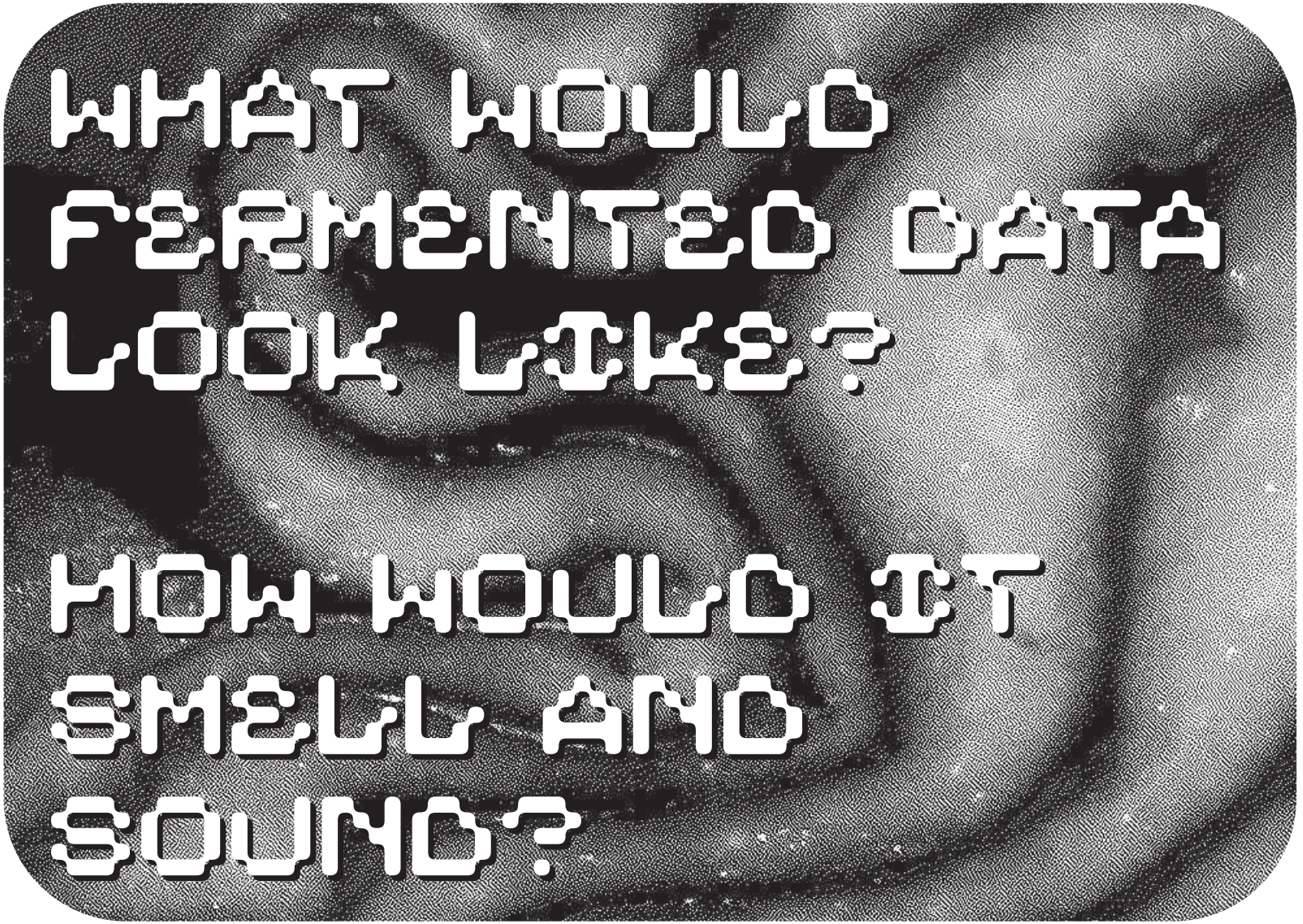
more on the exhibition & events program at:
www.fermentingdata.net/aarhus


WHAT IF DATA
COULD BE
FERMENTED?

FERMENTING DATA

is a speculation on how data practices could be different. Rather than staying within the dominant data processing models based on capture, extraction and surveillance, we take inspiration from symbiotic relations between microbes, plants, and human cultures related to food processing and preservation, to intervene and invent Fermenting Data practices.

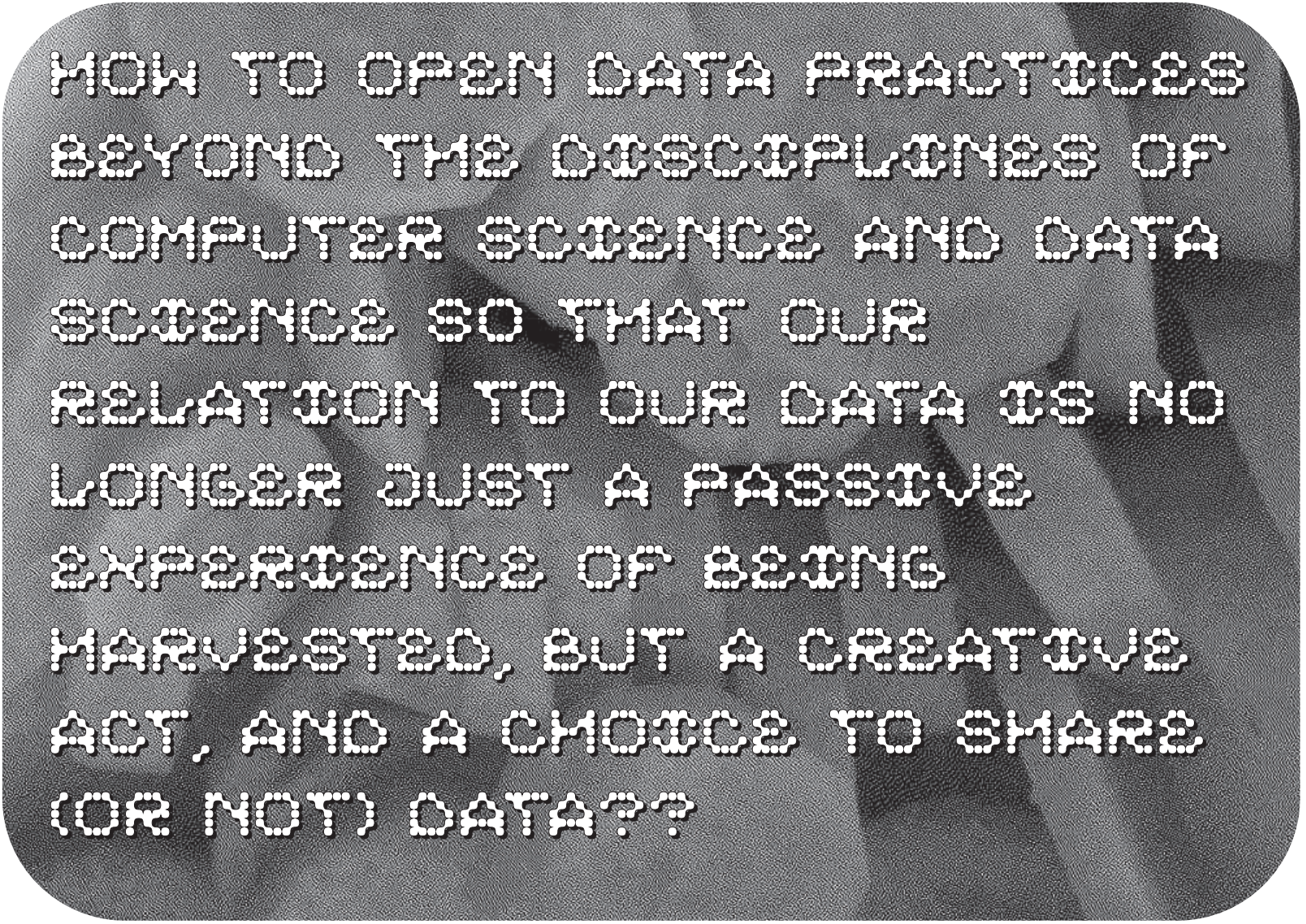
#fermentation #data


WHAT WOULD FERMENTED DATA LOOK LIKE?
HOW WOULD IT SMELL AND SOUND?

FERMENTING DATA

The exhibition Fermenting Data: Aarhus 8000-8220 is a multi-site project connecting Eastern and Western parts of the city of Aarhus, each currently undergoing social and architectural changes. In this exhibition two commissioned art installations by Danish artists use data to model and tell stories about change. Using such computational processes as neural networks, photogrammetry and other digital 3D modelling techniques the artists reveal data as a source for affective narrative and storytelling.

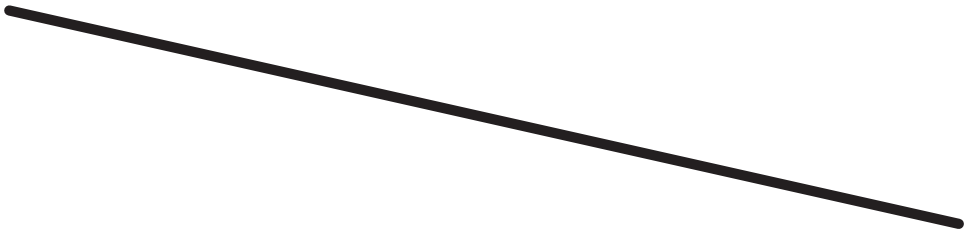
#fermentation #data


HOW TO OPEN DATA PRACTICES
BEYOND THE DISCIPLINES OF
COMPUTER SCIENCE AND DATA
SCIENCE SO THAT OUR
RELATION TO OUR DATA IS NO
LONGER JUST A PASSIVE
EXPERIENCE OF BEING
HARVESTED, BUT A CREATIVE
ACT, AND A CHOICE TO SHARE
(OR NOT) DATA??

Andromeda 8220

Fermenting DATA RAM

AaUOS



Spanien19C

Sphagnum Time

As you travel between East and West Aarhus to visit the exhibition sites, you are invited to stop by in various locations around the city. Follow this Fermenting Data walk on the Echoes map. With Echoes application you can listen to more stories of data and fermentation, city and its people, bodies and their times, jars and microbes.

Use this QR code or visit 'fermentingdata.net/echoes' to follow the Fermenting Data map on Echoes.

SPHAGNUM TIME

In Sphagnum Time we encounter three bog bodies who were never found by the peat diggers of the 20th century. Sacrificed to the bog thousands of years ago, they have obtained a new form of subjectivity beyond the human, one that spans across the ecological circumstances they became part of; of acidic water, sphagnum mosses, trapped methane gas, and the bacterial ecosystems maintaining the bog. In the installation, the bog bodies act as guides for a sub-surface undergoing change. They communicate with us an understanding of time and change that seems beyond our reach, one that requires listening to and observing the subjectivities and rhythms that span beyond the lived experiences of humans.

Working with photogrammetry scans of bog bodies from Moesgaard Museum (DK) and Drents Museum (NL), which support the process of converting photographs into 3D digital models, Sissel Marie Tonn invites us to meditate on time and changing environments as the three bog bodies murmur and chant the seasonal rhythms of life and post-life cycles entangled within sphagnum ecosystems.

AARHUS URBAN OPERATING SYSTEM (AAUOS)

is a project by Aarhus based artist Anders Visti (DK). AaUOSis an instrument that documents the audiosphere of Aarhus to produce new musical compositions of and for the city. For Fermenting Data the instrument includes data related to western part of the city, specifically Gellerup-parken and Toveshøj that have been labelled as ghettos by successive Danish governments since 2010. Development plans in these areas focus on the physical restructuring of neighbourhoods, supported by data collected worldwide from a series of similar regeneration projects. These data are seen to provide evidence that the demolition of housing in certain city districts--and its subsequent social effects--are desirable because they reclaim these areas as "safe" for residents of the city.

AaUOS compiles sound recordings from Gellerup and Toveshøj with the city development data to map these areas from within. Rather than creating the architectural and somewhat utopian view that represents the district after the transition, the artist uses neural networks to register and perform with data how the area with its current inhabitants are affected by these major regeneration plans and works.

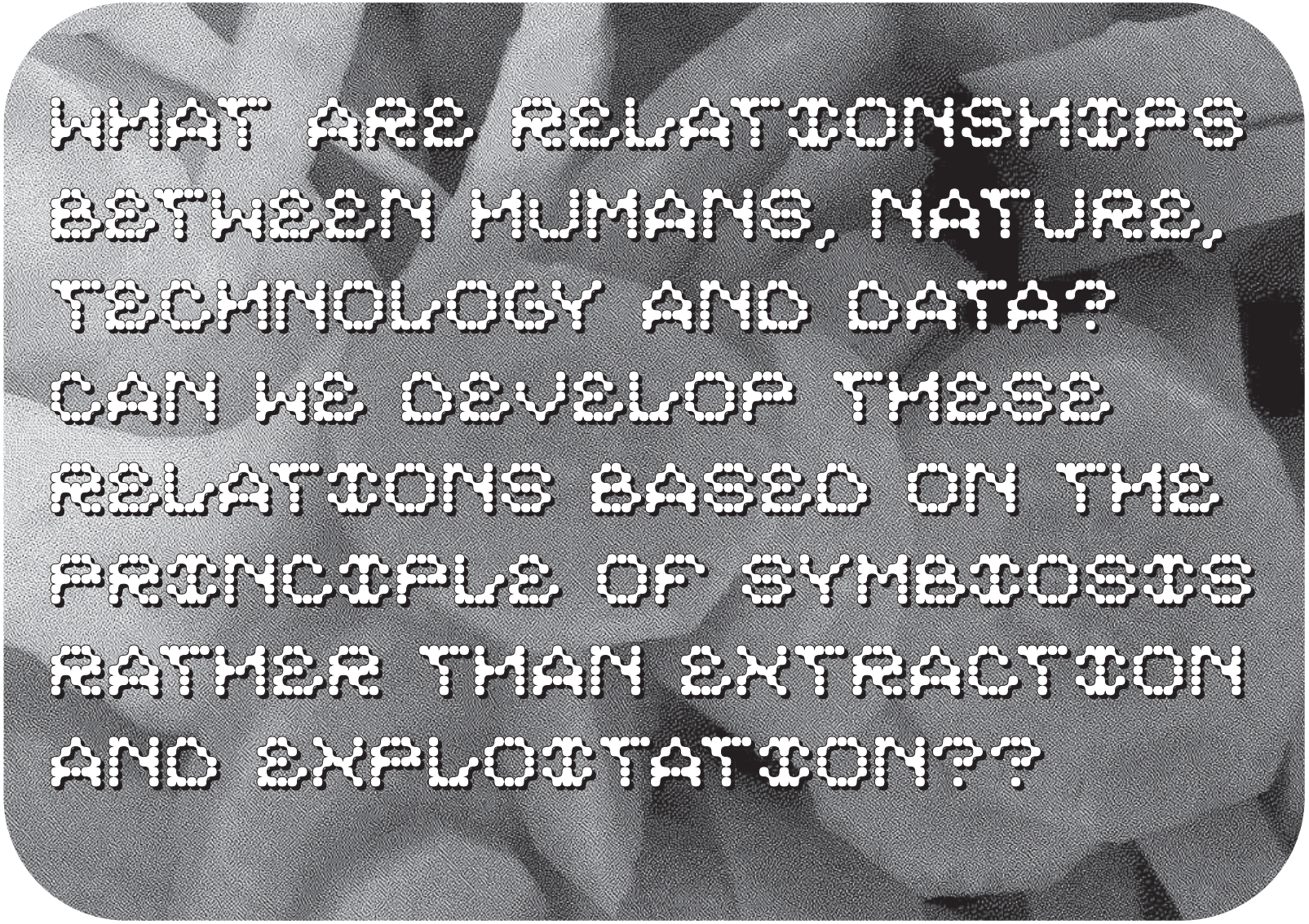
FERMENTING DATA RAM (RANDOM ACCESS MEMORY)

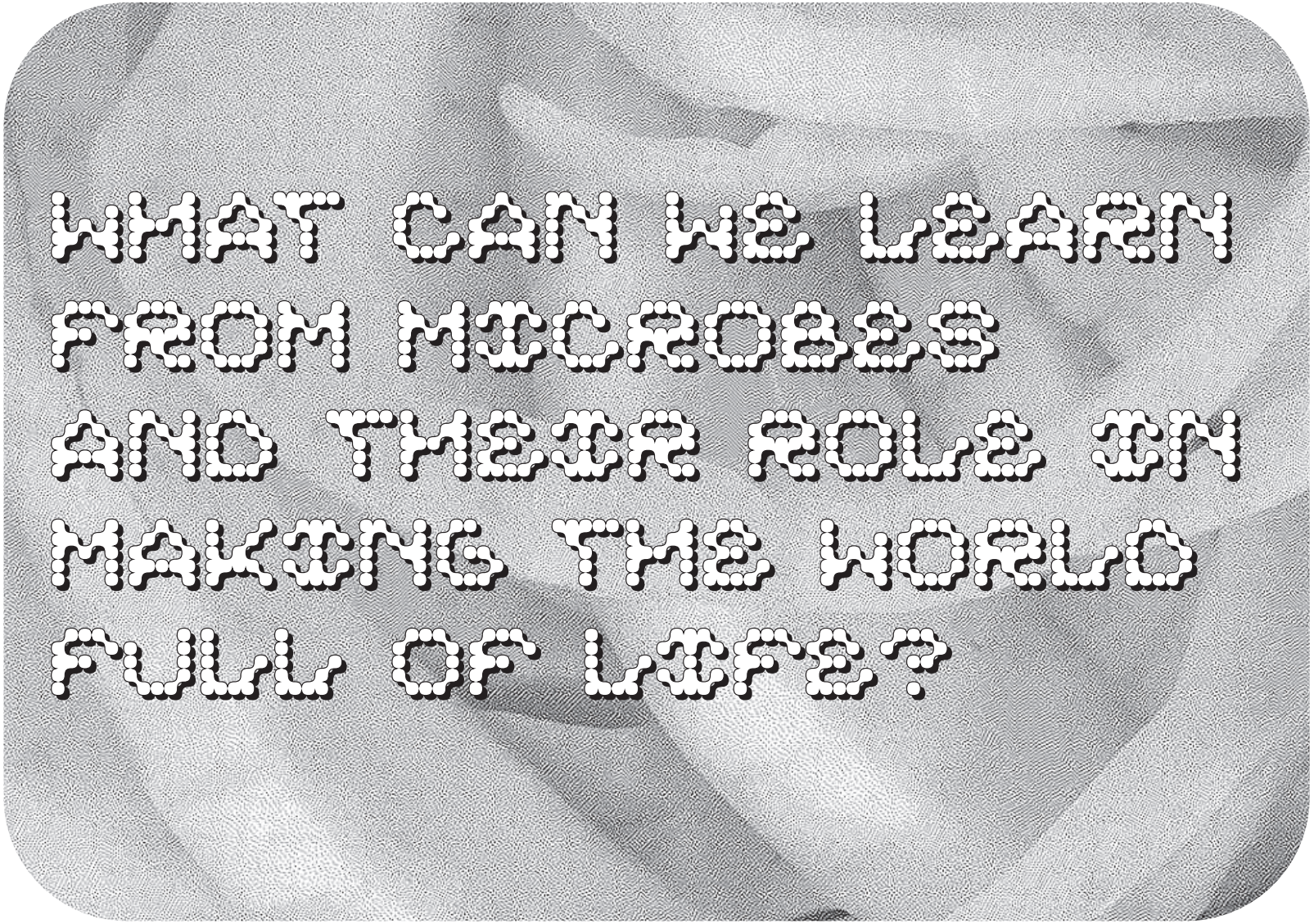
Is a built archival structure which stores and displays data of varied kinds. Random Access Memory is typically to be found in any computational device, and it is used to store working data that is all data currently used by the computer to perform necessary tasks while the computer is on.

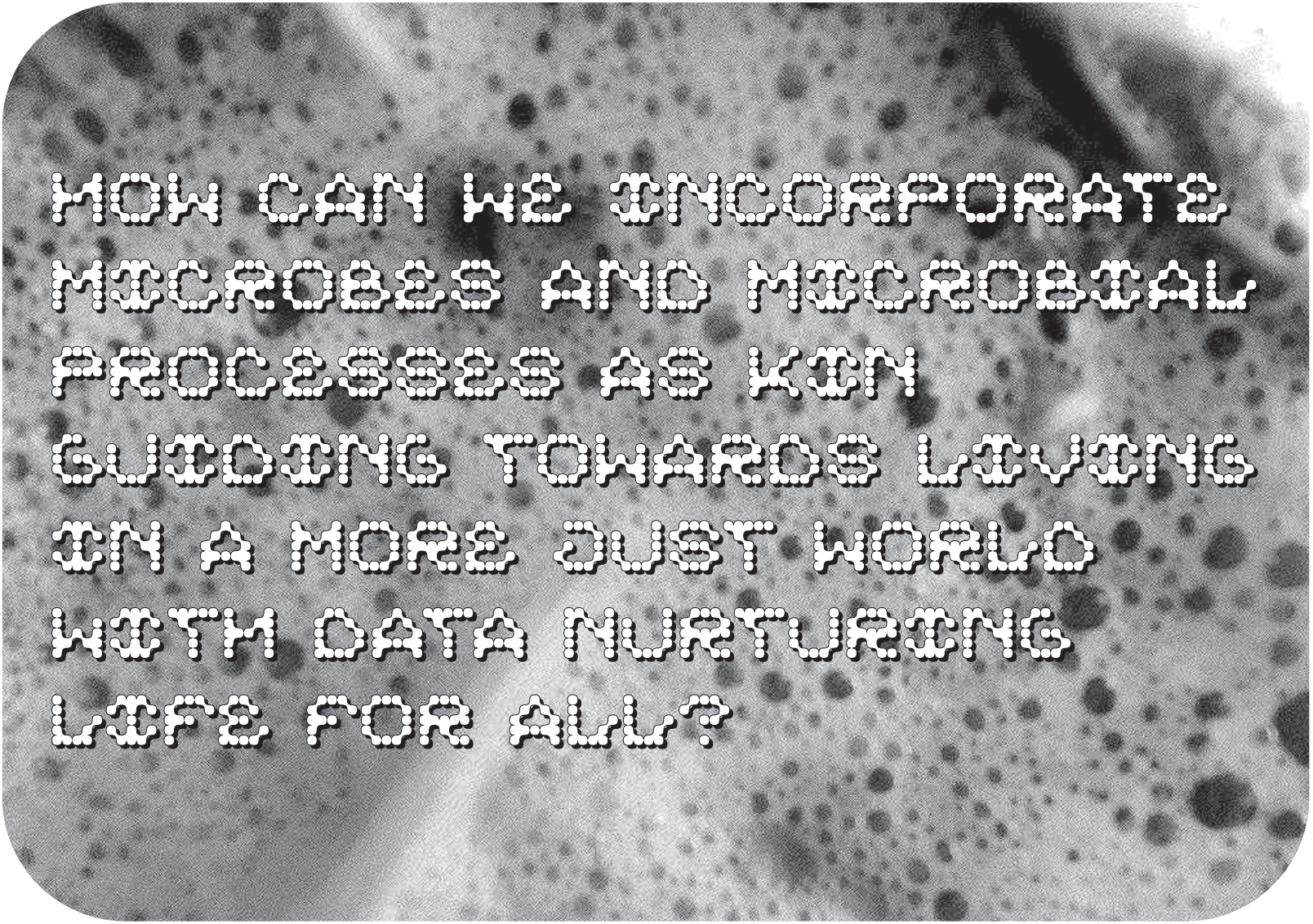
For Fermenting Data we repurpose RAM as an archival process for the project. In this version the Fermenting Data RAM displays project's current data (in physical and digital form), collected since October 2020 until now. Fermenting Data RAM is an active archival infrastructure for random access of Fermenting Data process which holds shelves with ferments specially prepared for the exhibition, and external Hard Drive disks with other kinds of data produced during workshops with participants since Autumn 2020 until Summer 2021.

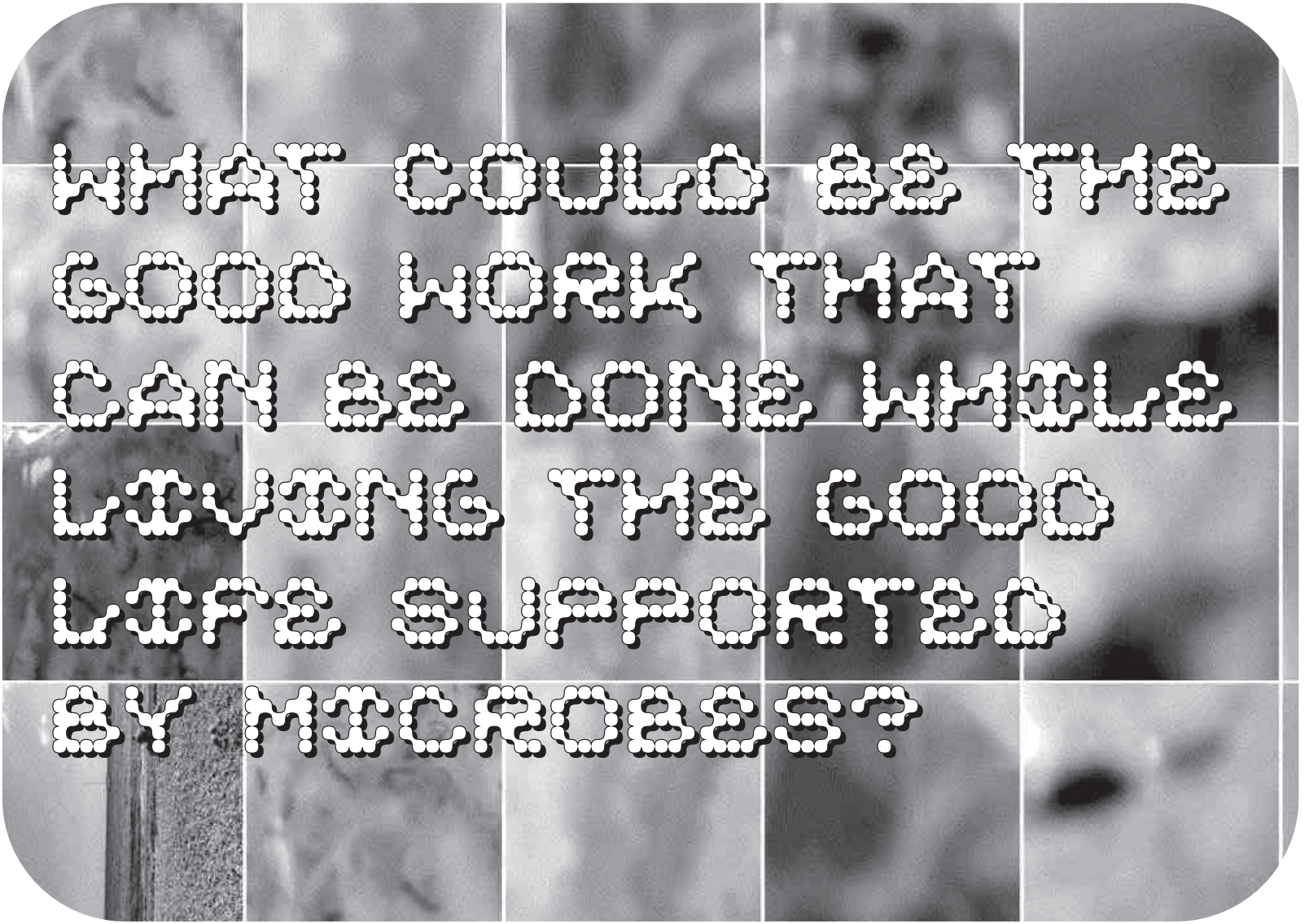
Fermenting Data RAM is installed at Andromeda gallery in Gellerup for the time of the exhibition and has been designed in collaboration with Jens Hyldegaard from Maker Space at Gellerup.

#fermenting #data


WHAT ARE RELATIONSHIPS
BETWEEN HUMANS, NATURE,
TECHNOLOGY AND DATA?
CAN WE DEVELOP THESE
RELATIONS BASED ON THE
PRINCIPLE OF SYMBIOSIS
RATHER THAN EXTRACTION
AND EXPLOITATION??


WHAT CAN WE LEARN
FROM MICROBES
AND THEIR ROLE IN
MAKING THE WORLD
FULL OF LIFE?


HOW CAN WE INCORPORATE
MICROBES AND MICROBIAL
PROCESSES AS KIN
GUIDING TOWARDS LIVING
IN A MORE JUST WORLD
WITH DATA NURTURING
LIFE FOR ALL?


WHAT COULD BE THE GOOD WORK THAT CAN BE DONE WHILE LIVING THE GOOD LIFE SUPPORTED BY MICROBES?

If we think of the city to be like a vessel, a container of sorts, we could ask questions about it. Starting with obvious ones: how does it look like? What is it made of? Who made it and when? What does it contain?

(...)Standing here among growing trees, bushes, vegetable gardens, seeing people and other animals, birds and insects, verbs like "growing" and "cultivating" seem more relevant. But let us consider another verb altogether: "fermenting".

#data #fermentation #jars

Those that belong to the emperor
Embalmed ones
Those that are trained
Suckling pigs
Mermaids (or Sirens)
Fabulous ones
Stray dogs
Those that are included in this classification
Those that tremble as if they were mad
Innumerable ones
Those drawn with a very fine camel hair brush
Et cetera

What can you see? Which buildings, bodies, are visible? And what is not in the picture? Are these bodies of people, bodies of water or other bodies? How do they move through the city? Do they remain the same or can you observe some change?

And now, let's take the process of fermentation to tell stories from the city and its surroundings. To tell stories from the jars as fermenting happens. To tell stories of things and bodies with computers, with people, microbes, neural networks, data, databases, buildings, districts, bogs and bodies.

#jars #fermentation #bodies #data #bogs

...by going to the source of any data: bodies, things, relations, and interactions of all kinds, and by becoming part of fermentation / transformation.

#bodies #relations #fermentation

But life goes on. It happens, and continues even if not captured in a database, or defined with a number. It is part of bodies and their memories that occupy the city in buildings, on the streets and in parks. In rivers contained within concrete banks and hiding electric scooters and bikes abandoned on a rowdy night. On the shores of the city beach where the sea brings jellyfish every summer. The experience of the stinging tentacles on the swimming body are part of this city life too?

So what if we imagine smart city differently. Not by abstracting a location and mapping it into a metaverse managed by a machine that can do counting and calculating. What if we allow for embodied experience of many different inhabitants and things to be part of this new vision?

Plant, minerals, microbes and I. We create patterns, in time, in bodies, in places. We inhabit each other while also being part of other configurations. At home, at work, in school, on the street, in a jar, in the garden, in the city, on social media platforms, in governments, what are the patterns of good life there? What is the good work that is done there? Who does it and under what conditions? And for whom?

#bodies #jar


GLOSSARY
https://fermentingdata.net/glossary

propose your term and its definition for Fermenting Data glossary

fermentation defines a metabolic process where under specific conditions (in this case no oxygen) microbes create energy, alcohol and lactic acid from sugar and starch. Some say that in its most basic fermentation is a controlled decay. Lyn Margulis, a scientist and a researchers of microbial forms, defined fermentation as a microbial invention, an unprecedented feat that humanity has not matched. Together with photosynthesis, oxygen breathing and removal of nitrogen from the air, fermentation is a miniature chemical system that has been part of making of this planet.

fermenting jar

n. a location and a site of life-sustaining chemical reactions that generate energy. A container of trans-formation where one form of matter is transformed into another.

n. a mini ecosystem powered by microbes, minerals and plant matter. Micro and macro bodies in relations.

<...002...>

data are units of information. They are collected observations expressed often as figures, symbols. Data are formal representations of relations and things that exist in the world. Data are necessary for computers to carry out calculations.

When fermenting data, we engage in forms of data processing, creating and collecting data. While making ferments, we construct fermenting database by observing and naming, with words, figures, and symbols. Such data has no significance by itself. But once created it is possible to understand relations between data, for example longer process of fermentation results in the more acidic taste, etc. In the case of fermenting data, relations are revealed differently. We gather the produce, we chop it and massage with salt. We leave it to ferment observing how it changes each day. Tasting the change, smelling the change, and then we eat it..

JAR java archive repository
this jar contains digital bodies of code and data.
Here follows the source code:

```
// Dithering images

import java.io.File; import java.io.IOException; import java.awt.image.BufferedImage; import
java.awt.Color; import javax.imageio.ImageIO; // import java.lang.*; import java.lang.Math; public
class DitherClass { public static void main(String args[])throws IOException { // get the file path
String filePath = new File("").getAbsolutePath(); filePath.concat("path to the property file"); //
BufferedImage for source image BufferedImage srcImg = null; File f = null; // Read source image file
try { f = new File(filePath + "/bigCab.jpg"); srcImg = ImageIO.read(f); } catch(IOException e) {
System.out.println("Error: " + e); } // Get source image dimension int width = srcImg.getWidth(); int
height = srcImg.getHeight(); // testing functions float weightings[] = { 0.3f, 0.59f, 0.11f };
BufferedImage resultImg = luminance(weightings, width, height, srcImg); DitherNeighbors neighbors = new
DitherNeighbors(); BufferedImage atkinImg = atkinson( width, height, resultImg, neighbors ); // save
Dither img try { f = new File(filePath + "/bigCabOut.png"); ImageIO.write(atkinImg, "png", f); }
catch(IOException e) { System.out.println("Error: " + e); } }

////////////////////////////////////////////////////////////////////////////// Atkinson threshold
private static int threshold(int lum) { if (lum < 128) { return 0; } else { return 255; } } :
```

```
////////////////////////////////////////////////////////////////////////////////// Atkinson luminance
private static BufferedImage luminance( float[] weightings, int width, int height, BufferedImage srcImg
) { if (weightings.length == 0) { weightings[0] = 0.3f; weightings[1] = 0.59f; weightings[2] = 0.11f; }
BufferedImage lumImg = new BufferedImage(width, height, BufferedImage.TYPE_INT_RGB); for (int y = 0; y
< height; y++) { for (int x = 0; x < width; x++) { int p = srcImg.getRGB(x, y); // int a = (p >> 24) &
0xff; int r = (p >> 16) & 0xff; int g = (p >> 8) & 0xff; int b = p & 0xff; int result = Math.round( r *
weightings[0] + g * weightings[1] + b * weightings[2] ); Color color = new Color(result, result,
result); lumImg.setRGB(x, y, color.getRGB()); } } return lumImg; }

////////////////////////////////////////////////////////////////////////////////// Atkinson luminance
private static BufferedImage atkinson( int width, int height, BufferedImage lumImg, DitherNeighbors
neighbours ) { int mono; int diff; for (int y = 0; y < height; y++) { for (int x = 0; x < width; x++) {
int p = lumImg.getRGB(x, y); int blue = p & 0xff; mono = threshold(blue); diff = blue - mono; // set
current pixel Color newColor = new Color(mono, mono, mono); lumImg.setRGB(x, y, newColor.getRGB()); int
spread = (int) Math.floor(diff / 8); for (var j = 0; j < neighbours.pos.length; j++) { int xOffset =
neighbours.pos[j].getX(); int yOffset = neighbours.pos[j].getY(); int xall = x + xOffset; int yall = y
+ yOffset; // check for out of bounds! if (x + xOffset >= width || x + xOffset < 0 || y + yOffset >=
height || y + yOffset < 0 ) { break; } int getColor = lumImg.getRGB(xall, yall); int bb = getColor &
0xff; int newVal = bb + spread; lumImg.setRGB(xall, yall, newVal); } } } return lumImg; } }

public class DitherNeighbors { public Coord[] pos = new Coord[6]; DitherNeighbors() { // defining
neighbors pos[0] = new Coord(1, 0); pos[1] = new Coord(2, 0); pos[2] = new Coord(-1, 1); pos[3] = new
Coord(0, 1); pos[4] = new Coord(1, 1); pos[5] = new Coord(0, 2); } public static void main(String
args[]){ System.out.println("DitherNeighbors run"); } public int[] getPos(int index) { int[] retObj = {
-999, -999 }; retObj[0] = pos[index].x; retObj[1] = pos[index].y; return retObj; } }
```

#data #fermentation #jar complete JarJava source code avaiable at: https://fermentingdata.net/

bacteria , "single and multicellular, small in size and huge in environmental influence, were the sole inhabitants of Earth from the inception of life nearly four billion years ago until the evolution of cells with nuclei some two billion years later.

The first bacteria were anaerobes: they were poisoned by the very oxygen some of them produced as waste. They breathed in an atmosphere that contained energetic compounds like hydrogen sulfide and methane. From the microcosmic perspective, plant life and animal life, including the evolution of humanity, are recent, passing phenomena within a far older and more fundamental microbial world. Feeding, moving, mutating, sexually recombining, photosynthesizing, reproducing, overgrowing, predacious, and energy-expending symbiotic microorganisms preceded all animals and all plants by at least two billion years." Source: Margulis, Lynn, and Dorion Sagan. 1997. Microcosmos: Four Billion Years of Evolution from Our Microbial Ancestors. Berkeley: University of California Press.

sphagnum is a genus of approximately 380 accepted species of mosses, commonly known as "peat moss", although that term is also sometimes used for peat. Accumulations of Sphagnum can store water, since both living and dead plants can hold large quantities of water inside their cells; plants may hold 16 to 26 times as much water as their dry weight, depending on the species. Source: Wikipedia.

genus, plural **genera**, biological classification ranking between family and species, consisting of structurally or phylogenetically related species or a single isolated species exhibiting unusual differentiation (monotypic genus). The genus name is the first word of a binomial scientific name (the species name is the second word) and is always capitalized.

Biologists have used binomial nomenclature to identify species since it was first employed by Swedish naturalist and explorer Carolus Linnaeus after the publication in Species Plantarum in 1753. (See also taxonomy; phylogenetics.)
Source: Britannica https://www.britannica.com/science/genus-taxon

classification in biology, the establishment of a hierarchical system of categories on the basis of presumed natural relationships among organisms. The science of biological classification is commonly called taxonomy (q.v.).
Source: Britannica https://www.britannica.com/science/classification-biology

taxonomy is the science of naming, describing and classifying organisms and includes all plants, animals and microorganisms of the world. Using morphological, behavioural, genetic and biochemical observations, taxonomists identify, describe and arrange species into classifications, including those that are new to science. Taxonomy identifies and enumerates the components of biological diversity providing basic knowledge underpinning management and implementation of the Convention on Biological Diversity.
Unfortunately, taxonomic knowledge is far from complete. In the past 250 years of research, taxonomists have named about 1.78 million species of animals, plants and micro-organisms, yet the total number of species is unknown and probably between 5 and 30 million.. Source: Convention on Biological Diversity https://www.cbd.int/gti/taxonomy.shtml

<007>

A **data model** organizes data elements and standardizes how the data elements relate to one another. Since data elements document real life people, places and things and the events between them, the data model represents reality. For example a house has many windows or a cat has two eyes.

A data model explicitly determines the structure of data. Data models are specified in a data modelling notation, which is often graphical in form. A data model can be sometimes referred to as a data structure, especially in the context of programming languages. Data models are often complemented by function models. Source: Source: Center for Data Analytics and Reporting, Princeton University https://cedar.princeton.edu/understanding-data/what-data-model

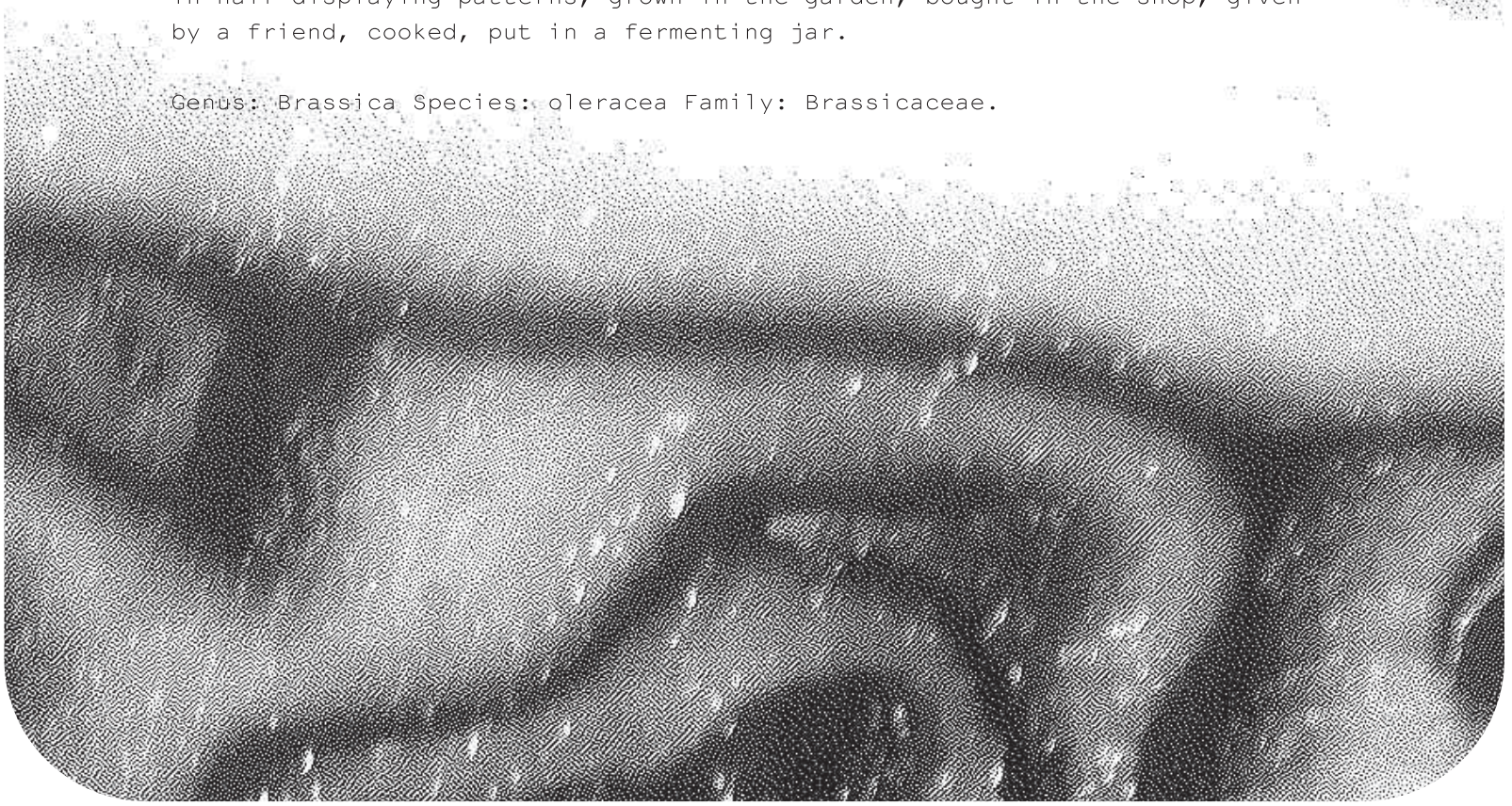
relationship is a state of being connected or associated. It is the way in which people, things or concepts are related: blood relation, kinship relation, interest affinity, having something in common, are all different examples of relations. Relationships are empirical and affective. They result from actions, decisions, feelings. They are cultural and natural; they are evocative, they are abstract, they are real.

trans-formation. Change, movement where one kind of matter turns into another, where bodies become another. Creative change that makes, builds, creates and destroys..

{_009_}

cabbage / **cabbages**, green, red, white, hard, open, flowering, dirty, when cut in half displaying patterns, grown in the garden, bought in the shop, given by a friend, cooked, put in a fermenting jar.

Genus: Brassica Species: oleracea Family: Brassicaceae.



{COLOPHON}

Magda Tyżlik-Carver curator & researcher/writer Anders Visti artist & curator Sissel Marie Tonn artist
Joana Chicau graphic/web designer Aysha Amin curator Andromeda Grete Agaard curator Sigrids Stue
Jens Hyldegaard designer/maker Nikolaj Christian Mikkelsen digital designer/maker
Asger Bruns sound recordings & production

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