

MIVC ECOLOGY FUTURE

Meet Meat

Relationships and desire that are constructed by food system

by Yuxin Wang

open my mouth you raise me

Name: Yuxin Wang

Thesis Supervisor: Victoria Mckenzie

Personal tutor: Emma van der Leest

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Abstract

This paper takes a timeline from a personal story into the meat system in the context of accelerated capital development. From smallholder farming to mechanical factory farming to the development of cellular agriculture, the ethical issue of alienation of the relationship between humans and animals is discussed in different cases. The cultured meat in cell agriculture is the main part of the analysis and discussion, and the ideology of the "kind" commercialized cultured meat born from the development of neo-liberalism under the premise of no-killing is taken as the main subject of the cultured meat in cellular agriculture, as well as the potential structure of violence behind the operation of capital with increased control in conjunction with the theory of desire machine is critically discussed.

On this basis, a speculative design is developed to explore the possibility of future ethical crises in the food system by making cultured meat a moral probe that stimulates human emotional perception. In this way, we ask the question: Is technology truly liberating animals? What kind of future of human and non-human coexistence will the latent structural and cognitive violence under capitalism lead to?

Is my appetite kind of immoral?

For more than a decade growing up, eating meat was an integral part of my life. I was born in '99, during the period of rapid development after China's reform and opening up in 1978, when food, clothing, housing and transportation changed drastically, from a time when it was difficult to eat meat once before the opening up to a time when I can now eat meat for three meals, and when I was born eating meat was still a symbol of material abundance and prosperity. Since my desire to eat meat could not be reconciled with the local vegetarianism and the concept of vegetarianism after coming to the Netherlands, I tried to explore how my culture has shaped my view of meat eating. And to question whether eating meat or not can be directly related to morality or immorality, and whether eating cultured meat is necessarily moral?

"gaga"

When I was a child, I started yelling 'gagagaga' at the age of three (2003), a local dialect of Chongqing, which means meat. In some Chinese dictionaries, the word "gaga" is really a pictorial word in Chinese, and is used to describe the sound of a hen in Mandarin. And the citation example is, the child pouted and said: "I do not eat fat gaga." The word "fat" is used to describe the sound of a hen. Language as part of culture, it is not only a cultural phenomenon, but also a carrier of culture. "Language is a symbol system unique to humans, when it acts on culture, it is the carrier and container of cultural information. "And from a linguistic point of view, gaga as a name for meat, on the one hand, eating meat is a pleasure and reward in life and a way to celebrate. On the other hand, the appellation of meat is associated with the call of the animal, a time when the substance that the animal becomes after its death still retains the natural experience it had when it existed as an animal itself. And the reason why the natural experience exists in the context of food culture is often related to the food system in the context of the times.

From the 1950s to the early 1970s, China's animal husbandry industry was at the stage of backward smallholder economy, mainly based on family-scale farming, with small scale, low technology and low production efficiency. For most of the 8,000 years of Chinese livestock raising history, it has been defined as "traditional" livestock raising. Although attempts were made to expand livestock raising after the founding of New China, it was not until after the reform and opening up (1978) that the concept of livestock as "small meat processing plants" emerged from the industrialization of agriculture and the scale of meat production and consumption in China began to set world records.¹

For many modern Chinese - especially urban Chinese - meat and dairy consumption is a symbol of wealth, status, modernity, freedom, and a triumphant escape from the impoverished lives their fathers, grandfathers, or themselves led in rural areas. In one passage, a Beijing tennis coach from a peasant background told a reporter for a British

¹ Xue Gaoxu, Chen Jie, Jing Li. (2011) *The history and characteristics of China's livestock industry development*. Market Perspective

newspaper, "In the past, children looked forward to the Chinese New Year partly because it was fun and because they could eat meat over the holidays. But now, I can eat meat every day if I want to. Eating meat has become a part of my life."

My family members were all born before 1978, including my father and grandparents, who all had farming experience in the countryside. I once went back home to see my father living in the countryside, his distant aunt still in the village with a large pen of chickens, and a cow. Occasionally, when I went back to my hometown for New Year's visit to the grave, I would see chickens occasionally coming out of their pens and running around the yard, and children were always chasing and playing with them, and their cries were like what we call meat, "gagaga. When it becomes meat, it is often still called "chicken".

So the food language system often contains the logic of the direct relationship between humans and animals behind the culture, and the direct contact and awareness between humans and animals in the smallholder economy allows for the same subjectivity as animals when they become meat. In industrial animal husbandry, the living space of animals is limited to standing and sitting down, and the death of animals also becomes a part of industry, which is silent outside the factory. The onomatopoeic word "gaga" will disappear because the chickens are locked up in a closed factory. The same is true of cultured meat, which, as sociologist Neal Stephens puts it, is an "undefined ontological object." When animal cells are extracted and the technology is used to produce meat, it can hardly be called chicken or beef, much less cattle. So there is a fundamental difference between the ethics of killing in the past in smallholder animal husbandry and in industrial animal husbandry, in terms of whether we respect the past integrity of the eaten as a living subject in the face of the death we must face in our diet.

My family smiled with happiness when they served meat at each meal, after being called "gaga" at the dinner table as a young child. Such happiness not only comes from the satisfaction of children's happiness also comes from the late war years after starving, suffering from poverty, it is difficult to eat a meal of meat in contrast to the good. So this notion of desire satisfied not only comes from taste, but history--to satisfy after years of starvation and poverty. I can't deny that the industrialization of the food industry after the reform and opening up has brought happiness to our lives, but I also understand that talking about animal morality and meat-eating ethics without satisfying the basic needs of survival and diet is absurd nonsense to most people.

Between pets and food

Since my family lived in a district close to the countryside, occasionally my father would buy some live chickens from the countryside and bring them home, where they were kept in a cage in our small garden. In the same cage was my pet, a small white rabbit. After coming home from school, I would often take some corn kernels and feed the chickens and rabbits, and try to pet the chickens' heads with my hands (just like petting a puppy).

Occasionally, I would hear my grandfather say, "Don't give him too much food, I just fed him some rice, I'm afraid I'll give him a hard time." "He's been having diarrhea lately, give him something good to digest." Conversations like this often happen to families with that rabbit, too. For a while, it was also difficult to define whether the chicken was a pet or just a chicken to be slaughtered, until that chicken was made into a pot of chicken soup to entertain friends who came to the house. It's hard to describe the feelings I have when faced with a cage with only rabbits left in it. It's mixed, with some regret and sadness over the loss of companionship, but also a sense that it is justified as food, and our family eats chicken almost every other day.



The chicken coop at home

In her book *The Companion Species Manifesto*, Donna Haraway says, "In eating, we are maximally in relationship to the differences that make us who we are and what we are. There is no way to eat without killing, no way to eat without becoming other mortals. There is no way to eat without becoming other mortals to whom we are responsible, no way to pretend innocence, transcendence or ultimate peace. Because eating and killing cannot be separated in terms of hygiene, this does not mean that any one way of eating and killing is okay; it is simply a matter of taste and culture. Multispecies human and nonhuman ways of living and dying are at stake in dietary practices (295)."²

As donna haraway says, humans cannot escape the differential relationship between humans and nonhumans among them, and it is in the dietary relationship that this differentiation is deepened. Similarly as its differentiation, the difference between the pet as a companion to humans and the food being eaten is also revealed in it. The difference between some animals as pets and food is often related to the emotional relationship

² Haraway, D.J. (2020) *The Companion Species Manifesto: Dogs, people, and significant otherness*. Chicago: Prickly Paradigm Press.

that arises with humans, who have an emotional involvement with their pets beyond nurturing, and this often makes the ethical and moral issues involved sensitive. Such cases exist in smallholder farming in addition to my story.

My tutor once shared her grandmother's story with me. Her grandmother used to raise a pen of chickens in the countryside. She knew all the chickens in the pen and would name them after their color, calling them Flowery, Little Red, etc. The most mischievous one in the pen was a chicken. The most mischievous one in the chicken pen, called Huahua, and she even had the same relationship as a friend. The chicken will scold the chicken for knocking over the flower pot, but when she is alone she will also talk to Flower, as if they do not have a language barrier. Nevertheless, when her close friends come to visit her home, she will choose her most precious chicken, Huahua to make the day's delicacy. It seems that only the sacrifice of flowers can express the cherishing and love for her friends.

The same kind of story happens in larger scale smallholder free-range farms. In order to learn more about systematic smallholder farming, I went to a chicken farm run by a couple. It is not very large, with more than 4,000 chickens, divided into two breeds, the crow and the common chicken. I thought it would be harder to hear stories as delicate as the teacher's grandmother's on the farm, but that was not the case either.



Red glasses

Because of birth control, roosters and hens need to be kept separately, and when roosters are kept together, they need to wear small red glasses to prevent them from fighting. Because roosters get excited when they see red, the color red is used in the design of the glasses to reduce the roosters' sensitivity to red. In this way to make the roosters more safe.



Wooden frame

In order to prevent the ground from being damp and easy for the chicks to catch a cold while sleeping at night, the farmer designed the wooden frame for the chicks to sleep on, which is more warm and less likely to catch a cold. After the farmer finished, he also showed me a photo of him standing in front of the wooden frame with a group of chicks who had just woken up and were standing on the frame, especially happy.



Sick Chick

When I asked why the chick was alone, the farm took one look and said that the chick had a respiratory disease. He asked me to observe the way he was breathing and I saw that the chick had some straining to open and close its mouth again, and its glasses were slightly closed. Only then did I realize that this chick was sick.



The chickens also had a very different attitude towards me and the farmer when they came to fetch their eggs from the box. When I walked in, before I could reach out, they began to spread their wings slightly, as if ready to rebel. When the farmer went into the box and reached for the egg, the chicken moved and let it out. For the first time, do chickens recognize humans?

In the same way, the farmer told me, you can tell the mood of the chickens by the sound of their cries. When the chickens are angry, they sound a lot faster. But when they're well fed, they're happy, too.



The farmer also introduced me to the differences between local and foreign eggs. In addition to being more flavorful, the egg whites of local eggs are more viscous and have more layers, and the bones and flesh of local chickens are tighter because no oxytocin is added. The bones of many factory chickens are brittle and the flesh and bones are easily separated because of the fast growth rate. In every way, free-range chickens are in their healthiest state.

He also told me that the color of the yolk can actually change due to the chicken's long term eating habits, so in most cases I would feed them corn and the color of his eggs would be more yellow-orange, which would also look tastier and healthier. If I feed him sweet potatoes and radishes, the yolk will be more reddish in color.

If the weather is dry and hot all year, the chicken will eat less and drink more water, and the chicken will grow thinner. When chickens are in good condition, egg production is much higher.

On the farm, I felt that the life of the animals was happy and healthy. Although as a farmer, the purpose of raising chickens is to sell them, and all the initiatives are to sell them at a better price, the farmer's observation and sensitivity to the smallest details of the chickens, his exploration of their habits and his pursuit of the most natural way of existence of the species, all of them are touched by the symbiotic relationship between humans and animals to some extent. He raises a flock of chickens with all his heart, and the chickens are friendly to the farmer and finally give back to him with their economic value.

Human nature is complex, and so is the relationship between humans and animals. Animals are in between human companions and food, and culture, economy, and capital all blur the relationship. We cannot evaluate that the domestication of animals by humans has been the beginning of the evil of the inequality of life. Evil and cruelty do not seem to fully define the death of non-humans due to diet, and these stories have opened up more layers in my understanding of the relationship between humans and animals.

But instead in the prison of capital, such a relationship is further alienated.

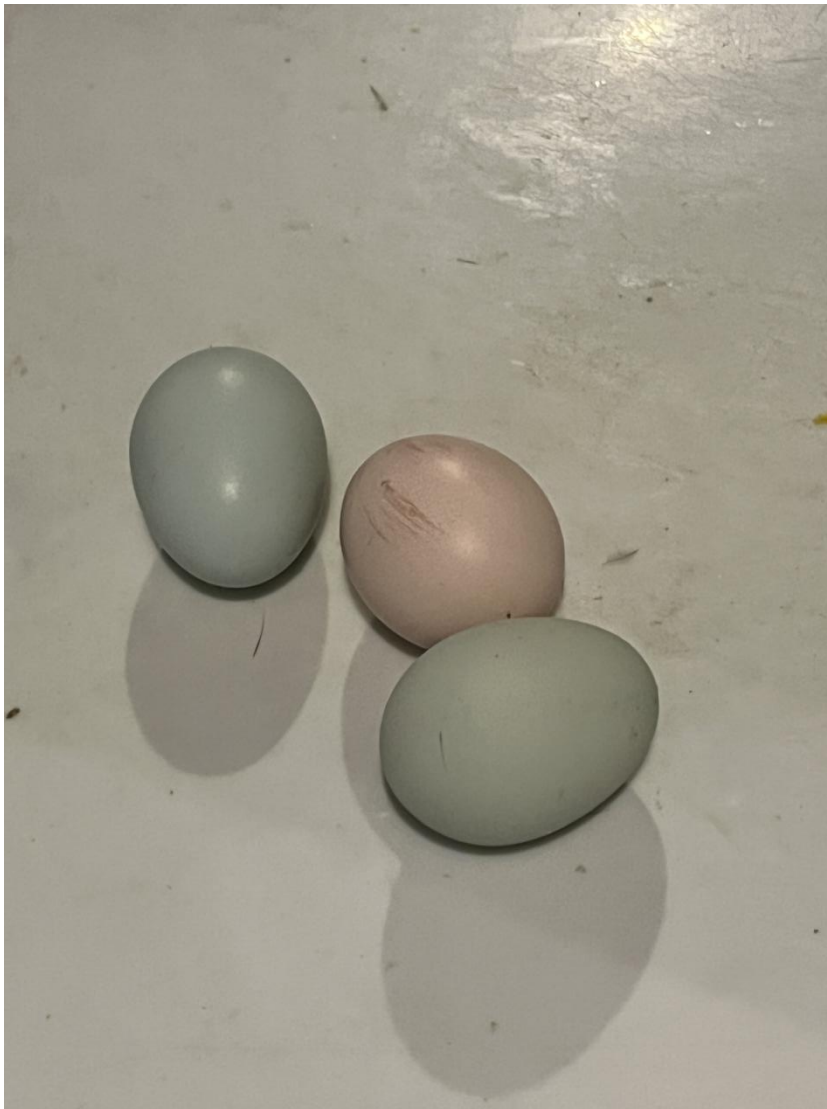
Progressively deepening control - capital

The same violent structure in the capital-oriented industrialization of animal food farms is exemplified by chickens. In order to get a deeper understanding of the industrial animal production chain involved, I went to a factory with 200,000 chickens for the large-scale production of rutabaga chickens. Completely different from the stories I heard about smallholder farming, the managers described more about their well-established production system, from the brooding workshop, to the breeder's workshop, to the workshop for mature chickens, to the free-range chicken area. At each point of growth, the chickens enter a new machine system, and the purpose of each system is to make the chicken more delicious, beautiful and healthy to sell at a higher price.

From the very beginning, the chickens are vaccinated, sexed and raised separately. In the brooding workshop, a large number of chicks are managed in cages, and the plant is set up to control the lighting and temperature of the space to simulate the environment needed for the growth of the chicks so that the large number of chicks can grow up smoothly at the same time. And by the time the chicks are 1-2 months old, the adult chicks will enter the breeder's workshop. And the factory will allot one hen and eight roosters in each cage category in order to increase the egg production of the hens. The eggs will fall into the conveyor belt, and the workers will do the selection of the eggs in the conveyor belt, on the one hand, by using the light to observe whether there are black dots inside the eggs, which means that the mating is successful, and such eggs mean that they can continue to produce chicks. Eggs without black dots are just eggs and are distributed directly to supermarkets for sale. On the other hand, they identify the color of the eggs, as there is a risk of genetic variation in the chickens due to the large number of breedings, and pure reed chicken eggs should be green in color, and when there are eggs of other colors such as pink, the workers will select them and inject them with the reed chicken genes in order to maintain the genetic purity of the chickens in the factory.



Eight cocks and one hen in a cage in the breeding shop to increase egg production



*The factory worker said the pink ones were mutated eggs
They inject pure chicken genes into such eggs*



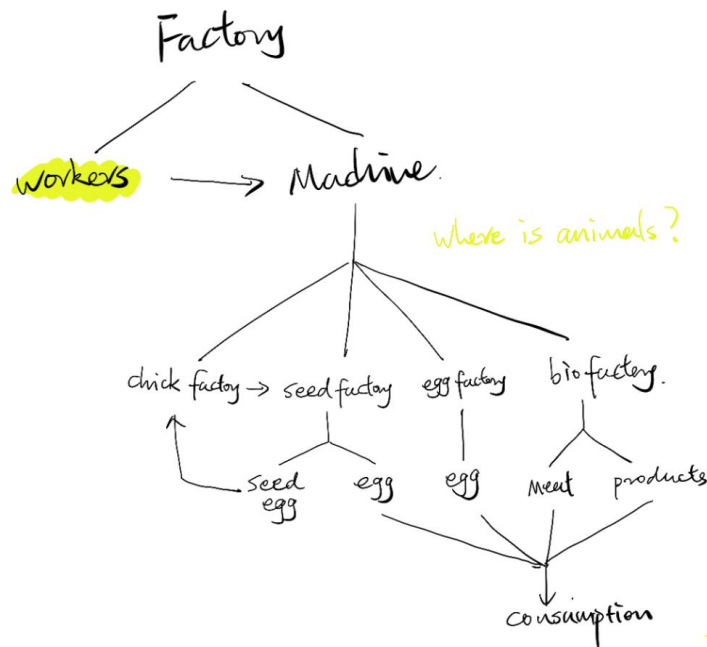
Automatic delivery chain of eggs



Fully automatic feeding machine



Biological machine



Each technological advancement allows for better factory production and more control over the animals. From the initial control of space for the chickens in cages, to the 9:1 ratio of roosters to hens for fertility control, to the biotechnological advances for genetic control of chicken breeds. The tightening of the system in control, and the tightening of the system continues to be attached to capital's quest for profit and efficiency. Data and systems make chickens rather than breed them, they become machines, life becomes a politics, and people operate the machines and try to escape from the relationships.

Cellular agriculture

At the present time, cellular agriculture offers a solution to the problem of animal mortality in the context of dietary ethics. Cellular cultured meat aims at extracting only animal cells and tissues, and using bioreactor to mimic the internal workings of the animal to reproduce the cells until "real meat" is grown, so that the meat can be eaten without killing the animal.³

Many ethicists are thus supportive of this, among them the philosopher Peter Singer, who studied animal ethics and promoted the term species discrimination in his book "Animal Liberation". It is used in the title of Chapter 5 of his book: "A Brief History of Human Domination Species Discrimination" defining it as "a prejudicial or biased attitude that favors members of one's own species and interests against those of members of other species. interests against those of members of other species." ⁴Singer says that while there may be differences between humans and non-humans, they both have the capacity to suffer, and we must consider that suffering equally. And the fact that cultured meat technologically frees animals from the death of killing and making them into food, to some extent technology is driving progress toward species equality. Therefore, scholars represented by peter singer have also clearly stated their support for cultured meat. But equally there are scholars who respond to this with apprehension.

When Dutkiewicz and Abrell argue that "while cellular agriculture might diminish direct violence against animals, it would do little to change the underlying structural and epistemic violence that undergirds the use of animals, leaving anthropocentrism and speciesism unchallenged" (Dutkiewicz and Abrell, 2021, p. 4). ⁵They study the politics of meat production as political economists, but similarly in this sentence with ecofeminist perspective, a critical view is given to the cultured meat food system. The discussion of potential structures and cognitive violence is also the next critical argument I will make about cultured meat and animal food systems.

Cultured Meat and Ideology

In addition to the structure of capitalism itself, the ideology behind cultured meat makes its structure even more solid and hides many potential problems.

With the advancement of biotechnology, cultured meat was created and patented internationally by Mark post as early as 2001, and in 2008 the Dutch government funded

³ SG - *cultured meat* (no date) WUR. Available at: <https://www.wur.nl/en/activity/sg-cultured-meat.htm> (Accessed: May 1, 2023).

⁴ Singer, P. (1977) *Animal Liberation: A new ethics for our treatment of animals*. New York: Avon.

⁵ Jiménez Rodríguez, A. (2023) "Cultured meat, clean meat,... queer meat? A vegan queer ecofeminist perspective on the implications of cellular agriculture," *Frontiers in Sustainable Food Systems*, 7. Available at: <https://doi.org/10.3389/fsufs.2023.1104731>.

a \$4 million experiment to help cultured meat. The People for the Ethical Treatment of Animals (PETA) gave \$1 million to reward the first company to "successfully" bring cultured meat to market in 2012.⁶ From an environmentalist's point of view, it can reduce the pressure of the livestock industry to pollute the environment. And at this time, in addition to being food, cultured meat carries a new ideology than ordinary meat - the advocates of environmental friendliness and animal rights.

And with € 60 million invested and an additional € 25 million financed in 2022, the cellular agriculture industry has received a major boost, and in turn the Dutch government's investment is now the world's largest government grant for novel cultivated and cell-cultured animal technologies. The Dutch government says it expects profitability in the Netherlands to grow by 125 million to 2 billion euros by the middle of the century. They also counted emission reductions, with cultivated meat and similar technologies expected to reduce about 1.8 million tons of carbon dioxide emissions and 15 to 20 kilotons of ammonia per year.⁷

The economic support to promote cellular agriculture is in line with its Dutch economic policy aimed at environmentally sustainable economic growth through economic adequacy, energy conservation, environmental protection, regional development and other national goals. In turn, its stimulated new consumption and economic growth means more resource overdraft and overconsumption. In the case of the cultured meat industry, for example, in addition to satisfying the usual meat cravings, cultured meat has also shaped its new consumer ideology - reducing carbon emissions, animal equality, and so on. And the shaping of a series of ideologies means the possibility of the market being broadened. Therefore, in addition to the basic animal meat that needs to be produced to satisfy people's meat consumption, there is also a need to expand the scale of cellular agriculture, which implies the consumption of more natural resources in the potential development.

So when man chooses cultured meat he expresses his desires and values through practice. And in choosing the ideology of consumption as well as defaulting to environmentalism, capital is tied to environmental ethics, animal ethics. The unresolved top-down politicization of life behind it, the hegemony over life while the Other remains the Other, remains unresolved, and the solidity of the structure, prompted by capital, continues to intensify.

On the one hand, cultured meat technology itself is attached to the "good and benign"

⁶ Treich, N. (2021) "Cultured meat: Promises and challenges," *Environmental and Resource Economics*, 79(1), pp. 33–61. Available at: <https://doi.org/10.1007/s10640-021-00551-3>.

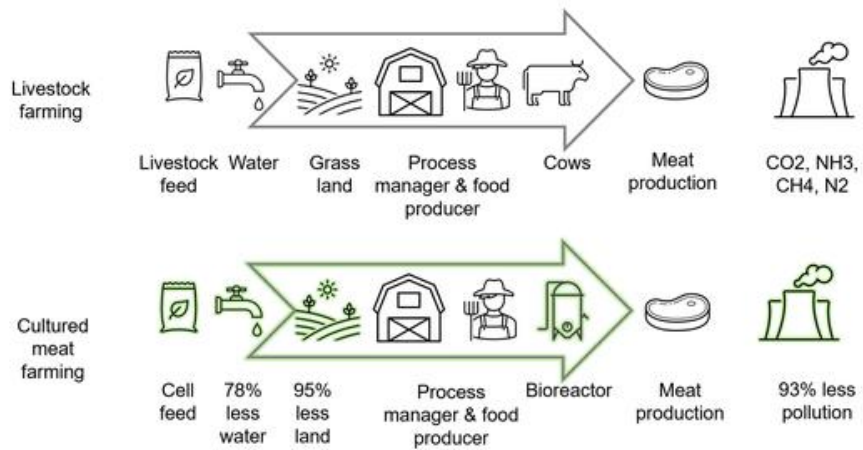
⁷ *Dutch government confirms €60m investment into cellular agriculture* (no date) *TU Delft*. Available at: <https://www.tudelft.nl/en/2022/tnw/dutch-government-confirms-eur60m-investment-into-cellular-agriculture> (Accessed: May 1, 2023).

ideology.

And in the major cultured meat company's official website often appear such keywords. These include "cleaner," "without harming animals," "kinder way," "mission." The faux meat industry was born out of the profit-driven nature of capitalism, but its rapid growth relies on the legitimacy given to it by ideologies such as environmentalism, animal protection and healthy eating. The combination of the two is powerful. On the contrary, the words of absolute non-violence are modified into it, and the opposite of killing and death become synonymous with the evil of human nature.

People create and support cultured meat for the sake of animal rights and environmental friendliness, but what has not changed is the need to take animal cells to create meat, the objects of exploitation are still animals, they are still used as means of production in the meat market. In Project Respectfarms, they aim to help farmers and pastoralists diversify their businesses, thereby facilitating the transition between cellular agriculture and traditional animal farming. In their official website, they plan to build a cell culture laboratory while raising animals on farms, replace animals with cell reactors in meat production, and also omit animals as the link of cell extraction in the legend.⁸In the real project landing and progress, it shows that the future of cell agriculture industrialization is not far away. I do not deny the great value it brings to the environment, but the active market for cultured meat and the financial support of the government have promoted the combination of capital vitality and good spiritual aroma, and environmental morality has become a new materialistic religion to create a new "happiness" for people, ignoring the fact that animals are still used as raw materials for meat to satisfy the needs of the population.

⁸ *Respectfarms.com* (no date) *RESPECTfarms.com*. Available at: <https://www.respectfarms.com/> (Accessed: May 1, 2023).



Respectframs

By "illusory happiness," Marx means that religion offers illusory solutions to the material contradictions of capitalist exploitation, which cause "real suffering." In this way, instead of providing a material solution to the problem of social alienation stemming from material relations of production, religion ultimately provides capitalism with a "spiritual aroma" that helps ideologically blur class material relations and culturally adjust exploited workers to suit the interests of the ruling class.⁹

In the Anthropocene context, the class subordination relationship between human and animals has been endowed with a new "spiritual aroma" in the non-violent and friendly politically correct discourse. The same material relationship has changed from the relationship between workers and capitalists to the relationship between human and animals, and what weakens people's vague cognition of the identity consciousness of the exploited as exploiters. The vague approach lies not only in ideological beautification, but also in the tacit equality that "good-natured" technology keeps animals from slaughter and death.

⁹ Marx (no date) *Marx, a contribution to the critique of Hegel's philosophy of right 1844*. Available at: <https://www.marxists.org/archive/marx/works/1843/critique-hpr/intro.htm> (Accessed: May 1, 2023).

Meat Desire Machine

Food porn¹⁰ is often used as a marketing tool on the websites and advertisements of major food companies, and cultured meat companies are no exception. Food companies often use highly saturated colors, magnified food forms, and completely open the senses to stimulate people's taste buds in a way that produces desire and motivates people to buy more food products. In the case of cultured meat, the technology dismantles meat molecularly and creates a solid body, so that protein cells, muscle cells, and fat cells of different animals can be replicated and reconstructed like Lego, creating meat that is more variable and customizable than ordinary meat. ¹¹The space expanded by the technology, like a quadrant opened by folding, is no longer limited to the sensory and visual impact, but the desire to produce cultured meat is gradually moving towards the practice of meat imagination. Thus the same desire to be expanded can be recreated as a capital marketing strategy, not only in vision, but in imagination.

Vow, a food company recently engaged in the development and production of cultured meat, used DNA sequences from mammoth myoglobin, which has been extinct for more than 5,000 years, to successfully replicate the muscle protein of mammoths in the laboratory and make a "giant meatball", which was unveiled at the NEMO Museum.¹² This case shows not only the development of today's biotechnology, but also the reality that people are able to eat the imagination of the past, even though it is a living organism that no longer exists.

Deleuze and Guattari consider desire as a productive "factory" model: desire is not based on a lack of imaginative power, but is a real productive force. They describe the mechanical nature of desire as a "desire machine" that acts as a circuit breaker in the larger "circuit" of other machines to which it is connected. At the same time, the desire machine generates a flow of desire from itself. Deleuze and Guattari conceptualize a multifunctional universe of these machines, all interconnected: "No desire machine exists outside of the social machine they form on a large scale; no social machine exists without the desire machine that inhabits them on a small scale."¹³

¹⁰ *Food porn* (2023) *Wikipedia*. Wikimedia Foundation. Available at: https://en.wikipedia.org/wiki/Food_porn (Accessed: May 1, 2023).

¹¹ *Cultivated meat cell lines: Deep dive: GFI* (2021) *The Good Food Institute*. Available at: <https://gfi.org/science/the-science-of-cultivated-meat/deep-dive-cultivated-meat-cell-lines/> (Accessed: May 1, 2023).

¹² Hunt, K. (2023) *Meatballs made with mammoth DNA created by Australian Food Startup*, CNN. Cable News Network. Available at: <https://edition.cnn.com/2023/03/28/world/mammoth-meatballs-cultured-meat-climate-scn/index.html> (Accessed: May 1, 2023).

¹³ Deleuze, Gilles (1983). *Anti-Oedipus : capitalism and schizophrenia*. Guattari, Félix, 1930-1992. Minneapolis: University of Minnesota Press. p. 340. ISBN 0816612250. OCLC 9826668.

And as with the idea of the desire machine, desire itself is truly productive, and the development of technology provides sufficient conditions for the production of desire. And in the work "bistro in vitro", ¹⁴one of the creative dishes is called Celebrity Rubik's Cube, in which the work proposes to prove your fanhood by eating your favorite celebrity's cultured meat. The work links people's desire for animals with their other desire machines, and extends the production to human desire, confronting the potential ethical crisis of cultured human flesh.

The fluidity of the desire production mechanism makes the ethical issues behind the technology sensitive, and the cultured flesh, as an undefined object of this discussion, also provides space for the discussion of technological ethics. In the reality of desire production, creation as a means of discernment, cultured meat becomes an ethical probe to show the hidden crisis behind the technology with it.

Inspired by cultured meat as an ethical probe, I have also explored this through creative experiments. Because cultured meat is an object whose "ontology is not yet defined",¹⁵ how to identify the definition is a very broad question. I tried to explore the blurred boundaries of food ethics through analogy as a way of identification. These include, meat and eggs, nurturing and cultivation, and plant meat and plants. And in my speculative design I bring in virtual scenarios to promote these types of meat as future butcher's products, expressing a completely violence-free, harmless cultured meat.

¹⁴ Koert van Mensvoort (2015) *Welcome to bistro in vitro*. Available at: <http://bistro-invivo.com/en/welcome-to-bistro-in-vitro/> (Accessed: May 1, 2023).

¹⁵ Stephens, N. *et al.* (2018) "Bringing cultured meat to market: Technical, socio-political, and regulatory challenges in cellular agriculture," *Trends in Food Science & Technology*, 78, pp. 155–166. Available at: <https://doi.org/10.1016/j.tifs.2018.04.010>.



This meat uses eggs as a natural bioreact, growing meat from chicken eggs after a period of incubation. The animal ethics of factory-farmed animals are completely avoided. Like eating eggs to eat meat.



Blurring the shapes of plant and animal meat. Grow into real vegetable meat.



The meat is designed to be more of a diy experience, as people can get the seeds and water them to grow it, and then the meat will grow into a mouth, which can grow even bigger by feeding the plant certain foods. Depending on what you feed it, you can change the quality of its meat.

For me, the third work that blurs on nurturing and cultivation gives me a deeper feeling, just like the story of how I used to raise a chicken but I would have eaten it just the same. When people give and emotionally state, whether they are living or non-living, human or non-human, all the duality and differences become more blurred and sensitive. This is also the emotional experience I detect by using cultured meat as an ethical detector.

The probe stimulates our emotions, and the emotions bring us back to the human, the setting of the desire machine, perhaps setting the off button briefly.

And what I realized in the discussion from animal factories to cultured meat is that the discussion about animals themselves is fading away. In the cultured meat factory, the physical cages of animals gradually disappear, while the chickens, still trapped in the cages of human desire for meat production, are imagined to be free.

*You are born of desire
You are imprisoned in desire*

I raised you

*shape your taste with brains
feed your flavor with cherries
use the size of a mouth
Measure your growth*

*Open my mouth
You raised me*

Love as off

We live outside the world of the biological machine, but equally exist within the world of the desire machine. If human desire extends into the space of the imagination, when the probes of morality are activated, the infinite operation of the machine has an OFF button. If the evil of human nature is always driven by capital, restlessness drives love as a choice.

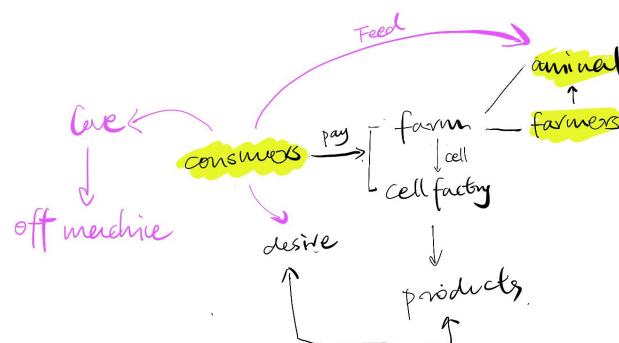
As Haraway argues, multi-species "love" is a transformative life force. It helps us to "stay connected" and "produce" another world in the world. "Love is a "world-making" activity that brings about what is called "other globalization." It is a more just, more peaceful other globalization." And she suggests that the emergence of "interspecies families" and the intimacy of pets, even in the context of capitalist commodity relations, marks a "new" and more "evolved" set of family relationships.¹⁶

It also reminds me of my past family relationship with a chicken and a rabbit, and it was from my complex feelings for chickens that I first reflected on the issue of animal ethics.

In my speculative design work, I try to bring people into the food production system, taking on two roles at once: pet owner and co-creator of the product. The choices that people make in the process of raising animals affect the production of animal meat, and thus the consumption of meat products in a customized way.

I do not want to try to spread a vegetarian idea by this way, which is another degree of capital production and is not in line with my own contradictions. Rather, it aims to preserve a human choice of love by provoking uneasiness driven by the machine of capital and desire.

“human are just a part of a larger whole. Love turns into fear, fear of losing. This is can be turned into rituals to honour emotions when they are brought into economy, a currency of love and fear. That would enchant the economy.”



¹⁶ Haraway, D.J. (2007) *When species meet*. Univ of Minnesota Press.

Desire Machine as ethical probes

In the background of the story, I set up a future where cellular agriculture and animal husbandry would gradually merge into one whole to sell cultured meat. And because of the nature of cultured meat, customizable and no-kill, thus creating a new way of marketing - users can sign a chicken of their own on the farm and they can customize their own cultured meat by raising chickens online in the cloud.

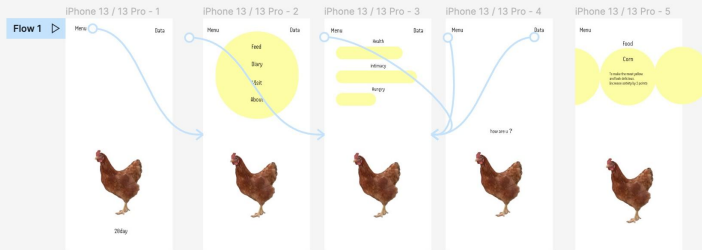
For the design of my installation, I set the scene with a home installation in order to give the audience a sense of intimacy and the tension between emotion and production. The whole installation consists of four parts: cell phone, immersive big screen, cultured meat reactor and cultured meat.

Among them, the phone will involve the design of the app, which people can use to feed the chickens on the go. And among the different interaction options, such as the choice of different food with the chicken's communication and emotional attention, will affect the chicken's data. These include satiety index, intimacy index, and health index, all of which correspond to the fat content, flavor, and muscle content of the cultured meat, and thus the human-chicken interaction will influence the ratio of cultured meat. In this way, the blurred concept between animal and food is emphasized, and the animal ethics that still exist in the context of capital exploitation are felt in a no-kill context.

Being in a utopian, data-driven laboratory world, although seemingly intimate and animal-friendly, the private experience is backed by a reinforced control that involves a huge capitalist desire machine.



3d model and animation construction of chicken simulation



Instructions for raising chickens
Users can customize their own artificial meat by raising chickens in the cloud online.

The Health - Muscle
Food Satisfy -- Fat
Intimacy - Flavor

In the game menu:

The Feed corresponds to the food choices available to the person, some of which affect the color of the meat. After a long period of high satiety, the fat content of the meat will increase.

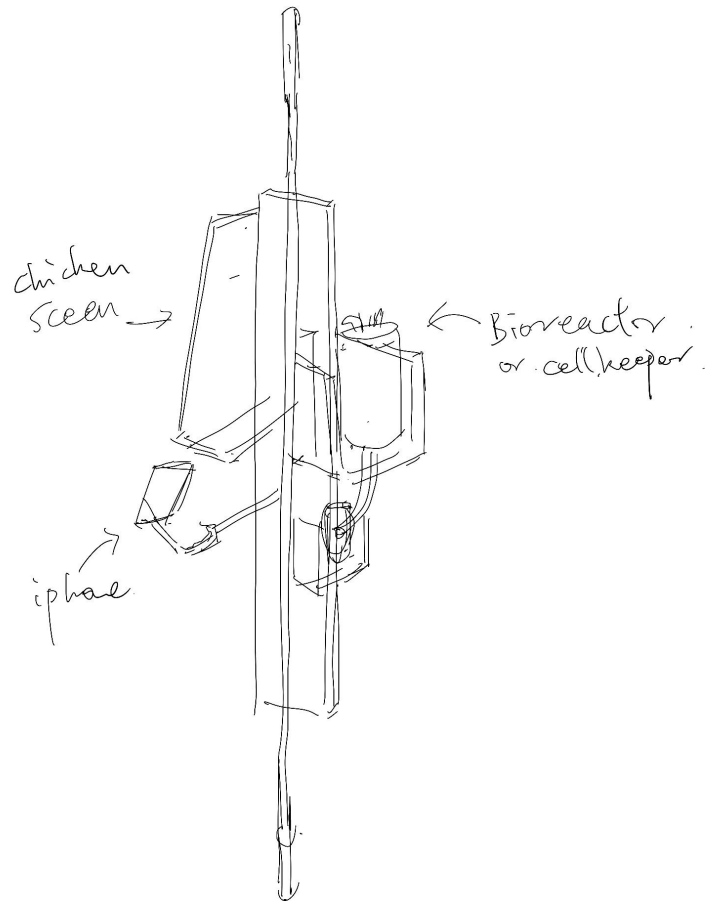
In Diary, you can record the communication and conversation between people and chickens. And feeding choices and how the chickens grow. Conversation will increase the intimacy with the chicken and give it a more raw muscle flavor.

During the Visit, you can accumulate a certain degree of intimacy. You can choose to visit the farm and find your real pet chicken.

Chickens enter a new growth pattern every 30 days, and there is a chicken harvest every 15 days. The finished meat will be delivered to your home by Cell Farm. Or you can choose to buy a home artificial meat machine package, grow and harvest your own, and harvest new cells for delivery to your home every 30 days.

We are also always welcome to purchase a chicken as a pet to actually enter your family.

Cloud chicken application design and breeding rules



Inspired by farm and factory farming, a sketch of a home cloud-raised chicken cultured meat installation combining wood and metal

Conclusion

History and developmental paths are often the means of how we go about predicting the future. In this research composition, I attempt to combine critical thinking with stories of the past present and future of humans and animals in the food system. Throughout the piece I compare the ethical relationship between humans and animals by sorting out technological developments in the food system for the timeline. As time allows the deconstruction of a specific thing, not only do we learn about the current world we are in, but also what kind of future we are heading for.

Animals under the capital structure gradually become a part of the machinery, the development of science and technology cannot be separated from the support of capital, from the construction of machinery to the dismantling of the components of life of animals and animals, all of which enhance the control of the outside world in ideology. Capital constructs desire, and the individual makes desire a perpetual motive.

In the course of my research, I have often substituted desire in my own experience of emotional relationships for the appetite of the food ethic between humans and animals. I reflected on my own obsession with emotional relationships and felt the desire for meat eating. In fact by exploring the question of how human desire is oriented towards the object, and in a relationship where love flows, it is the process of gradual integration of subject and object into one, where you have me and I have you. From individual to family to collective feelings all make human beings more empathetic to objective existence, with linked emotions. In the face of expanded ontologies, from partners to family to human and non-human beings, it is easier to feel fear or pain in the face of exploitation and abuse, which links to the perception of the desire machine and reproduces love.

Therefore, in my creation and research, I always have conflicting feelings about the animals in the factory and empathize with more subject-object relationships. In addition to the anthropocentrism behind the exploitation of animals by the food system and the cognitive violence, you can see more behind the subject-object in this prism.

*You are the hungry lover
The kiss is the seed that sows all things
You search for food
Hunger is in the hair of the beloved
That is the crevice
And the crevices are swelling*

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