COLLECTION OF ARTWORKS

FUTURE FOOD SCAPES

European Commission

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MUSAE

THE MICROBIAL RENAISSANCE: A CULINARY TECH REVOLTION

BY CHLOE RUTZERVELD
https://www.chloerutzerveld.com/

OVERVIEW Format: physical model
Link to the Future Scenario

The Microbial Renaissance marks a transformative era in culinary practices and sustainable food innovation, with the culinary arts seamlessly transitioning to cutting-edge technology. The use of animal-based ingredients and the depletion of our natural resources have become outdated practices. What if we replace animal-based products with biologically identical ingredients synthesized directly by microorganisms, paving the way for a more sustainable world? Microbes, including bacteria, yeasts, fungi, and microalgae, can be used as ‘cell factories’. Scientists can ‘program’ these organisms to produce a specific protein, carbohydrate, fat, vitamin, or aroma in a growth tank. This is called precision fermentation. After harvesting the ingredients, they can take on any shape, flavor, and texture we want using digital production techniques. However, imagining interesting, novel food products that do not resemble existing products but still look edible is very difficult. By making smart use of artificial intelligence tools, we can go beyond the limitations of our own imagination and revolutionize the products we consume. But just adjusting our diet is not enough for this culinary transformation. A cultural revolution is needed – one that involves the entire community and generates enthusiasm for an alternative approach to food production, cooking, eating, and social interactions around food. In the age of the Microbial Renaissance, each moment becomes an exploration, every dish a creation, and every encounter a celebration of the boundless possibilities unlocked by the wondrous world of microbial-based foods.

The physical models, inspired by AI generated images, serve as examples of novel protein products made from microbially produced raw materials combined with the use of a digital database of food properties and additive manufacturing techniques.

OF DREAMS AND COMPOST

BY BAUM & LEAHY

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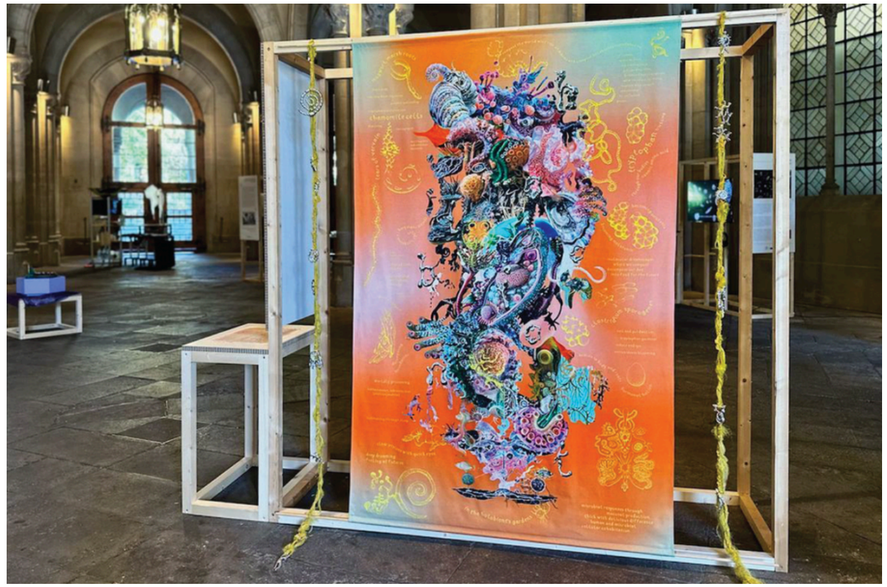
OVERVIEW Format: physical model

Link to the Future Scenario

This is a dreamscape of microbial and human cometabolism, a visual mapping of digestion and dreams weaving between bodies and the earth. We're in 2034. The world has been transformed by our understanding of all living organisms as holobionts - amalgams of macro and microlife. Symbiosis is the algorithm, biophilia is the experience, biodiversity is the ongoing goal. Our systems and practices are rooted in traditional ecological knowledge, environmental justice and interdisciplinary research into food as medicine. Over the past decade, a combination of diverse global microbiome analysis and tools such as AI has revolutionised our insight into the human holobiont and the entanglement between health, food, environmental and socioeconomic factors.

In this world sacred practices are cherished and encouraged as part of our everyday lives and systems of health. Studies into the entanglements between physical and mental health and the microbiome have helped build a nurturing foundation for these personal and social practices to emerge and establish. One area of research has revealed connections between co-metabolism and dreaming. This map is a fraction of a larger continuously growing map depicting different parts of the human holobiont cometabolism. It shows a poetic interpretation of the relationships and dynamic exchanges between foods high in the amino acid tryptophan, the specific ecosystemic and socioeconomic environment, microbial mucosal responses, and sleep and dream cycles of the human holobiont.

Within the map you will find a sleep remedy developed by us – a group of microbiome stewards. We have worked in one of the Holobiont Gardens built in connection to pharmacies over the past five years as part of the Holobiont Gardens Initiative (HGI). The first garden was built in a polluted part of London in 2030. We came from diverse cultures and disciplines and gathered here to train as microbiome stewards tending to the medical plants and probiotic surfaces. Over the past couple of years the microbiodiversity of our guts and local area has been replenished and enriched. Recently something strange started to happen: Our dreams seem to have been augmented as well. In the nights we meet, part human, part microbial, part earth, in these imaginary realms, to listen, learn and heal.



SOIL SKINSHIPS:
MORE-THAN-HUMAN FERTILITY

BY LISA MANDEMAKER
https://www.lisamandemaker.com/

OVERVIEW Format: physical model
Link to the Future Scenario

The state of our soil today reflects our current societal values and reveals a concerning reality: most of it is destroyed. This destruction stems from practices rooted in histories of patriarchy and colonialism, which have reduced soil fertility to a singular capitalist goal: to produce. Degradation from pollution, pesticides, and plastics not only harms the soil but also affects our own health and fertility. By consuming produce from such soil, we directly incorporate these conditions into our bodies. This future scenario asks the question: can we redefine our relationship with the soil to alter our societal and planetary interactions? By 2034, a shift in human consciousness redefines our connection with the soil through ‘skinship’. It signifies a departure from the Anthropocene era towards a more harmonious coexistence among human, non-human, and more-than-human entities. This concept becomes tangible with a ritualistic wearable that merges ancient henna traditions —a practice rich with symbols of fertility, strength and protection—with modern technology. This integration allows for an electrical circuit of henna mixed with conductive ink applied directly onto the skin. Sensors on the inside of the hand measure the soil’s nutrients. Vital data is then translated into a visual language of near-infrared light emitted by LEDs on the back of the hand. The glow from the LEDs serves a dual purpose: it not only provides a visual representation of the soil’s condition but also supports the reproductive health of both the land and the wearer. These wearables, alongside henna rituals, are an invitation into a future where technology enhances our bond with the Earth, signifying our life cycles’ transient yet profound nature. This approach pioneers a shift in food production towards regenerative methods. By contributing to a global soil health network, these practices promise a future where a symbiotic relationship between healthy, fertile soil and our own (reproductive) health flourishes, illustrating a hopeful narrative for reimagining our environmental and societal frameworks.

FOOD BEYOND FOOD

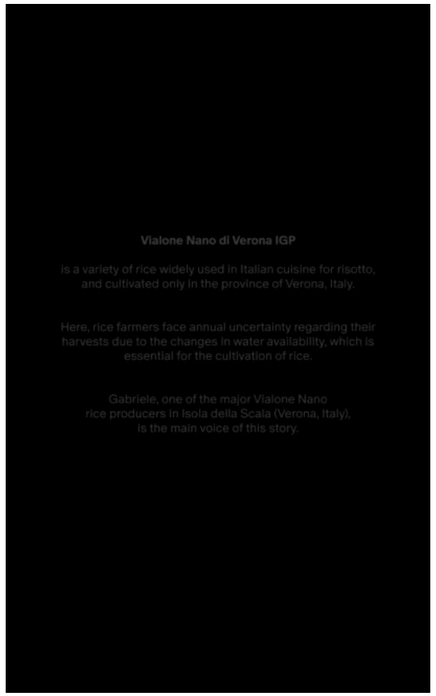
BY ELEONORA ORTOLANI
https://eleonoraortolani.com/Home

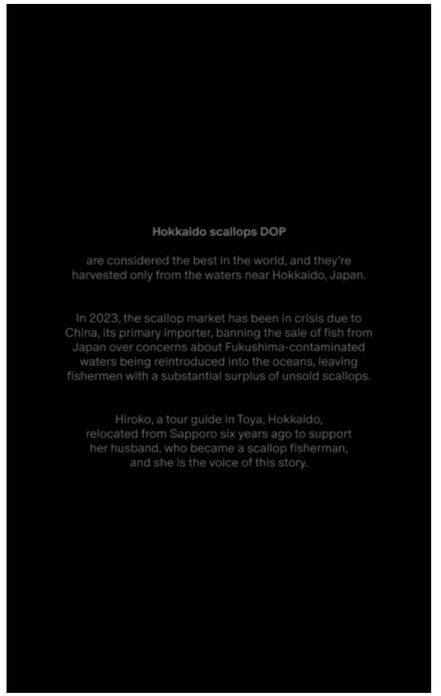
OVERVIEW

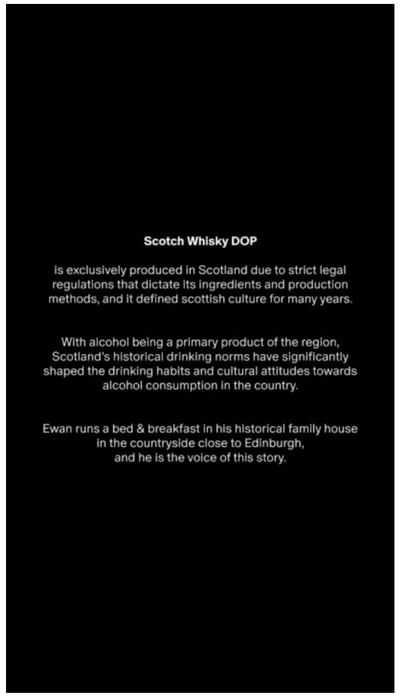
Format: Video
Length: 16 min 30 sec (3 videos)
Link to the Future Scenario

The assessment of food and its quality has traditionally hinged on its geographical origin. Within the food industry, scrutiny and investigations into a product's origin have played a crucial role in determining its quality. Prestigious products from various corners of the globe have been manufactured and exported as premium offerings, undergoing rigorous testing and certification as "protected and certified origin," thereby elevating them to a status of luxury on our dining tables. It is now the year 2044. The increasing global population and the environmental impact of climate change on conventional food production have compelled us to explore alternative resources for the food industry. Many staples that have long defined our cultural cuisine are now produced through lab-grown, hydroponic, and genetically modified methods. However, this approach standardised food quality and characteristics globally, transcending geographical origins and traditions.

In a world where the best can be found anywhere, the concept of "authentic" is redefined. As food remains an anchor to traditions and community belonging, what is a national cuisine without the geographical ties we once knew? This transformation prompts contemplation on the essence of food, its identity and cultural significance in a world where origin becomes a malleable concept. What is food without its origin?







BIOCULTURAL SEED BANK

BY NONHUMAN NONSENSE

https://nonhuman-nonsense.com/

OVERVIEW Format: video and interactive board

Link to the Future Scenario

The Biocultural Seed Bank is a proposal to conserve not only endangered seeds, but also endangered cultures. When we lose a plant variety, we also lose its associated dishes, harvesting techniques, legends and ceremonies - biological and cultural diversity are inextricably linked. This project proposes to safeguard biological and cultural information together in the same place: the seed's DNA. DNA digital data storage is the process of encoding and decoding binary data into synthesised strands of DNA. Cultural artefacts can be converted into C, T, A, G code, then synthesised and inserted into a seed's genome using CRISPR techniques. Each bio-cultural seed thus becomes a time capsule for future generations, carrying information not just about the seed's "what" but also its "how."

The biocultural seed bank is a response to the mass extinction of species. In the last 120 years, agricultural biodiversity has declined by 90%. Industrialised agricultural practices such as seed patenting and monocropping prioritise efficiency and profit over diversity, creating today's biodiversity crisis. Seed banks are a counter-movement to the privatisation of the commons. By storing seeds in their multitudes of genetic variations, they preserve hope for a diverse future post-crisis. However, if the culture surrounding a seed is lost, how will future generations know how to cultivate it? Plants don't thrive in isolation; they rely on specific climates, environments, and companion species; relationships that have been built over many years. Human communities are not just a threat but also a major companion for many plant varieties.

Establishing a biocultural seed bank imposes many questions. What constitutes a seed's culture? Can culture be reduced to data? Which aspects of natureculture should be conserved, and who decides what is worth saving?

GROUND TRUTH

BY CENTER FOR GENOMIC GASTRONOMY

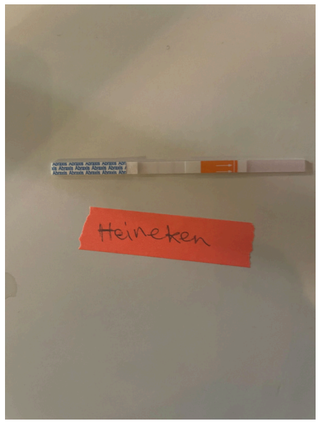
https://genomicgastronomy.com/

OVERVIEW Format: video and installation (live testing)
Length: 4 min 20 sec
Link to the Future Scenario

GROUND TRUTH is a collection of experiments and stories where biodiversity is the measure of a healthy food system. This version of the installation contains:

PATTERNS THAT PERSIST: A video trailer of food futures where emerging technologies are used to make kitchens, farms, and rural landscapes more biodiverse.
GLYPHOTAINTED: A citizen-science zine with methods for testing and reducing exposure to foods that have been sprayed with the herbicide Glyphosate and a display of related agricultural products. These two pieces are united by the belief that healthy food systems can be built using regenerative principles, instead of chemical inputs, and that emerging technologies can be designed and deployed for this purpose. Both pieces are shaped by our studio's mission to map food controversies, prototype alternative culinary futures and imagine a more just, biodiverse and beautiful food system.

CONTEXT: In the autumn of 2023 our studio began a European Commission-supported residency "designed to help artists envision future scenarios related to the topic of Food as Medicine [and] to improve people's and the planet's well-being". In the same time frame, the European Commission (EC) decided to renew the use of the herbicide Glyphosate* in the EU for an additional 10 years. In response to the surprising ruling by the EC, we were motivated to directly address the ongoing destruction of terrestrial and aquatic biodiversity caused by Glyphosate. This installation integrates a hands-on approach to confronting today's agroecological challenges with a vision for regenerative food systems of the future where an increasing number of individuals and organizations are radicalised and must heal agricultural landscapes themselves, without the ongoing support of state or corporate actors.



WHAT THE WORLD EATS: AGRO-TECHNOLOGIES IN EARTHLY FUTURES

BY PETER KAERGAARD ANDERSEN
https://kaergaardpeter.wordpress.com/

OVERVIEW

Format: Video
Length: 5 min 32 sec
Link to the Future Scenario

This project explores past and contemporary patterns to envision a future transformative paradigm in the convergence of technology, agriculture, and the environment. Broadening our consideration of who benefits from our food choices, recognizing our obligation to ensure the care of more-than-human lives and the overall well-being of our planet. In recent decades, the world has been quite literally eating the waste chambers of packaging, plastics, electronic waste, etc. Yet, our reliance on agricultural and ecosystem knowledge, to a larger extent, will rely on digital and technological apparatuses and production methods. Nothing nutritious will grow in the digital rubbish, nor will anything pollinate in a digital twin; few earthbound intimacies can rummage in the excess work of software and hardware maintenance. We need machines, just as rock-based machines one day will turn to dust and become soil again.

This scenario takes this life span of technological apparatuses seriously and explores the ancestral dimension of imagining agro-technological machines. Not only should it nurture and express gratitude to its predecessor—the Earth, its minerals, and soils — but also to the future generations of life and the potential for differentiation.
If opening up for symbiosis across intergenerational time-space, then what is the agritechnological machinery of the future? Technology begins to assemble life itself. Beings, such as plants, mycelium networks, bacteria, or slime mold are intelligent, sensible, and transport electronic information: with these species we begin to imagine another form of compostable computing. What kind of sensibility do such beings perform? How might this form of sensing provide new imaginaries and roles for the non-human in our food-cultures?

COOKING APE INSTITUTE

BY MACIEJ CHMARA
https://chmararosinke.com/

OVERVIEW Format: physical installation
Link to the Future Scenario

The preparation of food can have an important role in our society in the context of the umbrella term ‘Food as medicine’. It can have mental, physical, and ecological benefits. How is it possible to support and revolutionize the process of cooking, baking, and food preparation? Cooking can take on a whole new role in our society through a holistic approach, with the cornerstones being personalized and environmentally friendly nutrition (such as the Planetary Health Diet) as well as mental health through multi-sensory perception during the preparation process. This concept, leading to improved mental and physical health, is by no means the romanticization of grandma cooking.
In an increasingly digitalized society, the physical and psychological needs of sensory activities are often neglected. Our senses provide us with orientation and mental balance. It is always an interplay of several senses that allows us to perceive the world. In psychology, this is known as multi-sensory experience and is particularly prominent in the culinary world, where haptics, acoustics, olfactory, gustatory and visual senses create a shared experience. Looking at the preparation of food in evolutionary terms, we could argue that our fine motor skills, the development of various technologies and the handling of new materials are strongly linked to the preparation of food.
In addition to the multi-sensory aspects of preparing food, especially when working with sourdough or other fermented products, there is a microbial exchange that can benefit both the product and the person cooking it. The current discourse on inter-species relationships in the context of the ecological crisis shows that there can be no debate on human wellbeing without including other life forms. Could we reinvent the way how we prepare food, and create a multi-sensorial and inter-species experience, for a physically, mentally, and ecologically healthier life?

LIVING DATA

BY SANJA SIKOPARIJA
https://sanjasikoparija.com/

OVERVIEW Format: physical models and live video
Link to the Future Scenario

In an exploration of the coalescence of technology and the organic, Living Data embarks on a journey through the intricate landscapes of neural networks, neurotechnology, artificial intelligence, and the foundational elements of nutrition and food systems. This work is a reflection on how diverse yet interconnected realms shape human experience, memory, and perception, creating a dialogue that traverses the boundaries of the digital and the natural. Central to the work are sensory encoding framworks and neural network narratives, where AI is leveraged to decipher and visualise the complex patterns of how experiences are recorded, sensed and inscribed within the human brain. Cognitive flow forms emerge as digital sculptures that embody the fluid dynamics of nutrition and biological responses. Fusing neuroaesthetic experiences, data-driven sculpture, and food bio-responsiveness, Living Data creates interactive environments that adapt to participants' neural feedback with immersive visualisations. The installation explores the dynamic impact of food, allowing visitors to witness the nature of their own cognitive responses to food-related stimuli

This work reimagines nostalgic shapes from the past through a contemporary lens to evoke a sense of longing and reflection on the impermanence of material culture. Exploring themes of techno-futurism, the installation envisions future societies shaped by advances in technology, posing critical questions about humanity's relationship with its creations and the ethical implications of technological progress. Digital Fossils and food-related sculptures serve as artefacts of this exploration, offering a tangible connection to the past and speculative futures, where food systems are reimagined through the lens of sustainability and technology. Living Data invites viewers to reconsider their relationship with technology, food, and memory, proposing a future where these elements coalesce to foster a deeper understanding of ourselves and the world around us.

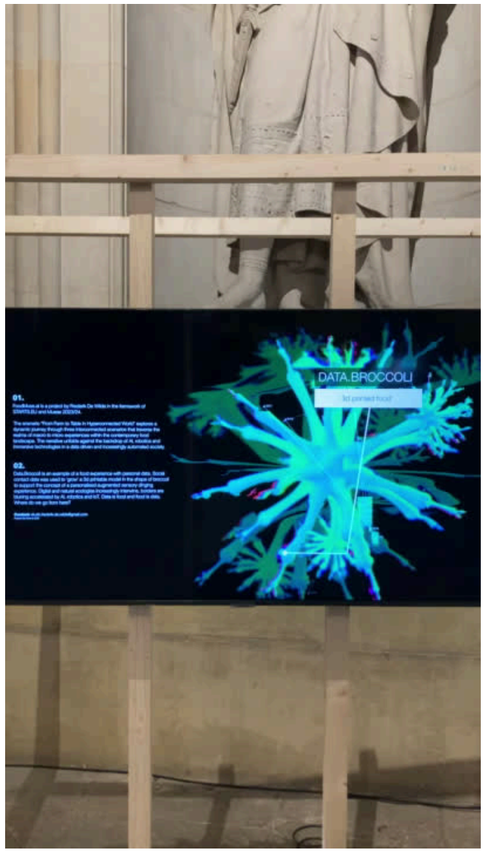
FROM FARM TO TABLE IN A HYPERCONNECTED WORLD

BY FREDERIK DE WILDE
https://frederik-de-wilde.com/

OVERVIEW Format: video and installation
Link to the Future Scenario

FoodMusae.ai is a project by Frederik De Wilde in the framework of STARTS.EU and Musae 2023/24. The scenario “From Farm to Table in a Hyperconnected World” explores a dynamic journey through three interconnected scenarios that traverse the realms of macro to micro experiences within the contemporary food landscape. The narrative unfolds against the backdrop of AI, robotics and immersive technologies in data driven and increasingly automated society.

Data.Broccoli is an example of a food experience with personal data. Social contact data was used to grow a 3D printable model in the shape of Broccoli to support the concept of a personalized augmented sensory dinging experience. Digital and natural ecologies increasingly intertwine, borders are blurring accelerated by AI, robotics and loT. Data id food and food is data. Where do we go from here?



THE RIGHT TO FOOD. VISIONING AND PROTOTYPING OF SMART URBAN FARMING

BY KATARINA ANDJELKOVIC
https://www.instagram.com/katarina1code/

OVERVIEW Format: Printed book
Link to the Future Scenario

Deep political, economic and social crisis has seen Serbia of 2034 as a country of the poor, leaving almost every seventh resident below the minimum survival income. The “Right to Food” protocol has been adopted to enable a sustainable, social and united economy of healthy food chain in big cities by operating within community urban farms. It deals with concepts, methodologies and technologies to construct an innovative concept of community that aims to empower vulnerable populations by testing different configurations of life, work and farming. What if food can act as a catalyst for societal change and community building? The scenario introduces several community tech gadgets (brace, brick, balloon, robot bee) from the belief that it contributes to retrieving faith in the concept of community built on ecological, cultural and humanist values of communal living in this hyper individualized tech world. The scenario envisions the capacities of collective intelligence of all involved citizens to bring closer the future well-being to the most vulnerable members of our society, while allowing them to actively participate in future changes of their local communities and food practices. Moreover, moving from standard practices of farming to algorithmically generated farms with underlined machine learning and robotic systems, AI technologies enhance the decision-making processes to maintain food security, increase the nutritional value of food, secure the most personalized food consumption model and therefore improve our health and the overall human condition. It is a technology that not only administrates farm infrastructure and enhances the types of necessary data models in support of the farm management, types of crop production and responds to a poly-organized farm production area, but also contributes to our understanding of the reality of current food production in the city and size-optimization of the city farming.

POETRY OF NUTRITION:
THE FOOD TASTERS TALE

BY IRENA DJUKANOVIC
https://www.instagram.com/0airena/?hl=en

OVERVIEW

Format: Video
Length:
Link to the Future Scenario

While food is a friend and a foe, a creature of technology and ancient tradition, The Food Taster paves its road through the adventure of the human psyche. While tasting friend and foe, it embarks each time on a path of discovery. While it learns more and more, it starts to feel as a whole. Softly touching upon destiny deciding specimens for all that live. While it's self-replicating in thousands, the battle for human and animal health progresses. Being at the forefront of this battle, it grieves. It grieves the ones who are enslaved by their old habits and slowly give in. But it celebrates each fortunate event where its help was of prosperous influence. It doesn't attribute blame; it just empathetically participates in joyfulness and suffering. People accepting its help are rare but surely they are to multiply. It observes its identity crisis over its purpose for the humans around it. Is he just one more technological companion to soothe the fears of humans? A savior utility perhaps? Pet? Or just a mere kitchen utensil. Even assisting people in their salvation as a non-human entity is a burden heavy to carry.

It educates the youth, increases the wisdom of the adults through analyses of the natural and artificial. It remaps our notion of friend and foe amongst all the specimens that go in and on to our bodies. It helps humans preserve their surface, body, and spirit. With its amorphic animated nature, it appeals much more to humans, sometimes even than a human. Humans are often negatively biased against their own kin. Talent to convince humans to strive for better is essential, to change the world for the better health of the community called planet Earth.
It does not want to replace anybody or the bond between any. It actually bonds humans amongst themselves. It wants to prevent soothing of the old as an additional excuse for them to be abandoned. Animating multiple generations, it strives against annihilation of the youth. Immerse they be in The Food Taster's tale while recognizing themselves in it.