

## Bio-Diegetic Prototype: What Role Shall the Viewers Play for Bio Art?

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“Bio Art” is a new form of contemporary art practices in which these bio artists transform materials with significance in life sciences (e.g. cells, genes, microbes, etc.) into their material. Through recombination and re-interpretation, they create a sci-fi object that is both rooted in scientific knowledge and enlightening. With these objects, the artists create a biological science fictional scenario that people can experience and understand in a more intuitive way, reflecting on the boundaries of life between humans and other species, or suggesting an unexpected biological future. Interestingly, such bio-sci-fi objects made from living material are similar to the “diegetic prototype” (Kirby, 2009, Sterling, 2009) in *Design Fiction* (Bleecker, 2009, Sterling, 2009), which is highly popular in the field of physical interactive design, are similar in a certain way. Rather than describing the world of science fiction through language, both are material speculations (Wakkary, et al., 2015) made from objects and collages of different materials. The material is transformed into a new medium (McLuhan, 1976), where science fiction objects are used to break down people's preconceptions of the future, to visually and physically believe in an unbelievable future, and to enter into the artist's story, experiencing an estrangement that is both familiar and estranging (Maze & Redstrom, 2009).<sup>1</sup>

I will take “Diegetic Prototype” as the basis of this review, and reconstruct three 2019 BAD award-winning works, “Sex Shells: Gender fluidity in the modern age,” “CMD: Experiments in Bio-Algorithmic,” and “Fungkee: Fungal Supercoating.” Finally, I will comment on how the award-winning works use living creatures as a material, combine different semantic, material and symbolic elements, and present a narrative space that can provoke discussion through the artist's collage in three directions: reflection, symbolism and integration. Even though the purpose and core concept of the three works are not “to become Diegetic Prototype”, the critique of “Diegetic Prototype” raises the author's expectation for bio art works in order to break through the blurred boundaries of the current emerging bio art field. This paper will first introduce the three award-winning bio art works, followed by an overall critique of the three works based on three themes (reflection, symbolism, and integration), and finally, it will conclude with what I think the type of bio-art works should be.

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<sup>1</sup> 針對「敘事物件」( Diegetic Prototype )的釋義，可參閱筆者在網站「推測居民Speculatizen」中〈敘事物件於科幻和設  
幻的差別？〉一文。<https://medium.com/speculatizen/>

### Artwork 1:

#### Sex Shells: Gender fluidity in the modern age<sup>2</sup>

The collaboration between Jonathan Ho and Joris Koene uses hermaphroditic “snails” as the material. The artist aims to learn from the snails, discuss gender fluidity and even the power to determine one's own gender, and reflect on the established framework of gender in human society.

### Artwork 2:

#### CMD: experiments in Bio-Algorithmic-Politics<sup>3</sup>

A collaboration between Michael Sedbon and Raoul Frese, “CMD” constructs a colonial society of "photosynthetic bacteria": "He who produces the most oxygen gets the most sunlight." The work is controlled by artificial intelligence and attempting to select and perpetuate the genes of the best photosynthetic bacteria (i.e. those that produce oxygen most efficiently).

### Artworks 3

#### Fungkee: Fungal Supercoating<sup>4</sup>

In collaboration with Emma van Leest, Aneta Schaap-Oziemlak and Paul Verwrij, Sybren De Hoog, the artist has developed a new waterproof coating based on "fungus", which is an enhancement of the waterproof capability of the current eco-friendly leather (bio-leather) and is expected to completely replace animal leather and rescue animals.

Reflection: With “biology,” the audience is freed from the bondage of "human-centered thinking".

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<sup>2</sup> Jonathan Ho collaborated with Joris Koen from VU University Amsterdam. For more information, please see: <http://www.badaward.nl/artists-scientists/jonathan-ho-joris-koene>

<sup>3</sup> Michael Sedbon works with Raoul Frese from Hybrid Dorms ArtScience media lab, VU University Amsterdam. For more information, please see: <https://michaelsedbon.com/CMD>

<sup>4</sup> Emma van Leest and Aneta Schaap-Oziemlak collaborated with Paul Verweij and Sybren Dehoog from Center of Expertise in Mycology. For more information, please see <https://emmavanderleest.com/portfolio/fungalsupercoatingfungkee/>

On the whole, the issues presented by the three works are not innovative or unique, but when these issues are reinterpreted by the new material (bio material), bio art creates a contemporary new media - a medium that impacts the ideas of contemporary people, allowing them to step out of the clichéd and insensitive situation and enter a strange and familiar environment, where they can have a better understanding of their own society, culture and society to rethink again. For example, the discussion brought out in “Sex Shell” of diverse genders and the boundaries of social gender frames has similarities to many gender films, such as *The Danish Girl*, while photosynthetic bacterial colonization of the world in “CMD” is even comparable to the classic sci-fi film *The Matrix* (which depicts a world colonized by machines in which humans become nutrients to feed machine civilization). In the end, the advocacy within “Fungkee” of not killing animals and refusal to use genuine leather products have been the subject of much discussion. These three works, however, reinterpret and revitalize old issues from the perspective of non-human species, temporarily pulling the audience out of the "human-centric" perspective to conduct a thought experiment from the perspective of other species (Dunne & Raby, 2013), and thus rethinking the self-human society. Such a non-human-centered thinking is precisely the strategy that has recently triggered a rethinking in the design industry. Influenced by the "actor network theory" in social science and the "object-oriented ontology" in philosophy, the interactive design has proposed "more-than human centred design" (Coulton & Lindley, 2019)" and "thing-centred speculation" (Giaccardi, et al., 2016)" in design fiction are two strategies that attempt to break through the constraints of human-centred thinking, causing the public to go into other-worldly viewpoints and engage in rethinking.

Metaphor: the integration of "living creatures" and "man-made material".

In the three works, the living creature (snail, photosynthetic bacterium, fungus, or mold) uses one of these materials as an amalgamation with the other man-made materials, and together they re-enact new meanings in the artistic practices. In this part, I will decompose one by one the metaphor that the creature and the other man-made materials in the three works might have implied in our intuitive world.

The first work, “Sex Shell,” uses the gender culture of the snail as a medium to give voice to gender issues. The softness of the snail echoes the public's impression of "aliens". In mainstream sci-fi artistic setting, mollusks (octopuses) and arthropods (insects) are often

used as models for "aliens" because they lack human-like expressions, possess signs of life, and yet are difficult to understand. The snail fits the bill, allowing the viewer to free themselves from the emotional, ethical, and moral constraints of the human condition and to put aside their own identity in order to relearn and understand the fluid nature of gender in an alien culture. However, while the artist flaunts the shaped snails as the study object, he also embellishes their shells with various decorations and places them in a transparent aquarium with a gorgeous carpet in the middle of the gallery, like an altar for all to examine. Through these several layers of symbols (alien, decorative, altar), is it an irony that some groups of people who hang on to the banner of gender pluralism but are still unable to break away from the constraints of society, are looking at these different gender identities through the eyes of unconscious discrimination?

The second work, "CMD," takes the simple survival mode of supply and demand of "photosynthetic bacteria" as the material, and combines the data optimization of "artificial intelligence" to train and control an "excellent oxygen supply system". In this work, the "bacteria" have no human or animal-like expressions, and cannot be empathized with (i.e. empathized with or reflected), but rather we can accept this colonization system of "laboring" bacteria. The "expressionless" bacteria may symbolize a group of people who are unable to express their opinions, and appear as if they are unconscious.

The third work, "Fungkee," "fungus or mold" possesses a kind of invisible mysterious power, although it is not an extremely strange organism, but when certain conditions (such as humidity) are reached, it will appear in front of human and be applied; for instance, in food processing, cheese is an obvious example, but the mode of living with it or coexisting with it needs to carefully achieve the conditions, if excessive, it will be destroyed by the fungus. Interestingly, the final installation of this work is a "pink spray can" like detergent, which transforms the mysterious power of the invisible into a "highly effective and convenient solution" to attract the public to accept it. Perhaps it can serve as an extension of the discussion on "fungal overuse"?

Finally, through these three works, it pushes us to reflect on the fact that in the practices of the bio-artists, these living creatures seem to have become a kind of material to be played with, to be recreated, reinterpreted, and assembled into human voice props, but these

creatures are still another kind of life, perhaps possessing intentions that cannot be deciphered by humans.<sup>5</sup>

Engagement: What role should the audience play in bioart?

In the end, even if the bio artist is able to reinterpret important issues by playing with biological material, there will be a decisive moment: how to make bio art accessible to the audience? How can the audience read and receive the message of the work of bio art? How do we create an environment where the audience can discuss, dialogue and reflect on each other? Here, I take the "engagement" emphasized in design fiction as a benchmark, that is, whether the audience can go beyond the third viewpoint of the movie and switch to the first viewpoint, as if they are walking into the situation. The reason is that when the audience watch the movie from the third viewpoint, they will inevitably change their own identity and become "more decent and moral" in order to have a dialogue with a high attitude. What will be the preferable future (Dunne & Raby, 2013). Therefore, I would like to share my feelings as an audience.

On the whole, the three works are not yet fully developed in terms of "engagement," as "Sex Shells" presents the work with visual impact (film, gorgeous carpet), but lacks the bridge that would allow the audience to become involved in the story, and only presents the appearance of "gender fluidity" in a single direction, without the element of dialogue that would allow the audience to also engage in dialogue, inevitably falling short of the "edutainment" theme. The presentation allows the audience to gain new knowledge, such as flipping through a textbook to learn about the snail's gender culture, and then closing the book to continue their lives. On the contrary, "CMD" attempts to create a narrative space that directly simulates the science fiction scene of a photopolymeric bacterial colonial society through pipes and lights, but they still ignore what kind of character the audience should enter the space as: Are they factory managers? Residents of that world? Are you part of the bacteria? As one enters the sci-fi scene, the audience can feel the spectacular atmosphere created by the work, a sense of amazement, but without the characters that have been given to view the world. In this exhibition, the audience can clearly experience themselves as a user or a buyer being sold, examining the efficacy of the

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<sup>5</sup> For further discussion, please watch the 2017 TED talk: "A plant's-eye view" by Michael Pollan : [https://www.ted.com/talks/michael\\_pollan\\_a\\_plant\\_s\\_eye\\_view/transcript?language=zh-tw](https://www.ted.com/talks/michael_pollan_a_plant_s_eye_view/transcript?language=zh-tw)

product, the company's vision, the production process and the price as a buyer. The tug of pro and con views and different values, for example, even if this "perfect new paint" solution is proposed, will there be a chain reaction of counterproductive reactions? For example, the inventor who originally invented the plastic bag developed this new material for environmental reasons, hoping that it would replace the paper bag that could not be used for a long time. Instead of creating a scene for dialogue and reflection, the exhibition has been transformed into an invention exhibition, only to gain the audience's approval, but without the means to provoke the public to reflect on the dialogue.

Of course, the level of the audiences' engagement will be different depending on their individual experiences, professional backgrounds and even cultures. Bio art is an emerging field of science and art practice, and I hope that future bio artists will also consider how to use the "audience" as an element of their artworks, inviting them into the narrative world, not just as an insignificant third party, but as a first point of view that can more directly impact the daily life and values of each audience.

## Conclusion

Based on the three aspects, I will conclude my review with an invited work, "Spirt Molecule",<sup>6</sup> which summarizes what I think the qualities of bio art should obtain. Compared to the above three winning works, this work fits what I believe to be the elements of an excellent practice of bio-art. Created by Heather Dewey-Hagborg & Philip Andrew Lewis, "Spirt Molecule" proposes to transfer the DNA of a deceased grandmother to a plant through DNA transgenetic technology. It is a strange narrative space, an everyday yet strange yet more familiar existence. When facing this potted plant, the viewer shifts between the perspective of the plant and that of human beings, leading to the question: "How does the grandmother of the plant perceive the world differently from when she was a human being?" "What senses does the plant that becomes a grandmother have that transcend the original plant?" In "Spirt Molecule," the use of "potted plants" as a sound source is also apt, as potted plants are often calm and serene with us, while climbing plants embody images of longevity, successfully bridging the gap between the human desire for eternal life and the fear of facing the eternal death of a loved one, without going to the extreme (e.g. creating a new one, or making a new one). The high probability of a

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<sup>6</sup> For more information, please see: <https://deweyhagborg.com/projects/spirit-molecule>

new grandmother (a composite of animals) stimulating the audience is directly denied, but instead the everyday, quiet force of the grandmother is used to recreate a quiet, long-lived, seemingly abiotic plant. Finally, the artists place a grandmother's potted plant on the scene, allowing the audience to see it up close and personal, directly transforming them into the protagonist of the first view: would I want to turn my deceased loved one into a plant? Or will I be willing to become a plant when I die?

In short, I think bio art is about creating a "non-human" narrative, a contemporary medium that reinterprets old issues. For example, in "Spirt Molecule," the artists use "potted plants" as a material to trigger an entangled reflection on the intertwining of "human-centric" and "non-human" narrative. Through metaphor, the work embodies the subject matter in a way that is both everyday and eerie, ultimately allowing the audience to engage in a dialogue with the work in a first-person narrative space. However, the only flaw might be that it was placed in an art gallery, alongside works with many different purposes, and thus easily overlooked. Perhaps this will also allow us to continue the discussion that we need more artists work on bio art to explore more "non-human" viewpoints, but also to rethink how to take the artworks out of the museum format and trigger the most authentic dialogue among the audience.

## Referance

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