Already before the pandemic, environmental pollution, societal inequalities and religious struggles were worrying us. The consequences of global market forces and the exponential growth of production and consumption have provoked us to ponder about the flaws in current-day humanity. Artists and researchers are more than ever probing ways and methods to interact with and care of what matters in the realms of our era. Combining the practice of Research-creation with the concept of Critical Making, and applying a systemic perspective, can help to develop encouraging ideas and alternatives for the near future. To illustrate the model of the artist as a mediator for structural change, the creation of a feature clip ‘Existence Beyond Transhumanism’, inspired by the ongoing discussion on Transhumanism serves as case study for explaining the approach. Whereas the debate around Transhumanism mainly focuses on body enhancement and lifespan extension through technology, the artistic intervention creates meaningful ideas for stimulating multiple new connections between the real and the imaginary, the human and non-human. Artistic agency using machines and non-human intelligence for co-creation can act as interpreter, connecting the outcomes into sound-, visual-, language- and performance-based artworks that make the future emotionally experienceable for a larger audience.

Post-/Transhumanism, AI-supported creativity, Non-human lifeforms, Research Creation, Critical Art Making

1. INTRODUCING TIME FOR A CHANGE

Imagine that in 10000 BC, in the 12th century or in 2421 you are thinking about the future. Depending on your epoch, you might hope for a fire to warm your cave, or constant good harvests and less wars, or a longer lifespan, better updates, or settling on a new planet in an ever increasingly complex life. At minimum, you would prefer to have some certainty about the future and survival guaranteed for you and your offspring.

Today, the homo sapiens are reflecting and questioning existence and evolution, and showing preoccupation with the ‘Future’ (Harari 2015, 42). For current humanity, thinking about the future revolves around complex challenges such as how to tackle the threat of environmental changes on Earth, how to fight the current pandemic and its aftermath, but also how to rebalance the abusive financial market effects of extended capitalism alongside with the ongoing digitalisation of society and culture. In parallel, the quest for meaning and purpose in a secular, capitalism-driven world is gaining in intensity (see also Frey 2019).

And we are concerned with the emergence of ‘digital self-awareness’, which may extend too far and advance too fast for our current biological mind-body-system to be able to keep up at all.

In essence ‘desirable futures’ have always been important for humans but in our era the scope and scale of the reflection are wider due to the growing knowledge of the universe and the connectedness of its elements in every aspect (Stiegler 2018, 51-54).
2. NEXT LEVEL OF CRITICAL ART MAKING

From a system-theoretical point of view, human activities and processes occur in a self-referential manner (see e.g. Roth & Schwegler 1990, 61). Consequently, a social system establishes for its proper functioning a reference line or ‘normality’ which, through underlying beliefs, helps in maintaining stability from an inside perspective whilst also marking the frontier to the outside world. An element/member of a system will stay in the intra-system-quasi-objective context in order not to be sanctioned or excluded, but also for maintaining a higher level of stability.

During extended moments of crisis this ‘normality’ is increasingly under scrutiny, yet a system will always maintain its reference unless a radical change of boundary conditions induces a pattern shift. Besides radical changes, establishing a ‘meta-system’ is another approach for inducing systemic changes.

Here artists, through their transversal nature and transgressive interest, can play a crucial role in stimulating or setting up such kinds of meta-systems. It is important to add that these ‘artists’ do not necessarily need to have an accomplished artistic education, and can equally be scientists, social workers, technology entrepreneurs or philosophers, to cite but a few. And, in an era where clear definitions about what comprises an artist or artwork have become obsolete, it is potentially better to talk about artistic agency. This translates into a person or group being independent, playful, open to change perceptions, connecting the dots, generous and interested in creating meaning (see also Schnugg 2019, 55-72).

Part of the necessary approach has already been formalised under the heading of ‘Research-creation’, as experimental practice at the complex intersection of art, theoretical concepts, and research (Truman & Springgay 2016). This approach is trans-disciplinary and incorporates hybrid forms of artistic practice between the arts and science, or social science research. As Research-creation is focusing on processes rather than the communication of outputs or products, it is proposed to combine it with the concept of ‘Critical Making’. This approach explores how hands-on making can supplement and extend a critical reflection on technology and society (Hertz 2012).

The notion of Critical Making potentially encompasses any practice that combines making with criticality (Cramer et al 2018). And combining art and critical thinking skills – ‘Critical Art Making’ – can be very effective in improving the quality of life for individuals and societies (see O’Donnell 2019).

Part of the ‘art’ is to establish a meta-system for interactions between closed systems through the research-based creative process and to work on forming outcomes and objects which include a critical reflection on technology and society. It goes without saying that the approach to Critical Art Making proposed here does not exclude the established art-market system with its own rules and beliefs.

3. THE ARTIST AS A MEDIATOR FOR STRUCTURAL CHANGE

Coming back to the challenges discussed at the beginning, engaging critical artistic energy in hybrid territories between perceived and underlying, and between factual and postulated has a potential for inducing structural change. Artists as agents of change can be part of development processes and help promote human values and user agency.

Although technologies developed by humans are in their conception epistemologically bound to human intelligence, it can be speculated whether the implementation of Artificial Intelligence will not lead to the emergence of new results and ontologies that escape their original, human conception.

Whereas this could be seen as negative, it is proposed to consider precisely these new results as an opportunity for humans to enlarge their current self-referential perspective. Beyond existing settings and conventions, machines can help us to develop ideas, representing another ‘perception’ of the world and thinking (Miller 2019, 343-345); e.g. machines could complement human brain capacities instead...
of making humans passive and dull through turn-key provision of all kinds of services.

Figure 4: Illustration of a posthuman conception (video still).

Another possibility is to stimulate and reconnect our intellect with the sensory environment in which humans and their ancestors evolved within complex, land-based cultures (Yunkaporta 2020, 6-10). Instead of generating more and more complex abstractions of the world, we and other lifeforms would benefit from exploring the fact that we are actually the world (Weber 2017, 110-139).

Figure 5: Illustration for reconnecting our intellect with the sensory environment (video still, source function by https://infinitygames.xyz/).

Integrating these possibilities, it is therefore proposed that artists could go beyond visualising complex data, crafting sculptures based on quantum phenomena or exploiting sound effects linked to nano structures. The hereof resulting art works and interventions all have their merits, often demonstrating a stunning visual beauty, and should by no means be discredited. The solemn question is nevertheless: given that structural changes and systemic shifts are necessary and recognising the potential that exists in Critical Art Making, is it not more appropriate to convene a deeper research-creation that enables artists to go further in their work?

Again, from a systemic perspective, the creation of alternatives and new patterns is crucial for stimulating change (see also Morin 2020, 68-98). The variants can be architectural forms, visuals, shapes of bodies and faces, animations, poems, code, sounds and music, statements and arguments, movements and spatial expressions.

By generating variants with often surprising results, the artist can benefit both from the support of technology, and conceptually incorporate artificial system behaviour as ontological being in a future world for co-existence (Petermfriess 2021). In a larger scope, this approach is theoretically not limited to humans and technology, and may include any kind of lifeform, starting from those on Earth and ranging to future forms of existence as yet unknown to us.

Figure 6: Illustration of a positive, forward-looking sense (video still).

Whereas the variants generated can be as rich as possible in expression, the next step is then to interpret them in an iterative and intuitive way, and to transform them into artworks. By recombining elements, creating stories, inviting for participation and considering perception patterns of today, the results can stimulate a positive, forward-looking sense and open up avenues for engagement.

In this respect the artist(s) invite(s) the audience to experience near futures, to experiment between different paths and to nourish an informed opinion beyond mainstream arguments, beliefs and promises. In essence, the artist acts as a mediator between present and future, stretching the boundaries of perception, and encouraging co-creators and audience to get involved in different or new patterns.

4. CASE STUDY: EXISTENCE BEYOND TRANSHUMANISM

4.1 Contextualisation & Reflection

In order to illustrate the approach described above, the ongoing discussion about Transhumanism, driven by actors from brain sciences and technologies, body enhancement and cryogenic life-extension, serves as a case study. The concept – or even philosophy – of Transhumanism offers undoubtedly encouraging possibilities. However, if we speak about brain uploading, augmented humans, cloning and drastically extended lifespan, it
touches heavily on the essence of human existence and corresponding ethical questions.

For contextualising the subject, Transhumanism is the intriguing idea that present limitations and frustrations of our existence could be overcome (Huxley 1957). This concept has been extended to the conception that humans surpass their current natural state and perceived limitations through the use of technology, so as to mitigate aging and to extend human lifespan, even beyond a biological state. (Vita-More 2020). It appears that Genetic Engineering, Advanced Pharmacology, Advanced Computing & Artificial Intelligence and Cyborg Technology could accomplish, in a matter of years, what biological processes and environmental challenges would take thousands of millennia to achieve.

**Figure 7: Illustration of hidden code lines powering a transhuman (video still).**

Whereas Transhumanists embrace self-directed evolution, bio-conservatives, in contrast, advocate strongly against those advances, despite the fact that any global ban on person-engineering technologies would be exceedingly difficult (Walker 2021). Sceptics argue further that the complexity of our embodiment will make it unlikely to download soon our brains to a computer (Brooks 2002, 197-208). Finally, if we anticipate the ‘Homo Stellaris’ (Johnson and Hampson 2019, 18-25), a change of human physiology and mind, linked to high radiation intensity and different gravity levels compared to Earth, are likely to occur or even become a prerogative for human evolution. It can also be speculated how far Transhumanism is in particular linked with Western societies and their concept of self-improvement with the help of technologies. In Confucianism, Buddhism and Taoism, the key is authenticity – a kind of 'change' phenomenon, where human nature in the world is not related to properties of Body and Mind, and thus without temporal limitations such as life or death (Lee, Hyun-Jung 2018).

So, what makes Transhumanism an interesting case study for Critical Art Making? Transhumanism is in the first place not driven by direct needs, but rather by commercial interests and the more englobing idea of extended territories (Bratton 2016). Transhumanism appears as a kind of 'techno-anthropocentrism' in which the protagonists often neglect the complexity in an era of advanced capitalism (Thomas 2017). Our highly competitive social environment does not lend itself to developing a variety of solutions, let alone the co-existence of a multitude of solutions. Here artists cannot only reveal all invisible and underlying trends, but also stimulate emotional experiences around potential variants of the future.

**4.2 Methodology of Work**

The methodological procedure focused on the development of variants as a set of prototypes that served as epistemic objects for stimulating emotional revelation. Having started with several lines of iterative research on subjects linked to Transhumanism, the following key topics were identified for the project:

- Physicality
- Self-optimisation
- Biohacking
- Brain-uploading
- Human condition
- Lifeforms
- Multiverse
- Eternal life
- Transhumanism itself

This list is certainly not exhaustive, but has proved to be highly relevant as input for the creative process. Around these topics, the generation of new variants and patterns of shapes, forms, sounds, movements and statements, questioning societal and ethical issues such as identity and gender bias was applied from two viewpoints: using machines (algorithms and weak AI) as a tool on one hand, and on the other understanding them as an independent ontological representation, with their own 'reasoning' and aesthetics, for proposing hybrid and (for humans) new forms around, and even beyond Transhumanism. The results were then interpreted by a human artist with regard to:

- (a) novelty,
- (b) inspirational capacity and
- (c) critical perspective.

This led to the preselection of various images, video-clips, text passages and sound elements for artistic exploration. Following the approach of the artist as a mediator between present and future along the lines of today’s perception patterns, a decision was made to develop an immersive feature clip as a game-like journey around various aspects of Transhumanism.

Throughout the journey the characters of the plot directly address the audience, while the narration draws inspiration from Chinese mythology and
Western philosophical traditions, as these two main strands have, for a long time, questioned in various ways the idea and concept of existence. Together with an immersive sound ambiance, the video clip makes near and far futures accessible for the audience, and opens a path for reflection on the future of humanity and Transhumanism.

4.3 Implementation of the feature clip

The generation of variants was carried out in several steps. Starting from the identified key topics around Transhumanism, a first research axis focused on creating natural language-based statements, revealing unusual sentence patterns. This was achieved by using OpenAI’s Generative Pre-trained Transformer 2 (GPT-2) version and the Megatron-11b unidirectional language model (https://inferkit.com/).

This led not only to unexpected semantic patterns, but also to quasi-poetic statements e.g. concerning eternal life. The results were critically reviewed by the artist as input for the design of the feature clip and the overall storytelling.

![Figure 8: Case study: examples of GPT-2 based text generation (screen shot).](https://inferkit.com/)

For the research on visual hybrids, variants were generated using Generative Adversarial Networks (GAN), in particular BigGAN and StyleGAN models (https://artbreeder.com/), as methods of exploring highly complex spaces. Uploaded images from a separate creative process, linking back to the key topics mentioned earlier, were fed into the models.

![Figure 9: Case study: GAN animated lifeforms in a future world (video still).](https://artbreeder.com/)

By crossing/blending and ‘cross-breeding’ genres, gender, colour, race, moods, dressing styles and human/non-human lifeforms, new hybrids were created in the forms as images and short video sequences. Through a facial animation software, part of the images was further transformed using the results from the OpenAI GPT-2 process.

A third field of work concerned the exploration and creation of sound and acoustic ambiances. Using a novel algorithmic Quad Note Generator (https://reasonstudios.com/), and drawing inspiration from the key topics around Transhumanism, specifically developed additive and modular synthesizer patches (melodic and rhythmic patterns) were activated based on algorithmic aleatory modulation of pitch, velocity and note intervals.

![Figure 10: Case study: examples for algorithm-based sound pattern variations (screen shot).](https://reasonstudios.com/)

For the final overall video creation, the gaming context and corresponding retro-futuristic aesthetics were considered appropriate for making future life situations around Transhumanism experienceable (see also Zhan 2013). When deemed necessary, additional variants were produced for the concluding touch. The final artwork, in its first iteration is presented as a feature clip where all input sources are carefully arranged.

![Figure 11: Case study: game like animation of a transhumanist character (video still).](https://reasonstudios.com/)

4.4 Analysis of results

In general terms, the creative process effectuated made it possible to generate a set of variants where...
the inventive exercise was not focused on the concrete artwork as a distinct objective at first. Technology was used as a tool, but the artist’s critical thinking was crucial for reflecting on how to make choices between variants, and how to integrate them so as to obtain a meaningful and accessible result.

When applying critical thinking skills, the artist floats over the variants from all angles and all viewpoints. Due to the variety of approaches, strategies, and problems from diverse inputs and standpoints, this process allows for interaction with different stimuli and situations. Learning to negotiate and navigate between the variants generated and viewpoints about the final artwork significantly improved the end result, and contributed to the overall intention of a different view on Transhumanism.

As a next step, the intention is to develop the setting into an AI-based generation of living spheres between design fiction and critical planning, yet with focus on developing an advanced vision on Transhumanism. In contrast to other visions in the field which point, for example, towards ‘hyper-density’ (Young 2021), here the future of humanity is sought as a process of opening up points of areal density and reconnecting with the planetary environment(s) rather than a continued dissociation from it – so, to quote: “beyond Transhumanism is only movement and change, all is circular, fluid and endless.”

5. CONCLUDING - YOU HAVE REACHED THE NEXT LEVEL

In conclusion, the case study represents a novel approach for connecting digital animation, gaming, digital poetics, philosophy and sound art. In addition to the GAN and GPT-2 approaches used, generic neural networks could be exploited for the visual creation of new life situations and any forms of communication. In an extended approach this could be developed and transformed into a hybrid game including virtual worlds and physical objects.

Thinking about the future and possible implications of Transhumanism via generative art creation and algorithmic aesthetics provides a valuable way forward to reflect on what matters, and to express it through critical and yet accessible art. And making the future emotionally experienceable for larger audiences is a promising empirical way and practice for Critical Art Making, and merits further exploitation.

The artist, in the wider sense as it is defined here, can act as a mediator between the present and the future, asking pertinent, research-based questions around the human condition. The artist can further pave the way for co-existence with non-human lifeforms and explore alternative design methods for impactful technologies – ultimately for reconnecting our intellect with the sensory environment in which humans evolved and continue to evolve. This could also contribute to a reflection on the role of art and artists now, and in the future (see for example Petermfriess & Rojina 2021).

The potential for experimenting ‘beyond Transhumanism’ is endless, yet it can answer questions on how we could, or should today reciprocally redesign ourselves and the perceived or imagined worlds around us in order to address the current challenges for humanity. It can serve as a stimulus to overcome our Anthropocenic thinking where, in the future, humanity is reconnected with planetary environment(s) and non-human Lifeforms rather than advancing on a continued dissociation. We might not be talented enough to help much the latter very much, but they might certainly be able to help us.

6. REFERENCES


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