

Bursting into the Image: Towards De-automatization in VR

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The art installation *Osmose* (1995) by Char Davies, one of the most widely discussed media art projects, will be explored in relation to the notion of de-automatization. The de-automatized experience in *Osmose* will be developed by looking at theories of perception by Arthur Deikman and Maurice Merleau-Ponty, as well as George Stratton's inverse goggle experiment, Bernard Stiegler's account of automation, and Gilles Deleuze's writings on the virtual. The article traces a double act of de-automatization in Davies' *Osmose* that occurs due to the indeterminate object relations in the multi-media installation on the one hand, and their intertwining with the organic sensing body on the other. This leads to an ungearing of one's habitual perception, that produces a particular relation with the virtual dimension. By outlining the theoretical framework of the intertwining between technical object and bodily experience in *Osmose*, it becomes possible to speculate on the trajectory of contemporary VR experiences. Whilst the contemporary VR scene still relies heavily on the privileging of the visual dimension, the project *We Live in an Ocean of Air* by Marshmallow Laser Feast shows how VR environments can 'leverage on' emerging technologies to re-produce nuanced de-automatized experiences. De-automatization unravels how the reception of the de-automatized VR image reframes relations between actual and virtual.

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INTRODUCTION

Since the 1980s, several media art practices have explored the role of the body within VR environments. *Osmose* (1995) by Char Davies, one of the most discussed media art projects, is particularly important because it produces nuanced relations between the actual and virtual. In *Osmose*, the participant is partly "immersed" in a simulated 3D interactive environment by wearing a head-mounted display. Davies integrates the "use of biometric data" (heart rhythm) in the formation of the digitized stereoscopic image that the participant experiences (Gardner et al. 2016, 52). The computer-generated immersive environment thus changes in relation to the participant's wired body. The participant's body alters the illusory three-dimensional synthetic environment through digital inputs (motion tracking). "Real life motion tracking" converts the participant's digitally recorded "breathing and balance" into data that are relayed into the simulated imagery (Davies 1998). The screen



environment that the participant experiences is a computer-generated space whose variable elements indeterminately change in relation to the participant's breathing and balance. In the interactive space of *Osmose*, Davies explores the slippery intervals between actual bodily experience, immediate environment, hardware/ software, and projected simulated image. For the artist, the work "was designed as an alternative to the dominant aesthetic and interactive sensibility of virtual reality" (Davies 1998). Through this VR installation the body of the participant becomes inter-actively involved in the production of the projected image.

The immersive experiences of *Osmose* "involve a dehabituating or 'de-automatizing' of perceptual sensibilities" (Bachelard 1994, 146; Deikman 1972). The active engagement of the participant's body in the production of the projected image in turn dehabituates, and de-automatizes the perceptual co-ordinates of the sensory body from itself. In her writing, Davies refers to dehabitation, by claiming that:

[t]his dehabituating of perception tends to occur as a result of certain psychological conditions, such as when the participant's attention is intensified and is directed toward sensory pathways; when there is an absence of controlled, analytic thought; and when the participant's attitude is one of receptivity to stimuli rather than defensiveness or suspicion (Davies 1998, 147).

As such, the body in *Osmose* reveals a different experience from the prescribed sensory behaviour that takes place in more straightforward VR experiences that tend to prioritize the visual dimension.

Revisiting *Osmose* today is highly relevant as contemporary VR experiences would benefit from the experiential and theoretical import of this work. However, it is important to develop a reading of *Osmose*, that takes into account a re-interpretation of the notion of de-automatization. By referring to theories of bodily perception from Arthur Deikman and Maurice Merleau-Ponty, as well as psychologist George M. Stratton's inverse goggle experiment, Bernard Stiegler's notion of automation, and Gilles Deleuze's virtuality it becomes possible to investigate the relations between actuality and virtuality that give rise to a de-automatized experience. In this respect, Davies' problematization of the very experience in straightforward applications of VR becomes highly relevant today. With the current explosion of VR experiences, it becomes necessary to re-examine this critique. Is the experience implicit in VR spaces increasingly automatised? The automation in more straightforward VR experiences, restricts the possibilities that are actualized within a variable system; therefore, automation is made possible by eliminating many other possibilities. By tracing modes of de-automatization, it becomes possible to speculate on how contemporary VR experiences could be informed in alternative ways. The recent project *We Live in an Ocean of Air* by Marshmallow Laser Feast shows how VR environments can utilize emerging technologies to re-produce de-automatized experiences, that lie at the intervals between actual and virtual.

DE-AUTOMATIZATION IN CHAR DAVIES' *OSMOSE*

Osmose, first exhibited at the Sixth International Symposium on Electronic Art (ISEA) in Montreal (1995), simulates a natural environment within an immersive interactive installation. Utilizing computer generated three-dimensional graphics, a head mounting display (HMD), and sound (based on user feedback), the visitor experiences a relayed reception of images that are co-constructed with the participant's own bodily data input. The projected depth-image is constantly informed by the participant through the technical apparatus. As Oliver Grau writes:

[w]ith the aid of polarized glasses, they watch his or her constantly changing perspectives of the three-dimensional image worlds on a large-scale projection screen. The images are generated exclusively by the interactor, whose moving silhouette can be discerned dimly on a pane of frosted glass (Grau 2003, 193).

The interaction within this virtual environment involves the solitary participant's relation with the technical apparatus that mediates the relations between viewer and projected image. Grau states: "[i]t is at the interface, which must be used by the active observer according to the rules of the particular illusion world, that the structures of the simulation designed for communication meet up with the human senses" (Grau 2003, 198). The nuanced intervals that negotiate human and nonhuman actors need to be further considered today. It is increasingly relevant to probe the limits of VR environments, as the boundaries between commercial and artistic applications are becoming increasingly obfuscated.

In her writing on *Osmose*, Davies articulates the significance that dehabitation has on this media art project. The notion of dehabitation and de-automatization in *Osmose* is developed from Davies' reading of Gaston Bachelard and Arthur Deikman. Dehabitation is related to the immense natural spaces in Bachelard's *The Poetics of Space* (1958). Davies observes how Bachelard "examined the psychologically transformative potential of 'real' environments like the desert, the plains, and the deep sea, immense open spaces unlike the urban environments to which most of us are accustomed" (Davies 1998, 146). This notion of dehabitation provides a means of unpacking another reading of the VR experience inherent to *Osmose*. It is useful to follow this enquiry in *Osmose* because, as Mark B.N. Hansen writes, it "eschews many of the familiar trappings of computer-based worlds, virtual reality, and game environments, including the primacy normally accorded to detached vision" and "the orientation toward a goal, and the hard-edged simulation of perspectival space" (Hansen 2001).

If Bachelard's text opens up a way for Davies to consider the spatiality of the body in VR space, Deikman's lesser known 'De-automatization and Mystical Experience', and 'Experimental Meditation', in *Altered State of Consciousness*,

focuses on readings of the experiential body that are nuanced in terms of understanding the virtuality of the body (I will return to this point). The act of de-automatization provides a departing point from the predetermined consideration of the spatio-temporal body in VR, as outlined by Hansen, and focuses on the specific role of the body in *Osmose*. Whilst *Osmose* has been extensively analysed, specific reference to the de-automatized experience itself have been under explored. Deikman's writings, which Davies refers to, provide a starting point for considering such de-automatized experiences. These are important because they will enable a better understanding of the status of the virtual dimension.

According to Deikman, the mystic state "is one of intense affective, perceptual, and cognitive phenomena that appear to be extensions of familiar psychological processes" (Deikman 1972, 26). This mystic experience considers how thinking interferes with a perception that produces knowledge. In meditative contemplation there is an active effort to "exclude outer and inner stimuli, to devalue and banish them" (Deikman 1972, 30). The psychological schema of perceptual stimuli is de-automatized in Deikman by *reversing* the functional automaticity inherent in sensori-motor perception. "The integration of the somatic systems involved in the action," is thus undermined so as to challenge "the integration of the individual mental acts involved" (Deikman 1972, 30). Whilst automation implies that by automating the sensorimotor behaviour the perceptual affect "disappears from consciousness", what happens when there is an intentional attempt to reverse the automated process? The "de-automization of a structure may result in a shift to a structure lower in hierarchy, rather than a complete cessation of the particular function involved" (Deikman 1972, 30). Aligning it to psycho-analytic propositions of "differentiation", the de-automatization thus reveals other ways to actively experience the world. As Deikman explains this is done by intensifying the percept itself, and simultaneously prohibiting the abstract categorization associated with the automated process. In this sense cognition is arrested, and disrupted, allowing perception to become de-automatized. This ensues in "a perceptual and cognitive organization characterized as 'primitive', that is, an organization preceding the analytic, abstract, intellectual mode typical of present-day adult thought" (Deikman 1972, 33). The

"primitive" de-autonomized imagery can thus be defined as being: "(a) relatively more vivid and sensuous, (b) syncretic, (c) physiognomic and animated, (d) de-differentiated with respect to the distinctions between self and object and between objects, and (e) characterized by a de-differentiation and fusion of sense modalities (Deikman 1972, 34).

In this respect, for Deikman any clear distinctions between self and object, and perceptual and cognitive faculties become disrupted.

This de-automatized experience where the object of one's perception and the perceptual stimulus are intertwined can be observed in *Osmose*. As such this

work offers a critique to the more straightforward role of the body in VR as expressed for example by Richard Coyne's statement where he claims that: "VR is a literal enactment of Cartesian ontology, cocooning a person as an isolated subject within a field of sensations and claiming that everything is there, presented to the subject" (Hansen 2001). Contrary to the literal enactment of a Cartesian space that is highly reliant on the visual sense, in *Osmose* there is a very intricate intertwining of the multi-sensory and proprioceptive body in relation to its immediate environment. As Hansen writes: "you have let the experience of spatial navigation penetrate into your body via the immediately felt physiological modifications produced by the inhalation and exhalation that triggered your vertical movement (and the bodily leaning that triggered your horizontal movement)" (Hansen 2001). By adopting Hansen's premise that within *Osmose* the body/space distinctions are problematised, this problematization can be considered through the process of de-automatization. According to Hansen, "the body schema is cosubstantial with the activity of the body and is dynamically constitutive of the spatiality of the world" (Hansen 2001). However, this phenomenal account does not address the following question: how does a de-automatized experience configure a dissonant relationship between the self and the self-image? In order to expand this point, Char Davies' embodied visuality is instructive.

THE UNGEARING FROM A SELF-IMAGE

Davies' myopic vision partly informed the approach towards *Osmose*. As Davies writes:

In this unmediated, unfocused mode of perception, 'I discovered an alternative (non-Cartesian) spatiality whereby objects had disappeared; where all semblance of solidity, surface, edges and disjunctions between things – i.e., the usual perceptual cues by which we visually objectify the world had dissolved. These were replaced by a sense of enveloping space in which there were no sharply defined objects in empty space, but rather an ambiguous intermingling of varying luminosities and hues, a totally enveloping and sensuous spatiality' (Hansen 2001).

A vision that disintegrates the visual field aligns it more closely with a tactile or sensuous spatiality, bringing the visual sense in closer proximity with the other senses. Such a proprioceptive relationship between vision and the other senses is extended in *Osmose* and needs to be more closely scrutinized. In order to explore this sensory experience, it is useful to turn to a clinical research case study by experimental psychologist George M. Stratton. Stratton experimented with inverting upright vision at the University of California in 1895/96 (Schuler 2015, 152). The experiment performed by Stratton used prism goggles to invert one's perception of their visual field. In other words, the actual visual image of the world in this experiment was rotated by 180 degrees. As Jonathan Hale

writes, “[t]his is technically a ‘correction’ of what happens in normal vision, in the sense that the image on the back of the retina is normally already inverted” (Hale 2017, 40). Through such an experience, the cognitive understanding of the body is confused, as what is usually organized according to an “upright” vision is reversed. Hence the tactile sense, will confuse right with left. For example, if one tries to shake someone’s hand whilst wearing the goggles, they will “perceive” the image of the hand as being on the opposite side of their visual field. With extended use, the brain and bodily motility will eventually adjust to this reversed image. The brain would thus “normalize the image by re-inverting back to normal” (Hale 2017, 40). But this correction or “normalization” of vision only worked “...for more distant views. But not so well when he looked at his own body...” (Hale 2017, 40).

In *Phenomenology of Perception* (1945), Maurice Merleau-Ponty refers extensively to Stratton’s inverse goggle experiment. What this experiment reveals for Merleau-Ponty are the proprioceptive and motility operations of the phenomenal body. Merleau-Ponty explains how this experiment reveals two “irreconcilable representations of the body” (Merleau-Ponty 2009 [1945], 286). This irreconcilability occurs between the inverted visual perception field and the motor-sensory tactile sensation. Following this inversion, the motor-sensory tactile sensation needs to respond to the change in the visual perceptual field. This produces a dissonance between the actual body’s sensori-motricity and the perception of the visual field. The dissonance between actual bodily motricity induces a de-automatized experience of the very mode in which the virtual becomes actualised – *i.e.*, where I sense I am positioned in the world through proprioception, and how I view the world is not aligned.

Despite the disorganization of the body from its environment, according to Merleau-Ponty the experiment shows how the body is geared towards its spatial re-anchoring onto the world. As Merleau-Ponty writes,

...we need an absolute within the sphere of the relative, a space which does not skate over appearances, which indeed takes root in them and is dependent upon them, yet which is nevertheless not given along with them in any realist way (Merleau-Ponty 2009 [1945], 289).

According to Merleau-Ponty, this shows how “everything throws us back to the organic relations between subject and space, to that gearing of the subject onto his world, which is the origin of space” (Merleau-Ponty 2009 [1945], 293). In Hale’s description of the phenomenal body in Merleau-Ponty, he writes “the way in which we construct our broader sense of three-dimensional space is the intermodal connection between vision and proprioception that develops as we learn to move our whole body around in the world” (Hale 2017, 40). The proprioceptive dimension between the senses in relation to movement inform the gearing towards space. As Merleau-Ponty writes: “it would appear then that it is the experience of movement guided by sight which teaches the subject to harmonize the visual and tactile data” (Merleau-Ponty 2009 [1945], 286). For

Merleau-Ponty these experiments reveal the gearing that re-aligns the actual body's sensori-motricity with its virtual field. In other words, for Merleau-Ponty there is always an anchoring of the subject in space. Hence Merleau-Ponty writes: "[t]his maximum sharpness of perception and action points clearly to a perceptual *ground*, basis of my life, a general setting in which my body can co-exist with the world" (Merleau-Ponty 2009 [1945], 292). And, according to Merleau-Ponty, this applies to Stratton's experiment as the subject becomes geared towards an actual perceptual field (the upright view of the world) during the course of the experiment, *i.e.*, the tactile body becomes re-wielded to the visual perception of the world.

In another interpretation of the phenomenal body Drew Leder claims that "the body is not a point but an organized field in which certain organs and abilities come to prominence while others recede" (Leder 1990, 24). Here again it becomes important to reconsider how the technical object's relation to the body increasingly affects the bodily schema. Leder, echoing Merleau-Ponty, calls attention to "the self-effacement of bodily organs when they form the focal origin of a perceptual or actional field, an example of this is the invisibility of the eye within the visual field it generates" (Leder 1990, 26). Leder's remark reveals how when an organ, such as the eye, is a focal origin of a perceptual field, its proprioceptive relation to other senses is automatized. In the case of Stratton's experiment, the inability of the eye to be a clear focal origin, due to the reversal of the perceived image, meant that it entered a state of de-automatization whereby its relationality to the tactile sense must then become re-anchored in the world.

Here however it becomes possible to consider this experiment not as a "gearing of the subject onto his world" but as the ungearing of the participant from oneself. In Stratton's experience of the device, he claims: "I had the feeling that I was mentally outside my own body" (Gregory 1997, 205). As such, the object may be considered in a different manner; the technical object, the prism goggles, actively affect the self by producing a dissonance between the sensing body and its virtual field. This experiment was made possible after developments with light refraction through a glass prism, starting from Sir Isaac Newton's prism experiments in *Opticks*. As art historian Jonathan Crary states when referring to these experiments: "Newton is less the observer than he is the organizer, the stager of an apparatus from whose actual functioning he is physically distinct" (Crary 1991, 40). The "observer is disjunct from the pure operation of the device and is there as a disembodied witness to a mechanical and transcendental representation of the objectivity of the world" (Crary 1991, 41). The technical object and its connection to the organic body informed novel ways of seeing the world. The experiment presupposes a hybrid relation between technical prism and organic eyes. The complexity of the organic eyes which is usually overlooked in relation to the unity of its function is called into focus through this experiment (Themistokleous 2021, 144). Hence, in Stratton's experiment relations between the virtual field and the sensing body cannot be easily distinguished from one another. In this case the visual device becomes an active agent that affects the behaviour of the participant. The technical object and its wiring with the body

produces a de-automatized experience. By focusing on this relation, between a technical object like the prism and its attachment with the sensing body, we can better understand the de-automatized experience in *Osmose*.

The ensuing de-automatized relation between human and the technical apparatus developed at this point need to be further considered because the technical object evolves and re-organizes itself beyond the will of the human. The de-automatized experience, as we shall see, also changes in relation to its broader technical and cultural milieux. And so, how do we chart a de-automatized experience within our current technical age? According to Bernard Stiegler "the technical object is no longer merely inert, but neither is it living matter... [it] transforms itself in time as living matter transforms itself in its interaction with the milieu" (Stiegler 1998, 49). Stiegler's non-anthropocentric position stresses that the technical object increasingly evolves in and of itself, *i.e.* beyond human intentionality or mastery. Yet, as Stiegler suggests, the human while no longer being the "intentional actor" is now the "*operator*" of the technical object, and of the broader technical system (Stiegler 1998, 66). Stiegler reveals the misunderstanding of the technical object and the "possible alienation of humanity (or of culture) by technics" (Stiegler 1998, 66). He observes that "[t]o know the essence of the machine, and thereby understanding the sense of technics in general, is also to know the place of the human in technical ensembles" (Stiegler 1998, 66). In *Technics and Time 1*, Bernard Stiegler explains how through automation certain possibilities are actualized within a variable system, therefore automation is made possible by eliminating many other possibilities. A better understanding of the technical object provides a grasp of the indeterminate virtual possibilities that the technical object could offer.

De-automatization developed in relation to the subject by Deikman can be superimposed with Stiegler's critique of automation. In the reading of *Osmose*, we can assume that there is a double act of de-automatization going on, *i.e.*, from the technical field of software-hardware, that to a certain degree evolve in and of themselves, to the intertwining of the sensory body of the participant experiencing the device. The nonhuman assemblage of software-hardware processes create a field of technical objects that in turn de-automatize the body of the viewer. The multiple entanglements between human and nonhuman agents further the de-automatized process. This induces a particular understanding of virtuality. In order to expand what is meant by virtuality, we need to turn to Gilles Deleuze's reading of Henri Bergson's notion of the virtual in *Bergsonism* (1966).

According to Deleuze, the virtual is not distinct from the real, but from the actual. He writes:

We know that the virtual as virtual has a reality; this reality extended to the whole universe, consists in all the coexisting degrees of expansion (détente) and contraction. A gigantic memory a universal cone in which everything coexists with itself, except for the differences of level (Deleuze 1991 [1966], 100).

Deleuze explains how “lines of actualization correspond to the levels or the virtual degrees of expansion (*détente*) or contraction” (Deleuze 1991 [1966], 101). However, “what coexisted in the virtual ceases to coexist in the actual and is distributed in lines or parts that cannot be summed up” (Deleuze 1991 [1966], 101). Through the technical intertwinement, the body in *Osmose* experiences the intervals between a mode of actualization that isn’t as straightforward compared to habitual experience. Through this process of actualization one experiences the mnemonic intervals between virtual and the transition to actualization. Such a VR experience of the intersection between technical object and sensing body in *Osmose* is the ontological basis of de-automatization.

VR ENVIRONMENTS TODAY

According to Tom Gunning “the enthusiasm of the early avant-garde for film was at least partly an enthusiasm for a mass culture that was emerging at the beginning of the century, offering a new sort of stimulus for an audience not acculturated to the traditional arts” (Gunning 1990, 58). Today, we are witnessing an emergence of a new sort of mass stimulus through the plethora of VR environments that are being applied within different (often overlapping) commercial, scientific and artistic contexts. It is argued that in most cases the VR experience still remains limited to Hansen’s critique of VR environments. This point can be observed in Anish Kapoor’s *Into Yourself, Fall* (2018). Presented by the Taiwanese company HTC at Art Basel, Hong Kong, *Into Yourself, Fall*, offers a “journey through the human body, promising a ‘disorienting sensation of radical introspection’ as the viewer negotiates vertiginous twists in a world that is both abstract and uncomfortably familiar” (Aspden 2018). Kapoor focuses solely on the VR image to produce exaggerated visual effects of forests, viscera of a human body and deep space (Aspden, 2018). In this case, one can follow what Hansen explained as “the deployment of virtual environments being ‘piecemeal and premised on an unthematized... and wholly implausible hope that vision can by *itself* reconstitute the richness of human perceptual function” (Hansen, 2001). But as Hansen and others have noted Davies’ *Osmose* moves beyond these limitations in VR environments. In the article ‘Body Editing: Dance Biofeedback Experiments in Apperception’ the authors observe that:

Davies’ work is thus deeply informed by the theoretical problematics of rendering virtual and digital space into a Cartesian grid that is often anything but immersive. Davies finds that the realist, visual aesthetic common to Virtual Reality and computer graphics recreates a false (Cartesian) dichotomy of subject/object (Paula Gardner et. al 2016, 52).

Whilst today with more advanced computational power, the commercialization of VR media is thriving, it becomes crucial to speculate as to how the experience within VR media can continue to offer possibilities of de-automatization. The

project *We Live in an Ocean of Air* created by Marshmallow Laser Feast, comprised of the London-based Barney Steel, Ersin Han Ersin and Robin McNicholas, is a project that utilizes VR environments in a way that, to a certain extent, de-automatizes the participant's experience. The installation opened at the Saatchi Gallery in London (2018). In the article 'Nature Meets Technology in this Mind-Blowing Virtual Reality Experience', Nicholas Yong writes:

through the power of virtual reality (VR), the experience transports you not only to the base of a giant sequoia (these massive redwoods make up some of the world's largest and tallest trees and can reach a height of 115m - almost twice the height of the ArtScience Museum), but also into the tree and into a virtual realm beyond imagination, description and understanding (Yong 2022).

In addition to the VR simulated image, the experience integrates binaural sound, scent dispersal systems, wind machines, motion trackers, heart-rate monitors and a breathing sensor. Participants had to wear a backpack with a battery in it, a clunky piece of hardware to make this multi-sensory experience work. Yong states that "as you explore the space (virtual grid walls serve as your boundaries), the outside world and even the floor and ceiling disappear completely" (Yong, 2022). In the VR experience breathing is relayed into the image, when one takes their first breath "the cycle of air is ignited" and a "sudden flow of particles invade the area, participants realise their hands are visually pulsing with red oxygenated blood" (Segreto, 2019). The participant's breathe and body-image become represented in the VR digitized space. As material surfaces become converted into re-presented information the distinctions between the simulated "natural" world and bodily experience become blurred. This experience is comparable to the reading of *Osmose* that has been traced thus far.

In *Osmose* the participant's breathing contributes to the multiple entanglements of internal and external bodily stimuli that produce a dissonance between one's actual tactile body and their visual field. Such a dissonance emphasizes how the participant is experiencing a mode of actualization. Similarly, the multi-sensory experience implicated in *We Live in an Ocean of Air* moves beyond the usual excessive reliance on the visual image in VR applications, such as the one in Kapoor's *Into Yourself, Fall*, by enhancing the multiple entanglements between one's sensation, the intricate technical apparatus and the incommensurable relation to the virtual image of oneself.

In the article "Why Virtual Reality is a Medium still in need of 'Cradling'", Ben Luke makes this point by emphasizing that VR experiences focus mostly on the software rather than the hardware (Luke, 2022). *We Live in an Ocean of Air* provides an exception in this respect, but also shows how the hardware is less a site for experimentation in VR experience. And Luke explains how, "corporate gatekeeping of the technologies may limit the potential for artistic interventions" (Yong, 2022). However, there are cases, as the author shows, where artists re-appropriate and subvert existing technologies. Case in point

being the Kinect add-on motion-sensor for Microsoft's X-box, that, as Luke writes, "digital artists were hacking" (Yong, 2022). Looking back at Davies' *Osmose*, the intricate intertwining of the software, hardware with the physical body, are what produced de-automatized affective experiences. The corporations driving the practices and institutions involved in the making of certain VR applications are – to a certain extent – "black boxed". Joanna Zylińska elaborates on the software driven "black boxes" (Zylińska 2017, 66) that are part of VR headsets, showing how the software used in such VR products is owned by tech-corporate giants, and hence is copyright protected. That is not to say that there are not slippages between profit-oriented, and more experimental applications of media, but in general the control of software applications developed by corporations, such as Microsoft, assumes that VR experience will, to a certain degree, assume a mode of automated control of bodily experience. A step towards achieving such de-automatized experiences is also to overcome the corporate gatekeeping that is part of the development of VR technologies.

CONCLUSION

The de-automatized experience that informs Char Davies' *Osmose* art installation was explored by looking at how Arthur Deikman's develops the notion of de-automatization in his own writings. This then led to a reading of what constitutes the de-automatized experience in the *Osmose* project. By referring to Maurice Merleau-Ponty's reading of George M. Stratton's inverse goggle experiment, the notion of de-automatization becomes re-articulated, and re-framed. The ungearing of the subject from itself allows a re-conception of the de-automatized experience that involves the dissonance between actual and virtual. Finally, the *We Live in an Ocean of Air* by Marshmallow Laser Feast has been analysed as an example of a contemporary VR environment that marks the possibilities of current VR spatial environments.

The indeterminate virtual possibilities unravelled in *Osmose* due to the nuanced and indeterminate overlapping between organic and inorganic bodies inform the de-automatized experience. Paradoxically, the drive for increasingly automatized technologies restricts the virtual possibilities of VR. Following Stiegler, we can infer that through the act of automation certain possibilities are actualized within a variable system, therefore automation is made possible by eliminating many other possibilities. Kapoor's *Into Yourself, Fall* (2018), is an example of a more straightforward automated VR experience.

Returning to Deikman account of de-automatization, the author writes:

...under special conditions of dysfunction...the pragmatic system of automatic selection are set aside or break down, in favor of alternate modes of consciousness whose stimulus processing may be less efficient from a biological point of view but whose very inefficiency may permit the experience of aspects of the real world formerly excluded or ignored (Deikman 1972, 45).

If the de-automatized experience leads to experiences of the real world that are often excluded, how can VR simulate such experiences using today's technical systems? This article wants to highlight a de-automatized experience that unlike Deikman's account is driven by the technical apparatus and its entanglement with the human body. Following Stiegler's articulation of automation and Deleuze's notion of virtuality, a double act of de-automatization happens on the side of inorganic matter on the one hand, and its intertwinement with the organic body on the other. Hence, actualization and its relation to the virtual becomes more nuanced for the participant in such readings of VR.

In both *We Live in an Ocean of Air* and *Osmose*, the process of de-automatization can be further understood by looking at Deleuze's interpretation of the virtual. In Deleuze's reading of Bergson, he writes: "the way in which we understand what is said to us is identical to the way in which we find a recollection" (Deleuze 1988 [1966], 57). This for Deleuze, is a "leap into being, into being-in-itself, into the being in itself of the past" (Deleuze 1988 [1966], 57). This assumes that we place ourselves in the past through a "kind of transcendence of sense" because we cannot actually "recompose the past with presents" (Deleuze 1988 [1966], 57). According to Deleuze [and Bergson] the past coexists with the present. Now if "we place ourselves in a particular region" of the past that "corresponds to our actual needs" (Deleuze 1988 [1966], 62), the experience within these installations challenges this mode of habitual recollection. "The recollection-becoming-image enters into a 'coalescence' with the present", it therefore "passes through 'planes of consciousness' that put it into effect" (Deleuze 1988 [1966], 65). But this very mode of "becoming image" does not apply in the two VR installations that have been explored thus far. The very aspect of the de-automatized moment as developed here through these installations can be considered in the following passage:

We begin from this undivided representation (that Bergson will call the 'dynamic scheme'), where all the recollections in the process of actualization are in a relationship of reciprocal penetration; and we develop it in distinct images that are external to one another, that correspond to a particular recollection (Deleuze 1988 [1966], 66).

The move towards becoming a distinct image in this case is not clear, instead there is a move towards extending one's awareness of the processes of actualization. This is because the technical objects in *We Live in an Ocean of Air* and *Osmose* are entangled with the body in a way whereby the proprioceptive relationship between senses is de-automatized. Consequently the images are not made distinct, they become indistinct... as one bursts into the -virtual- image.

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