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# Becoming-Leech

## Animal–human–technological hybrid exchanges

JENNIFER PARKER-STARBUCK

<sup>1</sup> This and other works are well-documented on the artist's website: <https://bit.ly/345FoyF>. For an additional discussion of his work see an interview I conducted with Doo-Sung Yoo in *Antennae* (Yoo and Parker-Starbuck 2017). Yoo has been working with Professor Jennifer Willet of the University of Windsor towards an Exhibition and Conference, *Life Studies: Living media in the arts and sciences*, at Onsite Gallery of the Ontario College of Art and Design University (OCAD University) in Toronto, currently postponed due to COVID-19.

*Along one wall an elaborate banquet has been prepared for leeches: piles of raw meat are artfully draped over thickly cut log pieces, bright flowers are interspersed around and between the glistening pieces of flesh; all sit atop a long table covered in a white tablecloth. The room is filled with several large screens, and bowls containing living leeches are perched on pedestals in the space. The 'Chef' cuts the meat into small pieces while servers offer it to guests to feed to the leeches. In the centre, human participants engage with the installation-performance in virtual reality (VR), donning a headset and entering into a fantastical story in which they 'become-leech' alongside virtual leeches, flying through a rubbish island and into an industrial wasteland, working together to find their way back to a utopic 'green island'.*

In the complex hybrid performance–art–VR–installation–work created by artist Doo-Sung Yoo called *Becoming Leeches: Episode 1 – Having Dinner*, humans interact with live and animated leeches to forge a necessary alliance to arrive at a better world. The piece is the latest of Yoo's works, which are increasingly focused on interspecies relationships between humans, nonhumans and machines, and are made up of different individual elements that together form a hybrid performance entity.<sup>1</sup> I draw attention to *Becoming Leeches* for this issue of *Performance Research* because, although Yoo titled an earlier series of works 'organ-machine hybrids', this (evolving) piece develops the notions of 'hybridity' in its animal–machine–human triangulation towards an emerging network of inter-species



■ *Becoming Leeches: Episode 1 – Having dinner.*  
Courtesy of Doo-Sung Yoo

understanding. In this work, the interactions between humans, live and animated leeches and VR technologies shift the human creator into an active, embodied role within a network of hybrid 'becoming' that simulates a shared experience.

Although the concept of 'hybridity' is applied commonly to anything that is a mixture of elements, the biological understanding of hybrid defines it as the offspring of two different species of animals or plants, an understanding that extended to humans. If this definition of a hybrid species is largely fixed around an end product (for example, a mule, the offspring of a female horse and a male donkey), as an idea, hybridization resonates as the process of mixing – resulting in porous and evocative understandings of the term. Much of my research has focused on such mixings, from my notion of 'cyborg theatre', a theory of performance in which humans and technologies take on new formulations as a result of their intersecting ontologies (Parker-Starbuck 2011), to hybridization as a way to provoke a different 'way of seeing' interspecies relationships that 'attune the "human" to the other lives in its periphery' (Parker-Starbuck 2013a: 232). Hybridization can lead to new entities or ways of thinking; it can result in networks of collective interspecies imaginings. In this essay it is this networked relationship that offers the potential for hybridization's future development as a concept for reimagining human relationships with nonhumans.

As I write this, the world has come to a standstill with the introduction of COVID-19, a rapidly spreading, zoonotic virus that is overloading global health services. This is then perhaps an appropriate time to re-engage with notions of hybridity, with viral crossings, inter-mixings. Within the world of performance there are many such mixings – cultural, disciplinary, intermedial. Performance examines and reflects its time, and it is time to examine human intersections with the nonhuman. As I have written previously, 'To see ourselves as hybrids – of understanding, crossed in networks of culture, as interdisciplinary, of species – is one starting point for examining affiliations with others' (Parker-Starbuck 2013a: 231). I have tried to identify what is now well-rehearsed in animal studies and new materialism scholarship – the

need to shift human-centric politics towards a greater inclusion of nonhuman others, and I argue that a hybridized way of seeing or thinking might attune humans to the lives surrounding them in a less hierarchical way (232). My project has often been to identify works in which we might 'imagine a landscape in which humans and nonhuman animals might co-exist more ethically and politically' (242). This is a landscape that, in the past decade, has since seen shifts both positive (a growing turn to veganism and plant-based eating) and negative (COVID-19 and other zoonotic diseases) towards a more reflective co-existence.<sup>2</sup> By imagining our human selves as becoming hybrid with other 'species' we might be able to end abuses, reverse climate disaster and reimagine interspecies relationships. This is aspirational but also necessary thinking. Theatre and performance provide a site for these imaginings, which model hybrid experiences, and rehearse possibilities for transformational change.

'Hybrid' is then both technical and general, metaphoric and imaginative, and has also become a broadly useful term to describe larger transformations based on variation – the condition of a globally connected world, for example. As Andy Lavender has argued, 'Hybridization provides an increasingly pervasive mode for cultural engagement' (2016: 60). Lavender outlines applications of what he calls 'hybrid mediality', building on Erika Fischer-Lichte's preferred term 'interweaving' because, as she argues, in theatre at least, the 'species' are not so different. (59). In his useful overview of the term (see Lavender 2016: 59–65), he identifies a diverse range of work, concluding via the thinking of Vittoria Borsò that 'there is no other condition of culture but a "crossing" condition' (65). In these variations of usage the idea of the hybrid remains both metaphoric and imaginative, but also for me reflects a need to consider the growth of new figurations out of the old. How can hybrid forms, or hybridization as a mode of performance-making, push human participants to actively consider the role of nonhumans in all we do? If the idea of the hybrid has moved beyond the fixed outcome of two different species and towards a connectivity that shapes us into new entities, then how might these 'becomings' or movements towards be forces for creative and lasting transformation?

<sup>2</sup> Zoonotic diseases are diseases passed from animals to humans, for example, 'Bird Flu' (avian influenza), Ebola and Middle East Respiratory Syndrome (MERS). For a detailed list see: <https://bit.ly/2He1y8J>

The idea of rhizomatic 'becoming' offers a model for such transformations, as both Deleuze and Guattari so evocatively propose. In their influential *A Thousand Plateaus*, they strive to shift a fixed or linear growth structure to a rhizomatic mode of thinking that 'connects any point to any other point' (1987: 21). But, for these scholars, the rhizome is also always in the middle, a 'plateau', unfixed and 'becoming' through the connected affinities. 'Under certain conditions', they write,

a virus can connect to germ cells and transmit itself as the cellular gene of a complex species; moreover, it can take flight, move into the cells of an entirely different species, but not without bringing with it 'genetic information' from the first host. (10)

Deleuze and Guattari are interested here in a specific virus that is connected to both a baboon and a cat through which these animals essentially 'become' each other through this rhizomatic jumping, and they conclude, 'We form a rhizome with our viruses, or rather, our viruses cause us to form a rhizome with other animals' (10). Their example, timely as it is, reminds us of the actuality of hybrid crossings, while evoking a more contemporary sense of 'going viral' that weaves in the technological as well.<sup>3</sup> Through these rhizomatic 'jumpings across', elements are shared: none of the elements exist completely without the others. Rather than focusing on the detrimental side of these becomings – infection, species extinction, decimation of habitat and so forth – I want to place emphasis on the notion of 'becoming' as a way to signal the transformations possible when different elements (human, animal, machine) take on hybrid subjectivities: greater understanding, ethical treatment, community. Doo-Sung Yoo's *Becoming Leeches* stages a rhizomatic sense of becoming through which deeper interspecies relationships might be considered. Yoo's work complicates understandings of art installation, performance, VR and gaming, as well as human, nonhuman, live and animated subjects. It presents a hybrid experience/experiment in which humans can better recognize their positionality alongside nonhuman elements. His use of VR technology creates inter-'faces' between living leeches and animated/virtual leech-humans and living humans in the live performance space that offer

a 'networking' site for all (in which they 'become' hybridized) through a VR game. This piece fosters a gesture of hospitality (Yoo calls it a 'catering service for animals': 2020a) providing a circulation between humans, leeches and machines that facilitates a hybridized exchange and new networked entity between the three agents.

The notion of hospitality is not only a recognition of human use and abuse of nonhuman animals, but a growing concern among artists working with nonhumans, especially those perhaps considered pests, undesirable or largely hidden from human sight.<sup>4</sup> In her writing about her piece *in vitro*, in which the artist sat with and looked after eight different organisms in an art gallery for seventy days, Tarsh Bates describes her work with nonhuman organisms as one of care, writing that 'I was especially interested in whether it was possible to care for and about radically different creatures, creatures whose feelings or responses I am unable to understand' (2014: 217). While care, or hospitality, as Yoo frames it, may seem instinctive when thinking of larger (or fluffier) animals, for Bates and Yoo, care began at a more fundamental level. Working with creatures outside of what I might call our animal 'comfort zone' (pet companions, mammals in general, zoo animals) poses questions of how we might better acknowledge these often invisible relationships. By exploring a human–leech relationship through a VR experience Yoo also highlights the role of a growing hybridized technological 'becoming' for humans and nonhumans alike. *Becoming-Leech* suggests a world in which humans might 'become-hybrid' as a way of thinking, being, seeing and questioning human hegemony in a world comprised of more than just humans. Through this work then, I interrogate notions of hybridity that go beyond human, nonhuman animal and technological 'species' to ultimately propose a new networked entity that is reliant upon all three elements and prompts a recognition of relational functionality (Parker-Starbuck 2013b: 279–80). I continue to understand these ideas as metaphoric and aspirational hybrid formations – it is in their lack of fixity that transformations might begin to 'unfix' the centrality of the 'human' in a mixed world.

<sup>3</sup> For more on the 'Viral' and its relationship to theatre and performance see Felton-Dansky's brilliant *Viral Performance* (2018).

<sup>4</sup> For examples of such work see Orlan's *Harlequin Coat*, or Tarsh Bates's *in vitro*.



Becoming leeches, and the collaboration of humans and leeches in the game, engages people to understand the notion of 'interspecies', share mutually beneficial relationships, and help them open up a possibility for positive change beyond our bias toward leeches (representing nonhuman animals). This collaborative relationship between humans and leeches conceptually creates a resemblance of utopia within the VR and the artistic space. (Yoo 2020b)

*In Becoming Leeches: Episode1 – Having Dinner* Yoo continues his ongoing artistic exploration of human, nonhuman animal and machine/ technological artworks that have included both beautiful and at times unnerving or disturbing figurations. His earlier works have involved such hybrid figures as pig-bladders inflated as clouds, a robotic pig-heart jellyfish and a mechanically driven, moving cow tongue, and while Yoo is always working towards a deeper level of interspecies consideration, the use of nonhuman animal parts can pose a shock, and raise questions about the very possibilities for interspecies relationships. Yet, his works also complicate and question technologization processes between humans and animals such as xenotransplantation, interspecies research and genetic modification. Yoo's works sit alongside what Bruno Latour has framed as new 'collectives'. In *We Have Never Been Modern*, for example, when deciding what to retain and what to discard from the pre-moderns, moderns and post-moderns, Latour proposes a 'nonmodern Constitution' and a 'Parliament of things' that takes into consideration the inclusion of nonhumans – for Latour these are not just nonhuman animals but what he calls 'networks' and 'quasi-objects', so that 'the continuity of the collective is reconfigured' (1993: 144). 'There are times', Latour writes, 'when new worlds are needed to convene a new assembly' (145). In these new worlds, nonhumans need to be represented. It may be that the technological revolution has opened a new world in which nonhuman animals have no representation; where once humans and animals lived in proximity to each other, industrial farming, for example, has removed many animals from sight. If the 'network' has served to remove nonhuman

animals, then it may be up to networks of collective interspecies imaginings to re-place them. Performance, art, fiction may be a place to instigate this transformation.

Act Three of Caryl Churchill's *Far Away*, for example, provides a radically reconfigured, if dystopic, collective that positions humans and nonhumans alike in an ongoing war. 'The cats have come in on the side of the French' (Churchill 2000: 35). In this act, characters Todd and Joan meet at Joan's Aunt Harper's house amidst an ongoing war, in which its many factions have full agency. Here dentists, weather, Bolivians and osprey all have sides, and the text does not discriminate between humans and nonhumans:

TODD But we're not exactly on the other side from the French. It's not as if they're the Moroccans and the ants.

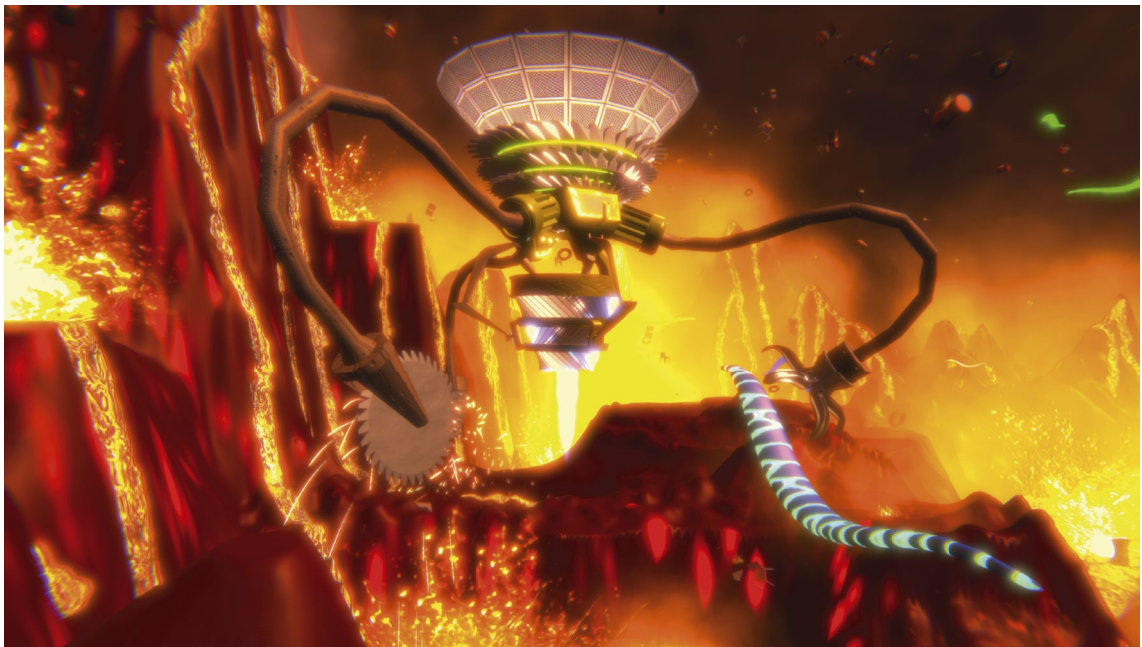
HARPER It's not as if they're the Canadians, the Venezuelans and the mosquitos.

TODD It's not as if they're the engineers, the chefs, the children under five, the musicians. (Churchill 2000: 36)

Churchill stages conflict across all elements, and offers an example of nonhuman agency. The world of the play is futuristic, dystopic; humans make elaborate hats for prisoners marching towards their execution, hats that seem to have more life than the bodies beneath them. The cast of characters at war sounds odd to human ears. Yet this imagined hybridized collective, in 2000, stood in for the past and future human-made conflicts across elements in the form of hurricanes, viruses, oil spills, nuclear disasters and many more.

While Latour most likely did not consider cats in battle, a cow tongue or an organ-machine hybrid as part of his 'collective', Yoo, by reframing these parts as strange and estranged art processes, exposes human uses of nonhumans while also endowing them with what Jane Bennett might call a kind of 'vitality' needed to enter into this 'collective' (2010: viii). These works trouble overly easy associations with nonhuman animals by introducing representative 'quasi-agent' parts (or organisms, insects, leeches). Before moving on to the leeches of Yoo's latest project – living nonhuman animals who participate (if unwittingly) in the performance – it is worth unpacking this notion of 'vitality' a bit more.

■ *Becoming Leeches:*  
Episode 1 – Having dinner.  
Courtesy of Doo-Sung Yoo



Bennett asks:

How would political responses to public problems change were we to take seriously the vitality of (nonhuman) bodies? By ‘vitality’ I mean the capacity of things – edibles, commodities, storms, metals – not only to impede or block the will and designs of humans but also to act as quasi agents or forces with trajectories, propensities, or tendencies of their own. (Bennett 2010: viii)

By endowing a nonhuman element with the ability to act as a ‘quasi-agent’ – and it is important to remember that this is not a full agential reality, nor could it be – Yoo reminds us of its presence. Within this moniker of ‘quasi-agent’ lies the potential to be agential – in a human-driven scenario this might mean with enough agency to garner a visceral response, or to provoke discussion. Like Bennett, Latour (who uses the term ‘actant’) and others, I struggle with the agential promises within my writing. I want to be clear to acknowledge that while ‘becomings-’, ‘actants’, and ‘human–nonhuman collectives’ are aspirational and necessary, they remain firmly within the human realm. Although we are increasingly, virally connected to nonhumans (as is the case with the outbreak of the ‘Coronavirus’ in 2020), we refuse to understand this ‘contagion’ as human-driven or caused. Bennett attempts to get at this ongoing problem of agency through the notion of ‘distributed agency’ in which

she, following Latour, Deleuze and Guattari, and others offers up an ‘agentic assemblage’ (Bennett 2010: 21). For Bennett, assemblages are ‘ad hoc groupings of diverse elements, of vibrant materials of all sorts ... living, throbbing confederations that are able to function despite the persistent presence of energies that confound them from within’ (23–4). Yoo’s *Becoming Leeches* presents such a grouping, a hybrid network made up of different ‘vibrant’ elements, each with the potential to be taken on their own – live art performance, a VR experience, a VR gaming experience, an installation – when taken together, they become a hybrid entity, able to unsettle assumptions about any fixed component.

#### WORKING TOGETHER TO SAVE THE PLANET

The VR part in my leech project involves real-time interactions between the VR player and the audience feeding the leeches, and between the VR player and the live leeches from the live performance and installation. For these real-time interactions, there are video cameras in the installation (on the fish tanks) and on the VR headset (of the player). The cameras are operated by the computer vision system that cooperates with the Unity game engine software. For the real-time interaction between the VR player and the feeding audience, the 3D depth camera ZED (attached on the top of the Oculus headset), detects the body tracking/detection and distance of feeding

audiences in the computer vision system. For the real-time interaction between the VR player and the live leeches, live video cameras (on the top of the fish tanks) detect the body tracking of live leeches in the computer vision system. (Yoo 2020a)

This more technical description of the piece explains the set-up of the rhizomatic performance installation and its networked components as it is designed to be experienced – in a real-time performance installation. While it is possible to view only the VR component outside of the real time of installation (as I did) and still have a feeling of being within the story world, it is in the real-time experience that Yoo draws lines of connection between the live humans, leeches and their virtual counterparts.<sup>5</sup> As Yoo explained to me, the computer vision system transforms the audience-participants who are feeding the live leeches into virtual, rainbow-coloured leeches in the VR game so that the humans ‘become’ virtual leeches. At the same time, the system transforms the live leeches in the bowls into special golden-coloured leeches in VR, so that the live leeches also ‘become’ different virtual leeches in the game. The VR experience is designed so that human and live leech work together within the realm of the virtual. This happens on many levels. First, the human player’s point of view as the experience begins is as one of the flying virtual leeches in this virtual experience. For example, as I started to ‘play’ (keeping in mind that I did not experience the real-time possibilities of having rainbow or golden virtual leeches generated through the audience or live leeches in the room), I was flying/swimming through the air alongside an array of other colourful leeches. The effect was such that I found myself rising and falling with the movement, as a virtual leech. Experiencing it within the context of the installation, the live leeches would trigger the special golden leeches who swim beside you as companions in the journey through the ‘Incinerator Island’, a molten lava landscape where long machinic arms dig, drill, scoop and feed a giant incinerator toxic detritus. The acts of consumption, of feeding, from the live leeches to the incinerator within VR, addressed (for me) the sense of a relentless, gnawing need to consume that has overtaken the need to care for the consumed. Yet, in Yoo’s figuration of this hybrid performance, there is

also an attempt to provide care, a ‘gesture of hospitality’ for the living leech counterparts.

The live audience, feeding the leeches, provides both the nourishment the leeches need to live (hence the raw meat from the opening description), while also offering energy to the VR game player. Yoo (2020a) explains that ‘the virtual rainbow leeches as the avatars help the VR game player’s survivability, such as earning score points and power up, to win the game’. Yoo has designed a mutually dependent network within the live and virtual realms of the room to facilitate the storytelling within the VR ‘game’ while also providing for the leeches. The game frames, at its centre, an environmentally aware message in which different species must work together and care for one another to escape human’s anthropocentric damage on Earth. As Yoo describes it:

In the plot of the game, the VR game player is one leech in a flock of flying leeches while they are on a migrant path toward a green island (utopia) from the polluted earth to escape the impending nuclear storm. Unfortunately, the flock of leeches accidentally encounter the huge vortex of industrial waste in the air. From this accident, they are swept, falling and driven into the Incinerator-island, where the gigantic incinerator grinds and burns industrial and toxic wastes that are incessantly produced by the human impact as an environmental catastrophe and dystopia of living creatures. (Yoo 2020a)

It is up to the hybridized collaborative efforts of all ‘agents’ in the room to lead the player away from the island, and the player has to locate the

<sup>5</sup> Yoo sent me the virtual reality (VR) component and I experienced it in London, as I was unable to be at the full performance installation. Thanks to Doo-Sung and Rob Morgan at Royal Holloway’s StoryFutures for facilitating my experience.

■ *Becoming Leeches: Episode 1 – Having dinner.*  
Courtesy of Doo-Sung Yoo





rainbow leeches (who are triggered by those nourishing the live leeches) to be able to ascend off the island. For this to work, all elements must be nourished, cared for. Yoo includes a moment in the installation room in which he, as the Chef, places a live leech in the palm of the human participants alongside a flower and piece of meat to nourish the leech. For Yoo, this physical image/gesture provides an emotional connection of ‘caring for’ that he said he didn’t anticipate. Rather than being repulsed by the leeches, he found that this connection translated into a deeper sense of familiarity that produced an investment in supporting the survival and nourishment within the VR experience (Yoo 2020c). This form of hybrid network fosters a collaborative performance experience across the human and nonhuman players in the room. This co-location has the possibility of changing the experience so the player in VR is suddenly accountable to the others in the space. Ongoing research in embodied VR shows evidence of increased levels of empathy when playing the role of another, or feeling as if you are in the body of another (see Bertrand *et al.* 2018). A heightened sense of attunement with others in the VR experience, coupled with a sense of care for the nonhuman other in the room, may foster greater relational and collaborative responsibility.

Only seeing it on my own I wasn’t able to feel this sense of collective encounter, but was

nonetheless swept up in the experience ‘as’ one of the animated leeches. In an immersive format such as VR, the user is able to feel central to the (often 360-degree) world depicted in the glasses – in this case the journey through a toxic world as and alongside a band of leeches. An advantage of VR technology is that it creates the illusion that you are in the place depicted, whether a realistic film setting or an animated fictitious world. A sense of embodied cognition is activated in this kind of technological experience. In their essay ‘When does virtual embodiment change our minds?’ authors Jakki O. Bailey and Jeremy N. Bailenson (2016) examine how VR avatars’ physical movements can influence our perceptions of good or bad. This research is in conversation with others looking at sensory components in VR activations, and in it they suggest that ‘the next generation of media-technology may require the users to expand the meaning of a “body” and its uses (Bailey and Bailenson 2016: 230). What interests me for the purposes of this essay is research making the connection to the avatar within the experience, here, the leeches. In a more recent study, ‘The illusion of animal body ownership and its potential for virtual reality games’ (2019), authors Andrey Krekhov, Sebastian Cmentowski and Jens Krüger explore the connection between VR users and animal avatars, concluding that users can feel a sense of ‘ownership’ with their avatar body:

Due to the depth of immersion, VR setups often excel at creating a strong bond between users and their virtual representations, the so-called avatars. The bond can be strong enough that we start perceiving the avatar model as our own body – a phenomenon also known as the illusion of virtual body ownership (IVBO). (Krekhov *et al.* 2019: section I)

This ‘illusion of virtual body ownership’ (IVBO), however problematically named (for my purposes, when attempting to address collective networks), is a way of beginning to connect human and nonhumans through the technological interface so that the human user can begin to feel as if they can experience a nonhuman animal’s embodiment. This particular study focused on three animals – bats, spiders and tigers – and human participants reported that they ‘felt as if the body parts I looked upon were my body

■ *Becoming Leeches:*  
Episode 1 – Having dinner.  
Courtesy of Doo-Sung Yoo





parts' (Krekhov *et al.* 2019: section IV:D). The findings in this study are promising, as I pick up again below, because they may allow human users to enter into landscapes in which they can explore nonhuman morphologies as their own. As the VR body tracking advances, performance installations such as Yoo's *Becoming Leeches* might be sites for not only compassion and hospitality, but embodiment and experience as a nonhuman animal.

#### BECOMING LEECH: LIVING, FEEDING, SEEING

*Becoming Leeches* and Yoo's other organ-machine hybrids could be considered what Latour calls 'strange situations' that defy categorization (1993:2). *Becoming Leeches* blends components both similar (live art, installation, performance) and radically different (VR, live leeches, a banquet of food) towards a new figuration. Latour sees these 'strange situations' as hybrids, proliferating in crossings of nature and culture, exemplified by, for example, newspaper articles that 'sketch out imbroglios of science, politics, economy, law, religion, technology, fiction' (1993:2). What interests me here about Yoo's 'strange' hybrid network is the decision to use live leeches in this work. When considering how 'animality' can provide any kind of nonhuman agency within performance works, the human use or 'ownership' of animals enters the analysis, as does the question of whether humans ought to be engaging with nonhuman animals at all – living or dead – in performance. I would argue that these works, despite raising both troubling and provocative questions, make an impact specifically *about* these relationships. By using living leeches, already reliant on blood for sustenance, Yoo attempts to refocus thinking about leeches as disgusting back to an understanding of them as beneficial, as co-operators in this performance world. Leeches of course were initially used for bloodletting, but now, Yoo explains, in modern medical science and genetic engineering leeches are used to obtain the anticoagulant substance, hirudin, from their saliva (which is more powerful than heparin that comes from cow lungs and pig's intestines and livers). Used is an operative word here – this is still a scenario in which humans use nonhuman

animals for their advantage. Yet, within the game, human survivability is predicated on the live leeches feeding and Yoo acts as a Chef in the performance, creating a banquet, a 'gesture of hospitality' for these participating leeches. It shouldn't be necessary to forge such complex networks to facilitate a questioning of a human-centric position in the world, or a turn towards a form of hospitality, and yet, it is. The human species has created large imbalances in this rhizomatic network, and it is now up to this species to rebalance these connections.

In researching animality in performance, although I have focused less on individual living animals themselves, and more on questions of hybrid human-nonhuman animality, I am often asked to justify whether artists ought to be using animals at all in their work. What often gets occluded is this question of survivability, feeding and food. That Yoo is a vegetarian is irrelevant to the analysis. By addressing aspects of survival through collaboration and feeding, he realistically reminds us of larger issues of human-nonhuman interrelationships. That nourishment – feeding, food – leads to species survival returns me to the notion of the 'quasi agent' and Bennett's willingness to address 'edible matter' as 'actants into assemblages' (2010:42). Whether we agree on what we should eat or how it is procured, living beings rely on nourishment for survival. 'Food' then, writ large, is a vital force, as Bennett outlines:

Food, as a self-altering, dissipative materiality, is also a player. It enters into what we become. It is one of the many agencies operative in the moods, cognitive dispositions, and moral sensibilities that we bring to bear as we engage the questions of what to eat, how to get it, and when to stop. (Bennett 2010:51)

At the heart of *Becoming Leeches* is a story about nourishment. To 'become leech' audiences cannot shy away from their feeding patterns. Audience members feed the live leeches chunks of meat and they in turn 'power' the virtual leeches to assist the player to escape a toxic world. The performance project facilely moves from the real leech swimming and feeding in the bowls to the virtual leeches swimming in the VR worlds. Humans must find real and imaginative ways of addressing this interrelationship for both worlds to survive.



■ *Becoming Leeches:*  
Episode 1 – Having dinner.  
Courtesy of Doo-Sung Yoo

In the network of *Becoming Leeches*, audiences transfer their own agency, from supporting the living entities in the room by feeding the leeches, to becoming one of their fictional counterparts in VR. In this technological scenario, Yoo positions the live and virtual leeches alongside humans in a symbiotic actor relationship to help each other to survive in a post-apocalypse scenario. ‘The project’, Yoo writes,

pairs the live leeches’ sense of augmented vision with the machine and computer vision system ... the performer’s VR headset shows multiple sights and images from a leech’s perspectives, which are created by the data from the computer vision system, the wearable machine’s mechanical motions, and the human performers’ reactions. The VR illustrates an ideal fantasy, where the human avatars co-exist as equals with the nonhuman animals’ avatars as interdependent companions. (Yoo 2020a)

In *Becoming Leeches*, Yoo takes a hybridized viewing pattern into a VR landscape that heightens the user’s embodiment. When positioned within the VR landscape the user’s body becomes tricked into thinking it is moving in the VR world. As I ‘became leech’ in the VR I found myself swimming or flying beside a rainbow assortment of virtual leeches, having dizzying physical sensations as we flew through the atmosphere. In VR, motion plays havoc with the brain, and indeed after the initial sensation of seeing the leech appendages in front and behind me disappear (Yoo explains that this was to diminish nausea or vertigo), I continued to

roll slightly upward and downward, following my leech avatar’s motion pattern. In the study on virtual animal bodies, Krekhov *et al.* explain, ‘Apart from entertainment, we suggest that embodying animal avatars could help us to better understand the behavior of a certain creature, e.g., in an educational documentary, and also increase our involvement with environmental issues’ (2019: 5). Although I cannot say that I felt fully embodied as a leech body in this experience, like my experience of hybridized viewing, the sensation that I was moving like a leech, and swimming alongside them gave me a deeper sense of connection to these (arguably more delightful looking) virtual leech counterparts. Perhaps I am a willing participant, but experiences such as these may provide a site for a shifting consciousness towards these different forms.

In ‘becoming’ a nonhuman animal through its embodiment, hybrid types of consciousness might occur. Through this interface, humans might have an embodied sense of how animal lives impact our own; permeable boundaries between live and machinic interactions are porous enough to shift fixed understandings of species difference. Although the Klekhov *et al.* study is mainly focused on more realistic animal avatars for gaming, as these applications become more capable of allowing users to ‘become’ a nonhuman body, a shift in consciousness might occur. To develop a hybrid consciousness might mean that animals and machines become more than an afterthought, or commodity, and are integrated into human experience as necessary components for interspecies survival. Yoo’s human–leech–machine hybrids in performance are already a site for animated conversation and communication that disrupt received notions of human–nonhuman relationships. These examples stage interrelations in which animality can be ‘lively matter’ in this complex hybrid network.

#### CONCLUSION: NETWORKED WORLDS

‘Might it be possible’, Yoo asks, ‘to reassess traditional relationships and reinterpret animals in new relational stages alongside advanced technology? Could we create two-way communications rather than stubbornly holding

on to one-way relationships with animals?' (Yoo and Parker-Starbuck 2017: 44–5). These are the questions that Yoo attempts to answer in *Becoming Leeches*, and ones that develop into multi-directional communications. Humans and nonhumans live in a world of separation. Politically divided, withdrawing from collective unions, clamping down on sound bites to argue against other sides; we are pushing people away, isolating sentient beings from their young, and we have moved the modes of production so far from sight that a slab of meat in plastic remains distant and separate from its life. By imagining ourselves as other agential species, and by mixing actual nonhumans and humans within aspirational worlds in performance contexts, hybrid networks are formed that model possibilities that might transfer to more potent scenarios, ones that open this imagination out to nonhumans. These are spaces for exploration, for testing and failing, and testing again.

Imaginative worlds carry a great potential to influence actual worlds. In fiction, performance and art, evocations of hybrid networks work on human imagination to influence new ways of considering the interconnected rhizome in which we live.<sup>6</sup> While fictional landscapes can always suggest future possibilities, the need to understand the interconnectedness is not a fiction in the long and rigid lines of separation that have developed between nature and culture, humans and nonhumans: it is a necessity. It is how we will survive, how we will breathe. Yoo's work stubbornly makes us face our reliance upon animals, and also offers new modes of interrelating – live and virtual networks through which we become nourished, more resilient and willing to work together. In this interwoven network of human and nonhuman, complicated further by technological entities, we must be hybrid. Like the mule, a new species emerges, heartier and stronger than its progenitors, from a hybrid entity to a hybridized, networked future.

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<sup>6</sup> Two recent works of fiction, Richard Powers's *The Overstory* and Delia Owens's *Where the Crawdads Sing*, are examples of hybrid networks in which humans and nonhumans are intricately interconnected.