

Entanglements with the Nonhuman

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This article explores entanglements of the human and nonhuman in two seemingly disparate socio-technological practices: virtual reality and robotics. Spanning a period of 20 years, two examples from my artistic research practice will serve as a counter narrative to the futurist enactments of humanist desires, propelled by these two technologies.

In 1999, I began working on a virtual environment which consisted of abstract, whirly and delicate three-dimensional line drawings. Rather than a virtual representation of landscapes or buildings that surprisingly rarely shed the gravitational constraints of their “real” counterparts, *Uzume*¹ invented a fluid, strange and continuously unfolding scenario, which was impossible to control, while soliciting participants to bodily engage with them. My main artistic motivation was to intervene into the then flourishing cyberspace rhetoric of how virtual reality allows us to transcend space and its physical anchors, and, with it, the perishable corporeality of our bodies. Bizarrely, this fantasy of transcendence has always been closely entwined with a desire to mirror our world and re-represent our bodies, albeit in a reduced and normalising fashion. Twenty years later, I find myself confronted with similar normalising politics, this time in the rapidly emerging area of social robotics. Eagerly rolling out flesh-free but humanlike and gendered² enactments that can be programmed or externally controlled and conveniently replaced and improved upon. The futurist narrative of both virtual reality and social robotics seems to hinge on a technological mirroring that relies on transfiguring the human body and, with it, a legitimising of a highly exclusive, normalising politics.³ It brings to the fore how technologies, just like the futures they herald, are always social⁴, and, as such, they not only disrupt society but are themselves social practices, caught in a perpetual cycle of enacting the futurist narratives they produce.

Working with these technologies to mobilise alternative views and shift the focus from representation to performativity, my artistic

practice is driven by a desire to destabilise the human high ground that we are so eager to cement with these technologies. The limited, blinkered vision we have from “up there” renders us blind to both the exclusive social forces of technological practices and the entangledness of agencies⁵ that these practices both enact and are embedded in. An entangledness that we are always already part of and that needs to be negotiated, rather than mastered as many practices in virtual reality and robotics would suggest. I believe that it is the bringing closer, mingling with, and making tangible or viscerally felt the nonhuman, rather than technologically forging the world in our own image, that can open us up to new perspectives and relations, beyond the illusion of human control.

My virtual environment *Uzume* foregrounded the slippery condition of materiality of a supposedly “virtual” experience by rendering the actualised space semi-stable, constantly on the verge of becoming other.⁶ The work was implemented for a 4-6 wall CAVE Virtual Reality (VR) system, which immerses participants in a real-time generated, three-dimensional dataspace, by means of 3D glasses, a head sensor and, commonly, one to two hand sensors. *Uzume* immersed participants in an abstract but sensitively responsive environment, whose whirly, transitory nature unfolds based on spatial representations of the temporal behaviour of nonlinear, chaotic systems, called strange attractors. Moving inside this projection space, participants unknowingly traversed the attractors’ parametric fields, mapped around their body. *Uzume* thus performed a fluid medium-like other⁷ that nestles against our bodies, and while visitors soon got entan-



Uzume (2003) by Petra Gemeinboeck and Roland Blach. Photo by Victor S. Brigola

gled in its virtual tentacles, it resisted being controlled or every fully known.

Uzume's whirly, flimsy line drawings merely traced the environment's dynamic behaviours, rather than representing a world or mirroring a body. In contrast to many virtual worlds, the participants' unique bodily experience was as much bound to the CAVE theatre as *Uzume's* flickering whirlings. The work thus utilised VR technology to performatively extend our bodily experience in ways that cannot be reproduced in our physical world, rather than re-represent our body in a digital reproduction of our world. This experience was very much grounded in and dependent on the participants' own specific embodiment without requiring the mediation of an avatar. After all, experiences of "virtual embodiment" can only be as illusory as being present in several places simultaneously.

While virtual reality's fantasy of disembodied mastery simultaneously threatens and reaffirms the difference between matter (corporeality) and informational patterns⁸ (code), social robotics' re-enactment of our body as mechanical artefacts simultaneously reaffirms and threatens the boundaries between subject and object.⁹

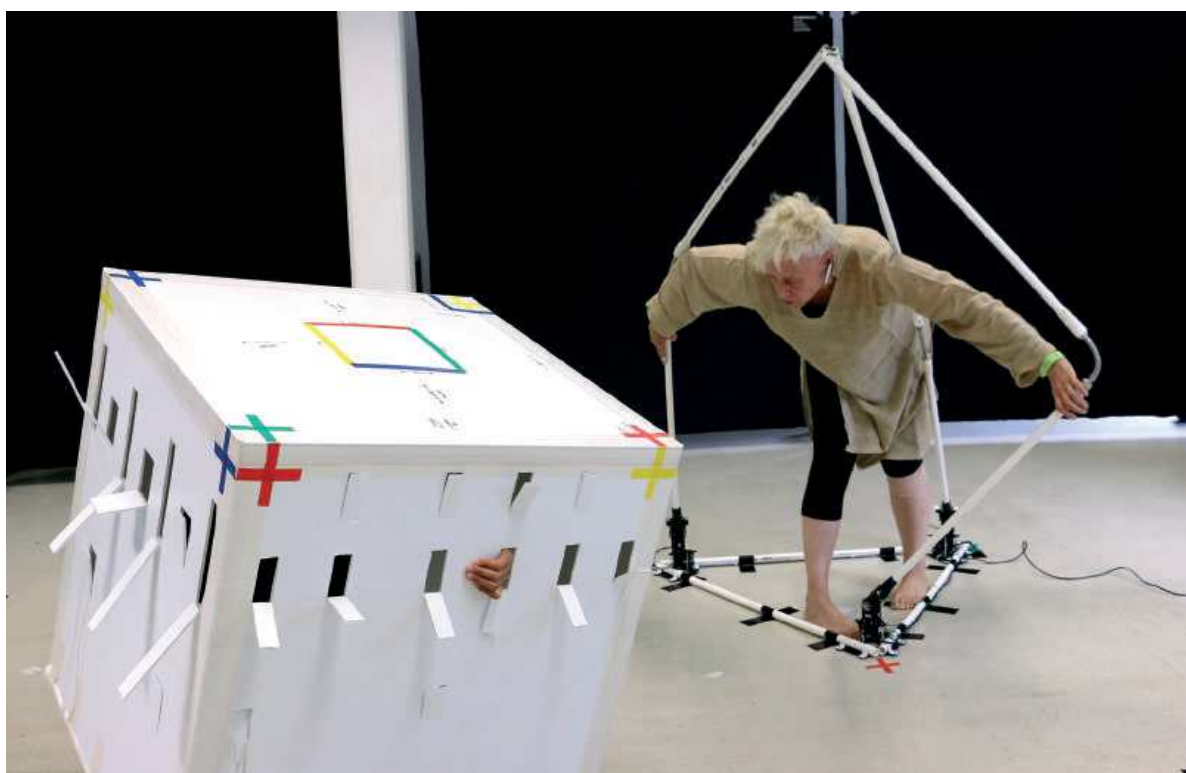
My current practice in creative robotics aims to critically and aesthetically probe subject-object boundaries to render them elastic in and through human-nonhuman encounters. Rendering the boundaries more porous is not about turning one into the other or eliminating the difference, but rather about teasing out the performative potential of human-nonhuman entanglements. Similar to the making of *Uzume*, my interventional approach rejects the objectification of our human body, while, at the same time, implicating it in a dance with a strange, machinic performer. Hence this

practice looks at robots as machines, rather than mechanical pets and humanoids, all the while acknowledging their intimate embeddedness in a human, social context.

The *Machine Movement Lab (MML)*¹⁰ project investigates how we can reimagine the socio-cultural proposition of the “social robot” and, with it, the ways in which we relate to robots without the veneer of human likeness. So far, we have developed a *cube performer* and are working on a *broken-tetrahedron performer*, both of which unfold their affective, performative capacities based on movement, intimately tied to their unique, nonhuman embodiments. While in *Uzume*, the behaviour of dynamic systems literally gave shape to its continuously evolving form, in this robotics project, we looked for abstract but fixed forms that could transform and become-body¹¹ through the qualities of its movement. Rather than using dynamic or other generative systems to develop these movement qualities, we

wanted the robots to be able to embody the social synergies¹² of movement qualities and their cultural embeddedness, while preserving their machineness. This involved developing an embodied interface in the form of a cube costume and a tetrahedron prosthesis, that dancers could inhabit to capture their kinesthetic experience of this nonhuman, yet still very material embodiment. *MML* thus reverses the common trajectory of making machines more humanlike by asking dancers to “slip into” the machine’s “body” and kinesthetically feel into this strange, nonhuman embodiment. Recordings of this dancer-costume entanglement then seed the robots’ learning to move and improvise.

Movement, in both *Uzume* and *MML*, “bodies” the nonhuman performers and shapes the performative potential of their performances and emerging human-nonhuman entanglements. Embracing the performers’ uniquely machinic nature opens up a rich playground



Machine Movement Lab (2017) by P. Gemeinboeck and R. Saunders.
Movement studies with Tess de Quincey and Kerstin Packham. Photo by P. Gemeinboeck.

for expanding our relations with machines or machinic extensions beyond what we already know. These performers, with their abstract appearance and intriguingly complex movement dynamics engender new aesthetic experiences of other, nonhuman agents and relations yet unknown, rather than producing normalised mirror images of the world or our bodies. Granted, these entanglements with the nonhuman don't afford us "at any one time, a secure point of identification"¹³, as offered by technologically enacted stereotypes. But escaping the gilded cage of the humanist high ground means getting entangled... that is, acknowledging and embracing that we already always are.

William Forsythe, *Between Movement and Language*", in G. BRANDSTETTER, G. EGERT, S. ZUBARIK (eds.), *Touching and to Be Touched. Kinesthesia and Empathy in Dance and Movement*, Berlin, DeGruyter, 2013, 35-62.

¹² See M. SHEETS-JOHNSTONE, "Kinesthetic Experience: Understanding Movement inside and out", *Body, Movement and Dance in Psychotherapy* 5(2), 2010, 111-127.

¹³ H. K. BHABHA, *The Location of Culture*, London & New York, Routledge, 1994, 69.

¹ *Uzume* (2003) was developed at the Fraunhofer IAO, Stuttgart, in collaboration with Roland Blach.

² The multiplicity of human bodies and bodily differences only seem to play out in the explicit gendering of humanoid robots. See also R. A. SØRAA, "Mechanical genders: how do humans gender robots?", *Gender, Technology and Development* 21(1-2), 2017, 99-115.

³ See Vasseleu's poignant discussion of "fantasies of disembodied mastery", in C. VASSELEU, "Virtual Bodies/Virtual Worlds", *Australian Feminist Studies* 19, 1994, 155-169. For a critical discussion of "contemporary technoscientific corporealizations of the 'almost human'", see C. CASTANEDA, L. SUCHMAN, "Robot visions", *Social Studies of Science* 44(3), 2014, 315-341.

⁴ See J. WAJCMAN, "Automation: is it really different this time?", *The British Journal of Sociology* 68, 2017, 119-127.

⁵ K. BARAD, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Durham, Duke University Press, 2007.

⁶ P. GEMEINBOECK, R. SAUNDERS, "Other Ways of Knowing: Embodied Investigations of the Unstable, Slippery and Incomplete", *The Fibreculture Journal* 18, 2011. <http://eighteen.fibreculturejournal.org/>

⁷ *Uzume's* fluid appearance was inspired by Stanislaw Lem's *Solaris* (1970), where we encounter a nonhuman, ocean-like, intelligent species.

⁸ See N. K. HAYLES, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*, Chicago, University of Chicago Press, 1999.

⁹ L. SUCHMAN, "Subject objects", *Feminist Theory* 12(2), 2011, 119-145.

¹⁰ The *Machine Movement Lab* was founded by Petra Gemeinboeck & Rob Saunders in 2015. This research is partially funded by the Australian Government through the Australian Research Council.

¹¹ According to Manning and Massumi, movement is bodying or becoming-body, not "something the body does", see E. MANNING, B. MASSUMI, "Just Like That: