

Conference *Artificial Creativity*

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## **Robots versus Machines**

In my talk today I want to elaborate on two aspects of the debate which brings us together in this conference. One is the contribution that artworks can make to our reflection on the cultural meanings of technology. And the other is the mythology of technology that infuses our conversations through the terms and metaphors we use.

I speak here as an art historian who is convinced that we can learn to ask our questions differently, the big ones and the small ones, by investigating artworks. That's why – thinking about art, AI, and artificial creativity – I propose to look for instance at the work of the Canadian artist David Rokeby who in his various works of the past thirty years has explored the logics and the aesthetics of such supposedly "intelligent" systems. Rokeby's work *Sorting Demon* confronts us with a system that discriminates on the basis of colour, and the installation *Taken* is based on a surveillance system that randomly attributes qualities to specific people in the exhibition space. And the interactive installation *n-cha(n)t* stages an encounter of the visitors with a flock of networked, yet partly independent computer entities whose chorus can be interrupted by speaking and contributing to their knowledge base. It is a work about an alien encounter, about the problems of dialogue and about feedback and understanding between human and computational systems.

I introduce it here as an example of the type of complexity that we should be able to expect from artworks through which we venture into the discussion on "artificial creativity". In comparison, much of what we see in the field of so-called AI Art is rather facile and superficial, and thus much less helpful in probing our understanding of these systems, and of our technological condition in general.

In order to also open up my second, language-critical train of thought, I want to briefly explain my use of the word "we", a tiny and maliciously inclusive word. The "we" is a rhetorical form of strategic inclusion that more often than not seeks to obscure differences. A most problematic assumption that comes with the "we" is the insinuation of a homogeneous group, sometimes even the whole of humankind. Importantly, the "we" regularly gives an illusion and a totally false sense of shared ideas, aims, and values.

It is Patricia Reed who suggested that one should only use the word "we" for a type of solidarity that is coupled with a clear sense of difference.<sup>1</sup> A "we" that does not seek to homogenise and paste over differences, but one that actively presupposes them, as in: "I recognise your differences, let's be in this together." It is a use of the "we" that is conscious of conflicting interests, and aware of the intrusiveness of its own claim. – It is in this sense that I say "we", addressing those who are listening, aware that you have other thoughts on what I might be saying.

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<sup>1</sup> Patricia Reed, "Solidarity without Sameness" (2018); cf. also Tristan Garcia, *Nous* (2017).

The same type of bracketing, of putting between quotations marks, is something that we should do with all the contested words that we use here in the coming days – and with some of the uncontested words, too, I guess.

Such bracketing is not only a way to estrange us from those words. It is also a way to make us skeptical about the rhetorical purpose of certain expressions. The irritations that many people feel even at the thought of an "artificial creativity" is an indication how timely such skepticism can be.

The discipline of Art History may offer some consolation, since it can remind us that the delegation of "creativity" is not new, and not germane to media and computer art, and that it has a tradition that takes us back more than a century, from Dada and Surrealism, to Pop Art and New Realism.

When we think of the status of Duchamp's Readymades and Rotoreliefs, or Warhol's Factory, or the different strands of Generative Art, we realise that questions about the artistic validity of technical products (and reproductions) have formed part of the bedrock of art theoretical reflection for decades. Their subversion of notions like artistic intention and artistic genius is not collateral damage, but it is constitutive of art discourses throughout the 20th century. Some of these questions are even at least as old as the discourses on photography and on modern printing techniques, discourses that date back to the 19th century.

I believe that one of the reasons why the question of "artificial creativity" is so pressing, is that – from Abstract Expressionism through Pop Art to Institutional Critique –, such discussions about the delegation of the creative act have been a pivot for debates on human production and creativity in the age of mass industrial production and consumption.

Questioning the status of the artist is an inherent part of these considerations ever since the non-sense performances of Dada, the psychic automatisms of Surrealism, and the mathematical automatisms of Concrete Art. Of course, it is interesting to speculate about the "art" status of objects or practices which are produced or performed by non-human agents. But, as in the cases of Duchamp's Readymades and Warhol's Brillo Boxes, or Sturtevant's repetitions, it is unlikely that "machine artworks" will end or destroy art. Rather, they may contribute to the continuous transformation of sense-making that we tend to categorise as "art", as witnessed in the debates around the works and practices by artists like Jeff Koons, Sherry Levine, or Richard Prince, which have deliberately put "the artist" between quotation marks.

It may well be that machine learning and a technique like Generative Adversarial Networks may offer new conceptual challenges to these debates. But from an art theoretical perspective, these challenges form part of a set of such reconfigurations of artistic practice throughout the last hundred years.

The automatisms of abstract surrealist paintings by mid-20th century artists like Wols, Emmy Bridgwater, or Richard Oelze, or the results of automatic drawing and writing exercises by someone like Henri Michaux, were psychic rather than technical. But the confrontation with their visual output, emerging from the uncanny depths of the unconscious, was, we can presume, no less shocking than, more recently, the discovery of supposed visual desires of AI systems.

A most striking reference example for some of the new GAN-related artworks are the paintings and drawings by the Czech artists Jindřich Štyrský and Toyen (Marie Čermínová), which combine abstract painterly surfaces with the placement of at times distorted, at other

times clearly recognisable (partial) objects, body parts, everyday objects.<sup>2</sup> During a joint stay in Paris in 1924–1928, Štyrský and Toyen had developed the principle, or style, of “Artificialism”, conceptually framing the abstracted Surrealism of their artistic production of the following years. In their manifesto of “Artificialism” (1927–1928), they wrote:

An artificial painting is not bound to reality in time, place and space, and for that reason it does not provide associative ideas. Reality and forms of the painting repulse each other. The greater the distance between them, the more visually dramatic is the emotiveness, giving birth to analogies of emotions, their connected rippling, echoes all the more distant and complex, so that at the moment of confrontation between reality and image, both feel entirely alien in relation to each other. (Štyrský and Toyen [1927–1928] 2002)

What we can glean from passages like this is that there are complex conceptual and aesthetic decisions that lead to the realisation of such artworks, and that masking this conceptual and aesthetic framing can be part of an artistic strategy.

To the same extent that it is the task of the art historian to uncover such maskings and their historical lineages, it is the task of contemporary critics of a technologically infused culture to pinpoint the technical affordances of specific systems, and to counter technological mystifications.

In her book on AI Art, Joanna Zylińska insists that “humans are quintessentially technical beings, in the sense that we have emerged with technology and through our relationship to it [...]”. She suggests that we should “see different forms of human activity as having always relied on technical prostheses and forming part of technical assemblages.”<sup>3</sup> This includes human creative acts which have, in the tradition of so-called Western philosophy, since Greek antiquity, been conceived in conjunction with, and made possible through, technics. The results of human invention, ingenuity, call it creativity, are always artificial, that is they are artifice, made in addition to the naturally given.

I share Donna Haraway's conviction that it is necessary to come up with new terms and narratives that are able to capture these assemblages, and the technoscientific entanglements of human bodies and minds.<sup>4</sup> It's a conviction that made Haraway come up with the notion of the Chthulucene, and with her Manifesto for Cyborgs.

Over the next two days, several terms will be similarly bracketed, historicised and demystified, including “creativity”, the “artificial”, and the “human”. In the second part of my talk, and as my contribution to this exercise of estrangement and demystification, I want to speak about the notion of the “machine” and that of the “robot”. I believe that it is necessary to distinguish rigorously the terms machine and robot, both with regard to a more general understanding of technics, and with regard to technology as its paradigmatic framework. Moreover, from my analysis of their usage in the 20th century, both machine and robot are terms that manifest and uphold an antagonistic conception of the relationship between human and technics – which, as Joanna Zylińska aptly suggests, we may want to overcome.

What I'll try to convey here is that “the machine” is not a technical system, or an apparatus, but that the modern notion of “the machine”, roughly speaking that of the 19th and 20th centuries, describes a particular type of relationship that humans have with such technical

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<sup>2</sup> Cf. Karel Šrp, Lenka Bydžovská: *Jindřich Štyrský*. Prague: Argo, 2007.

<sup>3</sup> Zylińska 2020, 27.

<sup>4</sup> What would it mean to take an essentialist notion of “human” out of this equation?

systems. It is a relationship characterised by antagonism: the machine is always considered as an adversarial other, potentially threatening, and as something to worry about.

At the same time, the use of the word machine also marks the conviction that the speaker is a human, and not a technical being; the word machine marks the claim to an ontological difference which affirms the humanness of the speaker, and it disregards the possibility of a "posthuman" entanglement with one's technological environment.

On the level of human communication and of culture, the machine operates as a myth – “myth” not understood in the polemical sense of an untrue story, but rather in the functional sense of the term.<sup>5</sup> Very generally speaking, a myth is a form of narrative that is engrained in a culture. A myth is collectively held, it has a narrative kernel which is both variable and of extended continuity, it gets repeated and affirmed, and it is powerful. Think for instance of the myth of Oedipus. Whenever the name Oedipus is mentioned, the whole complex narrative of the myth, its proponents, and tragic twists is evoked.

It is, I believe, possible to identify the narrative kernel of the myth of the machine. Whenever the term “machine” is used, the whole of the associative baggage of the myth of the machine is brought into play. It goes something like this:

This is the myth of the machine.

There is a man-made object. It can be a physical device, or a symbolical representation, related to technics by association or indexicality.

It is composed of technical elements, it has moving parts, and it has a function which it performs by repetitive movement. And it exhibits a certain formal beauty.

It is made to function automatically and independent of direct and continuous human intervention.

Over time, the object attains an increasing degree of autonomy.

It may provide interfaces for human interaction. These, however, do not determine the functionality: The human interaction can be replaced by technical elements, or by other machines. The interfaces offer the human an illusion of control which can be overridden by the machine. The interfaces are only there to appease the humans, for their play and enjoyment, or for human–machine conviviality.

The autonomy of the machine becomes threatening for humans who, fearfully, struggle not for their lives, but for self-determination. The threat posed by the machine is existential, but not lethal.

The narrative tends not to have an ending. If it has one, then the story ends well for the humans.<sup>6</sup>

Like other myths, the *myth of the machine* can be varied, but it cannot be told completely differently. It is always this one story of something man-made being functional and then gaining a dangerous, nonlethal form of autonomy.

Consider the example of a loom. It is a technical device that is used for weaving textiles. But when a person beholds the loom and says, “ah, a machine”, he or she calls up the myth of the machine and at once, the machine's particular narrative framing comes into play, its blueprint, its construction, its degrees of freedom, and the inherent threat. The ways in which the loom

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<sup>5</sup> This argument was first developed in a talk at the conference “Politics of the Machines—Art and After”, EVA-Copenhagen, Aalborg University, on 15 May 2018.

<sup>6</sup> First published in Broeckmann 2019.

is then treated, in the realm of the myth, is different from how it is treated when viewed as a weaving device.

What we can learn from this *mythological* understanding of the “machine” is that the modern human conception of self is imbricated with technology in this particular way. There really is no “machine” outside this narrative, and whenever the word “machine” is uttered, this figure of speech constructs the relationship between human and the technical object within that mythical structure, as binary, antagonistic, and ontologically differentiated.

It can be tiring to have to watch your words like that. But I firmly believe that some of our worries and problems come from an unconscious use of language. I therefore try not to use technical terms in a metaphorical way, and avoid calling something algorithmic that is not, like the DNA or human behaviour. An algorithm is a set of defined rules for conducting iterative mathematical operations, and only such a mathematical rule-set can meaningfully be described as an algorithm. Of course it is possible to use the term figuratively, or metaphorically; but then you enter into the realm of associations and cultural meanings.

An only superficially "technical" term like "machine" is rarely defined precisely, and more often used in such a general and metaphorical way, submerging the discourse in a mythological soup. – What I'm proposing here instead is to speak *about* the myth of the machine, and not *in* or *through* this myth.

To this end, it is useful to clearly distinguish between robots and machines, terms that are too often used interchangeably and synonymously. Machine and robot differ significantly, firstly, with respect to the concept of work – a crucial part of the modern self-definition of man –, and, secondly, regarding their relation to anthropomorphism, that is to the way in which nonhuman objects are assimilated to the human form, or to human modes of perception. (As a mere illustration, I show you a documentation photo from the 1985 exhibition *Les Immatériaux*, where in a site called *auto-engendrement*, an industrial robot from automobile production carved the shape of a car front out of a polystyrene block.)

The robot works like a human, performing tasks which at least theoretically a human worker could also carry out.<sup>7</sup> The robot might work faster or more untiringly, or it can perform movements or operations that humans are anatomically incapable of. The robot is a servant, a colleague, and hence also a rival who can replace humans as workers. The machine by contrast can perform operations which a human being precisely cannot – typically the generation and transmission of power in the manufacturing process, or the execution of calculations the complexity and speed of which exceed human capacities. In industrial manufacturing, the machine allows for new work procedures, while the robot directly replaces the human being. In this sense the figurative automatons of the 18th century belong to the genealogy of the robot and not of the machine: the scribes, dancers, and chess players visualise the substitution of the human and his or her activities by technical characters. Contrary to this the machine is what the human is not, and the machine principally performs what the human cannot.

Chico MacMurtrie’s “Tumbling Man”, who unsuccessfully attempts to stand upright on his legs, displays the classical characteristics of a robot: it is anthropomorphically shaped according to the human body, and its labors convey a seemingly tragic inability to muster the ultimate bit of bodily control which would enable the upright, bipedal walk. The aesthetic appeal of MacMurtrie's robot lies in its mimetic behaviour which impels the viewer to feel sympathy for this obviously inanimate technical entity.

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<sup>7</sup> This argument was first developed in "Machines, Humans, and Robots," in Dominik Landwehr (ed.): *Machines & Robots*. Edition Digital Culture 5. Zürich: Chr. Merian Verlag, 2018, 176-186.

Robots follow an aesthetic of similarity and of behavior, while machines serve an aesthetic of function and processing. Both terms, robot and machine, are seemingly used in a purely technical sense, but there is always a resonating cultural content. Hence it is important not to regard the anthropomorphization of technics as “naturally given,” but as a myth, as a narrative humans tell to themselves in order to come to an understanding of their place in the world. In this myth, the figure of the human gets replaced by a robot, while nature gets substituted by a machine.

The Canadian artist Norman White has created quite a different artistic robot, named “Helpless Robot”. The upright standing box with handles and a pedestal, above which the upper part of the sculpture can be rotated, doesn't resemble an anthropomorphic robot. The base contains built-in loudspeakers through which a nagging, squawking voice requests the exhibition visitors to move the robot. When a visitor obeys, soon the voice complains about the direction in which it is being turned, or about the speed being either too fast or too slow. The installation subverts the usual serving role of the robot and inverts the relation of master and servant.

This hierarchical relationship had already been constituted when the expression “robot” was first used by the Czech writer Karel Čapek at the beginning of the 1920s. In the stage play “R.U.R. (Rossum's Universal Robots)”, these “robots” are anthropomorphic, artificial work slaves who in Čapek's story rise up against their human masters.

The figure of the robot thus emerged from the context of automated industrial production and is to be understood, very much in accordance with the Taylorist optimization of work, and as a derivation of the laboring human body.

The British artist Keith Piper, for his interactive installation, *Robot Bodies* (2001), has further accentuated this constellation by highlighting the parallels between the figure of the robot, and the figure of the black slave.<sup>8</sup> Both, robot and black slave, are (I quote Piper), “visibly 'other' and as such are assigned particular roles within the cultural and economic order. Both are imagined within particular discourses to act according to 'type'. Both [...] can be assigned gruelling tasks in hostile and alien environments. Both are perceived as possessing a physical configuration which positions them as either compliant servant or non-compliant monster.”<sup>9</sup>

Piper has identified several passages in Čapek's play, that support this comparison of robot and black slave, both the subjects of originary dehumanisation:

“Practically speaking, what is the best kind of worker?... it's the one that is cheapest. The one with the fewest needs... [when engineering the R.U.R. robots, young Rossum] chucked out everything not directly related to work, and in doing that he virtually rejected the human being and created the Robot.”<sup>10</sup>

Elsewhere in the play, the relation between the robot narrative and the exploitation of black African slaves in the colonies is made even more explicitly:

“But in the meantime we've dumped five hundred thousand tropical Robots down on the Argentine pampas to grow corn. Would you mind telling me how much you pay for a pound of bread?”<sup>11</sup>

<sup>8</sup> In the project, Piper further distinguishes between robots, androids, and cyborgs.

<sup>9</sup> Piper 2001; “... the terror of the mechanised other has often acted as a metaphor for racial difference within which the mechanised otherness of the robot stands in for the physical otherness of the black body.” (video commentary, <http://www.keithpiper.info/robotbodies.html>)

<sup>10</sup> Domin from *R.U.R.*, Čapek 1920, qu. Piper 2001.

<sup>11</sup> Busman from *R.U.R.*, Čapek 1920, qu. Piper 2001.

The dehumanisation and subjection of the labouring human body is an integral element of the myth of the robot, which – I would claim – cannot be called upon without also calling upon this symbolical resonance.

In the title of my talk today, "Robots versus Machines", the "versus" is more a rhetorical gesture, than a claim to a structural aspect of the discourse on technics. I chose for this antagonistic phrase, though, in order to pinpoint the confrontation of these two quite different paradigms of the relationship between humans and technics. Robots and machines represent different, imaginary models for the relationship between humans and technics, based on – and this I think is crucial – different models of the human. While the technical entity of the robot positions the human as replaceable worker, as slave, and also as colleague who can be the subject of empathy and solidarity, the technical entity of the machine positions the human as a non-technical other, as both free from, and excluded from, the technical process, implying the irrelevance and obsolescence of the human in a potential technoscientific future.

To reiterate, my purpose here is not to actively encase these concepts in a specific, limited understanding. Rather, the purpose is to point out that the metaphors of the machine and the robot are part of a specific mythology, and that in order to change the relation between humans and technics, it is necessary to tell a different set of stories, and to do that in a different language.

One area where such new narratives and languages are explored, is the field of artistic practice, where artworks and projects constitute ways to reflect on such technocultural relationships, to pinpoint their inherent contradictions, and to rethink technology by way of what Bertolt Brecht, with regard to the techniques of theatre, called *Umfunktionieren*, repurposing.

As a conclusion to this talk, I would like to spend a few more minutes to look at some artworks with you, which I would like to introduce as potential reference examples for our conversations here in the next two days.

In the late 1950s, the Swiss artist Jean Tinguely created a whole series of sculptures which he called *Meta-Matics*, and which, each with a different mechanism, delegated the work of making a drawing to a bric-a-brac apparatus which the exhibition visitors could trigger, but not control. The resulting drawings are determined by the mechanical structure of the sculpture, whose functioning is automatic in a somewhat chaotic way.

Compare this to the installation by Patrick Tresset, *Six Robots named Paul* (2012). It encompasses a number of robotic arms, equipped with small cameras and controlled by a computer system, which, like in a drawing class at art school, each draw a portrait of a visitor who takes the role of the sitter. The drawing process is also automatic, yet unlike the exuberant vivacity of Tinguely's *Meta-Matics*, we here see a controlled process that is programmed to lead to life-like representations – we could almost call it a form of photography.<sup>12</sup>

Then I would like to draw your attention to another work by David Rokeby, called *The Giver of Names* and a predecessor project to the installation *n-cha(n)t* that we looked at earlier. The interactive set-up of the *Giver of Names* installation invites the visitor to place one or more objects in front of a camera, upon which the computer system attempts, by means of pattern recognition, to identify the item and starts up a poetic stream of associations that it finds in its database and connected to the recognised item. This project is a reminder that the questions haunting current debates about "artificial intelligence" have been around for decades, and

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<sup>12</sup> Cf. the performance-installation by David Tomas, *Behind the Eye Lies the Hand of William Henry Fox Talbot* (1984).

return to the same dichotomies of representation and emergence, simulation and autonomy. (I tried to discuss some of these issues with regard to *The Giver of Names* in the book on *Machine Art*, and maybe we will have time later to venture more deeply into the idiosyncratic mythology and aesthetics of this piece.)

Finally, I would like to end with a recent project by the British artist Anna Ridler who, as in other projects, addresses issues that concern many of the practical applications of machine learning and enhanced pattern recognition systems, like the collection and classification of data, the bias inherent in data-sets and information models, and the hidden human labour involved in such digital content production. For her project *Fall of the House of Usher* (2017), Ridler produced a number of watercolour drawings that formed the material basis for training a neural network that was, in turn, used to produce the film of the same title. The result here is determined by the input data and the structures gleaned from them, in the same way as all those GAN-based systems produce the visual output that we get to see in so many versions of AI Art these days. However, Ridler works not with millions of data-sets classified by thousands of anonymous click-workers, but she does all of this work herself and exhibits the material basis of the data-set alongside the resulting digital film.<sup>13</sup>

It is one of the originary paradoxes of Western culture that any artifice is understood as something that is made by humans, and that is not itself human, but artificial. The logical foundation of that paradox might be that, as a matter of principle, this belief system regards everything that is human-made, as non-human. It is a dialectics that has haunted technics, and art, and the understanding of what it means to be human, for a long time; and it also lies at the root of our struggle with the notion of "creation", or the faculty of "creativity".

Ridler's projects remind us that there are no boundaries, but only entanglements between the product, the labour, the technical assemblage, that enable the making and the perceiving of the work. A constellation that would merely be obscured by a strong, humanistic notion of either an "author", or a "machine". It appears difficult, though, to let go of either of them.

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<sup>13</sup> Anna Ridler: *Fall of the House of Usher I*, 2017, <https://vimeo.com/217670143>; *Fall of the House of Usher II*, 2017, <http://annaridler.com/fall-of-the-house-of-usher-ii>