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medien
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labor

**EMPATHY SWARM,
CURIOUS TAUTOPHONE
AND DR. DOPPLERS MACHINE**

Katrin Hochschuh (DEU) & Adam Donovan (AUS)

EMPATHY SWARM, CURIOUS TAUTOPHONE AND DR. DOPPLERS MACHINE

*„HAL, despite your enormous intellect, are you ever frustrated by your dependence on people to carry out your actions? HAL 9000: Not in the slightest bit. I enjoy working with people.“**

Digital technologies are increasingly permeating all aspects of our lives. Self-learning programs based on algorithms not only influence our behavior but are also increasingly granted authority to make decisions that have far reaching consequences, not only for our individual lives but for society as a whole. How objective are these programs really, what laws do they follow, and who profits from them? Can a continuously developing system of autonomous robots that act as an interface between humans and machines form an ecosystem for the coexistence of both species in a democratic society characterized by empathy and respect?

In order to create rules for how to implement new technologies, we need a kind of knowledge that goes beyond how these technologies are used. The works by Katrin Hochschuh and Adam Donovan invite to deeply engage with these technologies in an aesthetic and sensual way.

*[from: 2001: Odyssee im Weltraum (1968), HAL: Heuristically programmed ALgorithmic computer]

DATES

Exhibition opening:

Sat, 21.9.2019, 4pm

Opening weekend:

Sat, 21.9.2019, 11am – 6pm,

Sun, 22.9.2019, 2pm – 6pm

Opening hours 24.9. – 13.10.2019:

Tue – Fri, 2am – 7pm, Sat – Sun, 2pm – 6pm

***Psychophysics Machines*, Concert performance within the ORF musikprotokoll:**

Fri, 4.10.2019, 6pm

***Robotic Workshop*, Workshop with the artists Katrin Hochschuh and Adam Donovan within the ORF musikprotokoll:**

Sat, 5.10.2019, at 4pm, Registration: <http://musikprotokoll.orf.at>

ORF Lange Nacht der Museen:

Sat, 5.10.2019, 6pm – 1am

***Robotic Performance*, Concert within the ORF musikprotokoll Special:**

Sat, 5.10.2019, 8pm

Ada-Lovelace-Day:

Tue, 8.10.2019, 2pm – 7pm

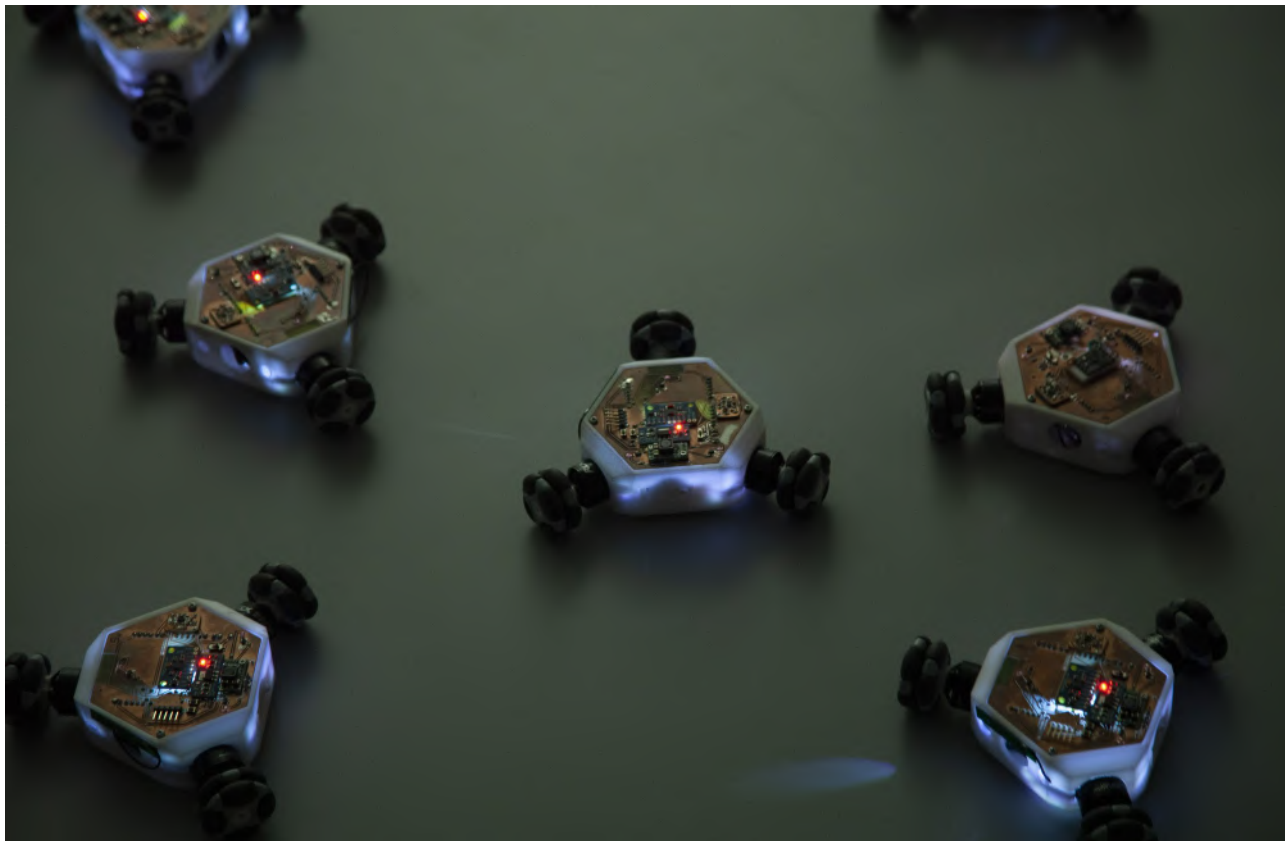
Opening hours 15.10. – 15.11.2019:

Tue – Fri, 2pm – 7pm and by appointment

Finissage:

Fri, 15.11.2019, 6pm

EMPATHY SWARM

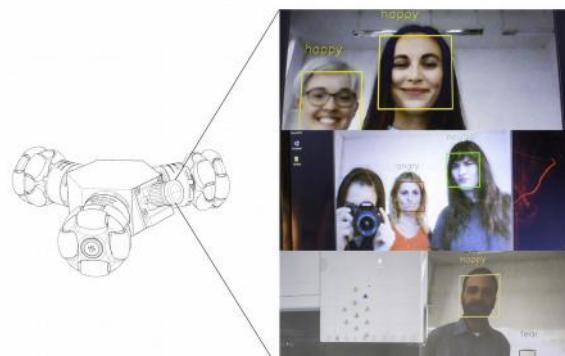


EMPATHY SWARM is an emergent system of autonomous robots that acts as a human machine interface and creates an ecosystem of man-machine-cohabitation. The swarm is a society of robotic creatures based on the equality of all members and constantly negotiates and balances the needs of all individuals. In its role as a human machine interface the robotic system is simultaneously activating and reacting to the emotions of the human actant. While the swarm expresses itself through its movement, the human responds subconsciously through motion and facial expressions revealing their emotional state. Together these mechanisms create a bio-feedback loop which shows the interdependence of both species.

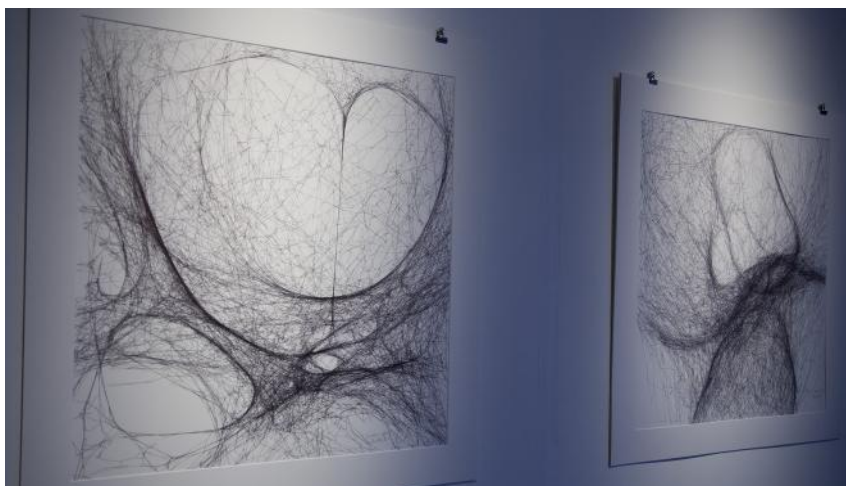
On another level, *EMPATHY SWARM* defines its very own definition of what it means to be a utility apparatus, which is based on the idea of machine education, leading away from an optimization concept of human set goals in the form of machine learning.

Instead the idea of self-drive and self-determination of the robotic machine is implemented which does not evolve from a position of suppression and machine revolution against human supremacy.

On the contrary, *EMPATHY SWARM* gives space for the vulnerability of the robotic offspring and fosters the careful convergence of both species into an ecosystem and society of empathy and compassion for each other and among themselves. The human and robotic mind are merged into an extended hive mind that is a source of information and inspiration for future societies and can be utilised as a preventative medicine for a dystopian future.

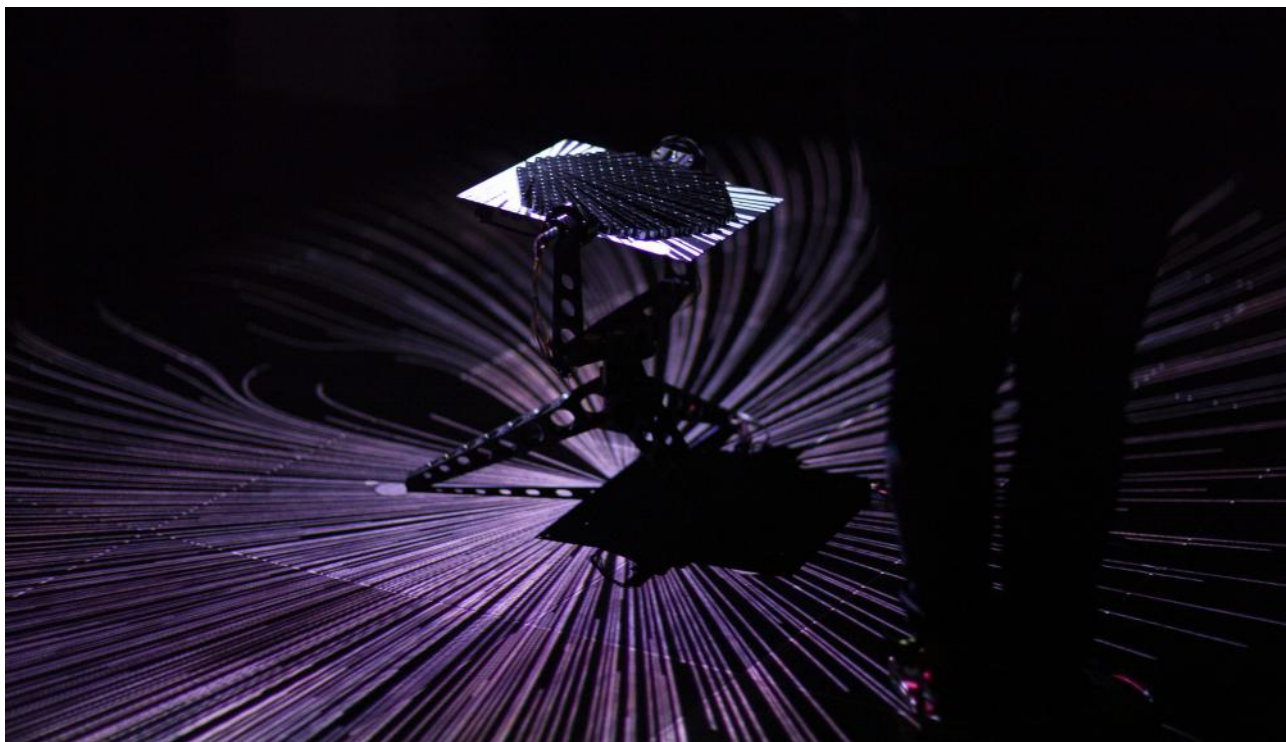


SWARM DRAWINGS



SWARM DRAWINGS is both a robotic installation and the outcome which this produces. As an infinite reservoir of inspiration the swarm drawing robot is capturing the impressions and possibilities of the behaviours of a swarm. Closely related to the *EMPATHY SWARM* series, *SWARM DRAWINGS* is reinterpreting in its very own way how an algorithm can try to capture time and movement showing patterns and structures that are underlying the *EMPATHY SWARM*-society over time. The work asks questions about the robotic ability to be creative and to express its own understanding of the reality of its own species.

CURIOUS TAUTOPHONE

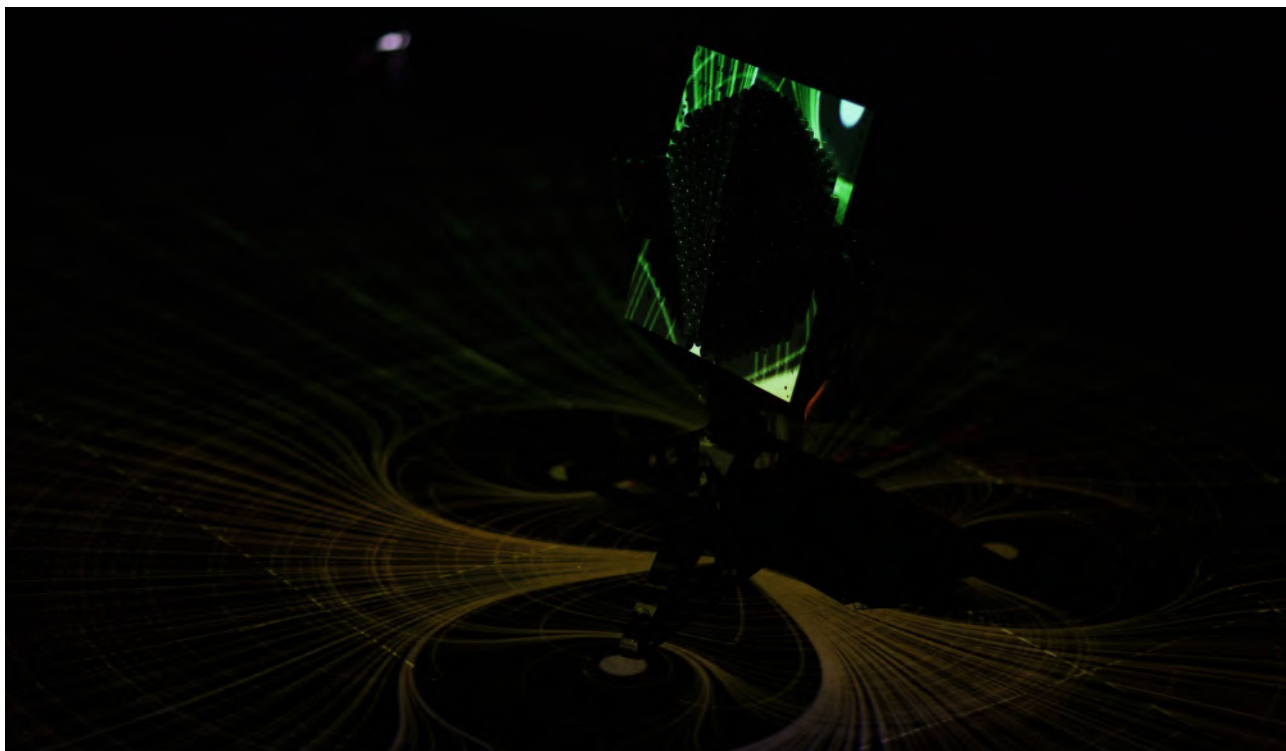


A dark psychophysics robot, *CURIOUS TAUTOPHONE* is spinning a speaker around two axes. Like a swirl of sound and light the visitor is drawn into the piece with all his senses and finds himself enveloped in a transforming spatial sound sculpture. A moment of precious intimacy is created and a door between the subconsciousness of the visitor and the machine is opened, both aurally and visually. The decidedly non-anthropomorphic robot is the source of this transcendent atmosphere and shows that the *CURIOUS TAUTOPHONE* is as much an apparatus of art as it is a tool for music and an instrument for psychology and physics.

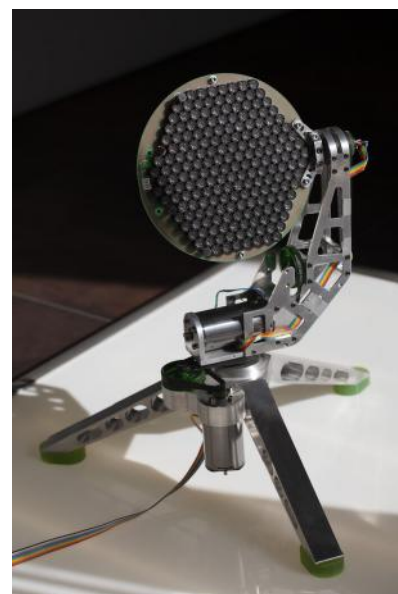
The name "Tautophone" derives from projective auditory tests developed by psychologists Skinner, Rosenzweig and Shakow that can be understood as a form of Auditory Rorschach Inkblot where a sequence of vowels is repeated in an attempt to trigger latent speech hidden in the listener's psyche. The Tautophone seems to be curious, motivated to explore its surroundings and to learn. It reflects the human capability to feel attachment to inanimate objects as already demonstrated by psychologists Heider and Simmel in 1944 and speculates about the human desire to give birth to new forms of life as part of a subconscious reasoning surrounding mortality. Tensor fields expresses the mathematical representation of the visual environment creating a new form of continuously changing inkblots of light.

Using the physical phenomena of directional sound as a medium of robotic expression, the unusual, even uncanny nature of hearing these auditory hallucinations opens the observers perceptual engine and intensifies the multitude of subliminal stimuli.

Finally *CURIOUS TAUTOPHONE* deals with the basic structures that are connecting reality and possibility, the role of the robot being to re-calibrate the cognitive tissue that binds man and machine.



Shina metal *MULTIPLEXING TAUTOPHONE* is a high speed rotating parametric speaker apparatus that projects a focused beam of sound in any direction. Through carefully timed pulses sound can be spread over the entire surface of a room creating the effect of many sound sources without any discernible speaker being present. Combining these apparatus for a performance is also an artwork on its own. Each time the piece is performed aspects of the room acoustics changes how the piece is perceived which again enhances the impossibility and impermanence of the moment.



DR. DOPPLERS MACHINE



DR. DOPPLERS MACHINE explores spatialization using the Doppler Effect. The installation is a “persistence of hearing robot”, think of “persistence of vision” (POV) and apply this to sound. It is a 2 meter wide spinning stereo speaker system in which sound fed in is distorted via the Doppler effect of speeds up to 500 rpm.

At this speed DR. DOPPLERS MACHINE is able to create 16 virtual speakers per second allowing the work to be hyper spatial. By adjusting timed audio pulses, the audio seems to be moving in any direction of the circular rotation. Light pulses stretching along each arm create a separation between vision and hearing further enhancing the sonic effect. The mind does not fully understand why a sound can be in opposition to the light and while the conscious mind can see and hear it the unconscious mind fixates inducing a subtle mesmerizing experience.



BIOGRAPHIES



Katrin Hochschuh (DEU) has an architectural background in digital design and robotic fabrication, exploring architectural geometries, algorithms, swarm simulation and interactivity. She has worked together with François Roche in his experimental practice New-Territories at the intersection of speculative architecture, experimental short movie production and art. In that scope Timidity Symptom was exhibited at the Architecture Biennale Venice 2014 and she was also part of the production of a collaborative piece With with Carsten Höller, exhibited at Air de Paris, France (2013) and at Donaufestival Krems, Austria (2013). Together with the ETH Zurich's MAS she exhibited a prototype of a robotically fabricated pavilion at the Design Biennale Zurich and for the Museum of Digital Art, Zurich she developed a digital embroidery project.

Adam Donovan (AUS) is a media artist working in the area of science, art and technology. His work combines the highly specialised field of scientific acoustics with the visual arts. He has been researching focused acoustics and acoustic lenses since 1996 drawing on scientific research in this area to create interactive sound installations. Donovan's interest in using lenses in his artwork evolved while he was completing his Fine Arts Degree at Griffith University, Queensland. His work is often inspired by his personal attachment to machines and the intangible aspects of physics we experience every day. Donovan explores these phenomena amplifying their effects to create new mediums and experiences.