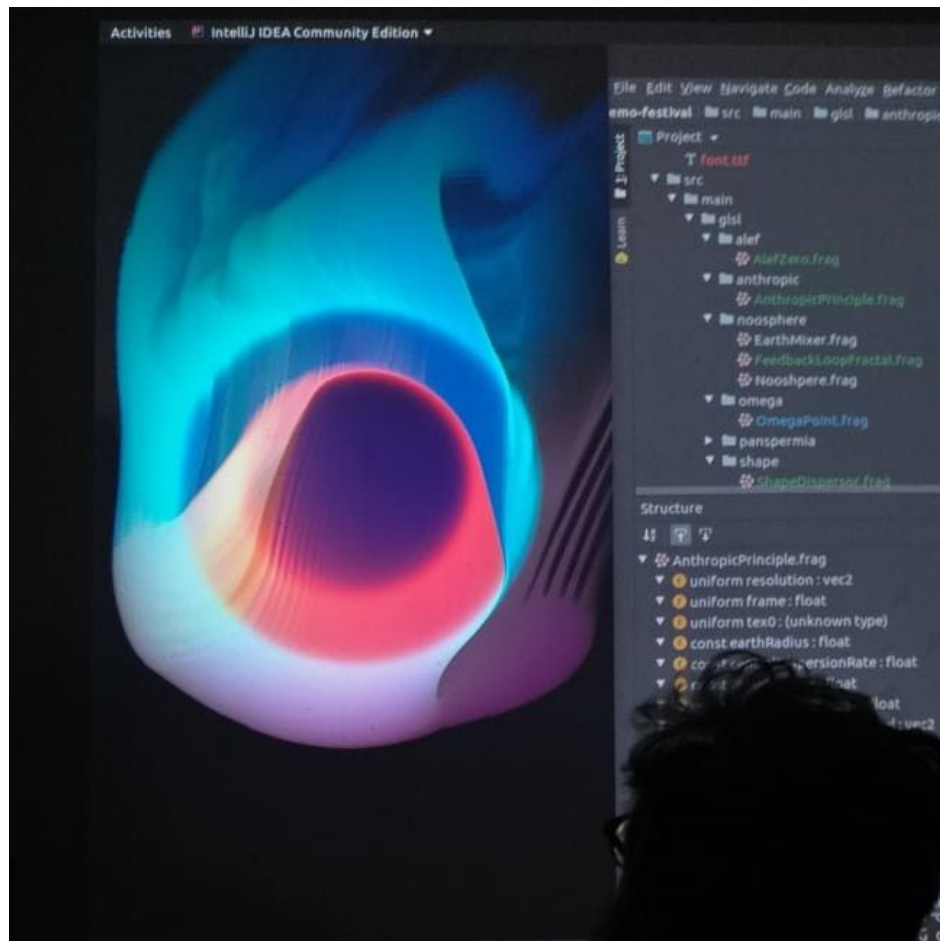# Kazik Pogoda / xemantic.com project proposal ideas

Factory Berlin: Artist in Residence edition 2

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https://xemantic.com

Table of Contents

Note: visual work presented here usually represents still frames from the realtime immersive synaesthetic and kinaesthetic experiences shaped either by the sound, movement, or both. All the proposed projects are already in a certain stage of development, therefore all of them are deliverable.

Emotional robots

Imagine a swarm of robots, moving freely among the crowd, representing various shapes and sizes and behaving in lots of different ways, but quite unlike robots we know. **Acting like if they had their own individual personality traits and own agency with certain intentions**.

During the time of pandemic I lost all the commissions related to the gig-economy. Therefore I devoted this time to development of **robotic software for artists**, which allows to upcycle useful vacuum cleaners into useless automata providing artistic experience instead:

https://github.com/xemantic/we-are-the-robots

The term "robot" comes from Czech. In Slavic languages "robota" means "work" or "job", and this term shares the root with German "arbeit". So these machines are supposed to be our "slaves" and serve us. But what if they gain their own personality? If their behaviour is revealed in an erratic feedback-loop, producing insect-like movement. What if their behavioral patterns can be associated with emotional states. They can seem like being:

- curious
- cute
- annoying
- overeducated
- anxious
- shy
- stubborn
- etc. - you name it and help me shaping the experience
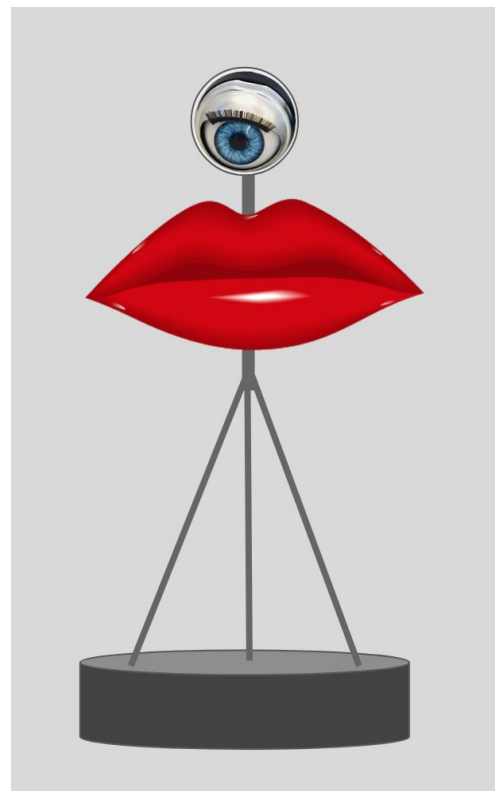
Being exposed to automata like this raises the **question of human-machine relations**. But it can also be analyzed deeper, as a meditation of our relation to socio-economic and political systems often portrayed in a metaphor of the oppressive machine. What if the robot, which is supposed to serve, suddenly gets assertive and tells spectators what to do, demanding them to obey. The spectacle becomes **a participatory art experience with twisted power dynamics**. The machines can give us orders and within a certain context we will follow their command, like in Zimbardo's experiments (*The Lucifer Effect*). They can creep us out by weirdly following our faces. By eavesdropping on what we say to announce it in public later. Or they can make generative poetry out of random phrases being spoken

near them. Thus providing a **"semantic mirror"** for our current cultural condition and trendy topics we love to talk about.

All the technical base for the robots is there. Now I am working on delivering experiences on top of it. Possibilities are virtually endless and I want to collaborate on these projects and share the knowledge on cybernetics and how to use my fresh software.

Possible collaboration:

- **Writers / storytellers**, to help in defining the behavior.
- **Makers** to 3d-print robot structures.
- **Costume designers**, also working with wearable electronics.
- **Roboteers** and **IoT developers** who might want to provide custom sensors in addition to existing ones, servo motors, moving arms, lasers, smoke machines, etc.
- **Choreographers** - the swarm of these robots can dance in a bigger show.
- **Machine learning specialists** - computer vision, face recognition, face detection, facial expression, sentiment analysis, natural language processing, something I already do, but maybe we can go deeper and provide custom models.
- **Web developers** who might want to expose the data collected from the robots.

Technicalities:

- The robot is built on top of the **Roomba iRobot Create 2** base, but many iRobot series can be upcycled for limited cost (second hand for around 40-70 EUR).
- The original behaviour is altered with the new "consciousness" of **we-are-the-robots** modular software.
  https://github.com/xemantic/we-are-the-robots
- It can run either on **Raspberry Pi** or **NVidia Jetson Nano** (for more intense machine learning workloads).
- The system is **autonomous**, running from the battery and **auto-charging**.
- It is also possible to operate it remotely, as an extension of a human agent - it can act as a puppet in a show.
- The base can carry up to 9 kgs of load.
- It is safe to navigate among the crowd as long as structures on top are not extending beyond robot diameter.

Robotix Matrix Generix: Shumi Szumacher assembling ad hoc costume for the robot
(I couldn't resist to pair it with Podkowiński's Frenzy of Exultations)

Hardware, which I can provide at the moment for prototyping, and which can be easily extended:

- 2 Roomba robotic bases
- Raspberry Pi with custom robotic software
- Nvidia Jetson Nano
- Kinects and other cameras
- Speakers for sound installations
- Remote controllers

I see you in my dreams
an immersive installations

Lora Ute (https://www.instagram.com/loraute/) and Kia Kali (https://kiakali.weebly.com/)
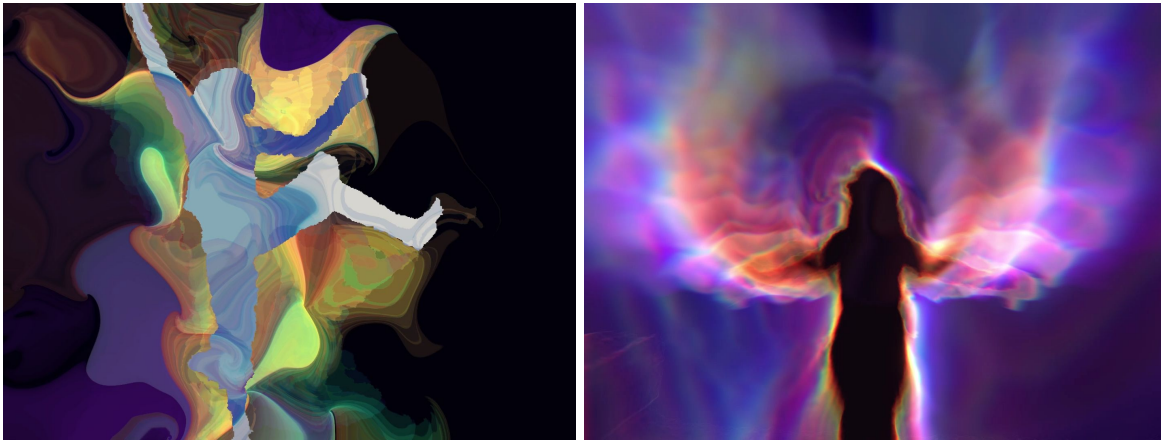
Performance at Dream World and co(art) festival în Timișoara

Synaesthetic and kinaesthetic experience of own movement, reflected by the machine in psychedelic progression of patterns, building the illusion of space and fire / smoke / fluid-like structures of light, with virtually unlimited palette of generative aesthetics morphing into each other.

The movement is captured with a kinect depth camera, and displayed back like if it was a "mirror", in a slow and very fine grained feedback loop powered by my own software and research on "natural" color in generative art.

https://openrndr.org/
https://guide.openrndr.org/#/10_OPENRNDR_Extras/C02_Kinect?id=orx-kinect
https://medium.com/@kazikpogoda/not-so-discreet-charm-of-machine-colors-1390d4dba3db?source=friends_link&sk=2ceccd011ec5452732b9156142e1cb48

Dancers and performers love it. Sometimes I feel like I was selling visual drugs, because many people seem to be getting addicted to this experience of a "trippy-mirror", especially when it's presented with danceable music. This installation, as an experience, serves as my *spécialité de la maison* and has been adjusted to many spaces and events:

- Digital Arts Lab Berlin (hub.berlin conference 2020, rescheduled to 2021)
  https://www.hub.berlin/digital-arts-lab
- Dream World
  https://dreamworld.space/
- 8 Rooms Gallery
  https://www.facebook.com/8roomsgallery/
- Creative Code Berlin
  http://creativecode.berlin/
- University of Applied Sciences Europe (Campus Berlin)
  https://vimeo.com/412656871
- co(art) festival, Timișoara, European Capital of Culture 2021
  https://coart.ro/
- Szczecin LGBTQ+ Pride Festival After Party
- Griessmühle
- It's a Bar - Wilder Garten community performances:
  https://www.wildercommunity.com/

Here is the narrative of the installation prepared for Digital Arts Lab:

Machines are watching us all the time, through various computer vision algorithms used in our mobiles, surveillance systems, autonomous vehicles. But what do they see? Can we share their dream in a synaesthetic and symbiotic experience?

Recently the installation is accompanied by a smaller piece called "oniric mirror", which is also sound-reactive, altering the faces according to acoustic pressure, therefore generating synaesthetic experience as well.
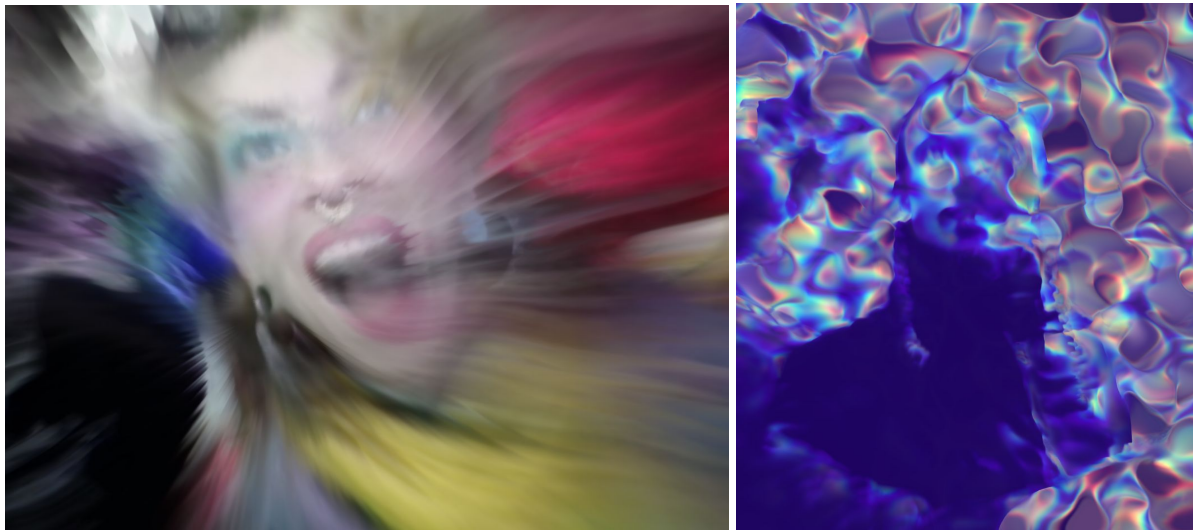
Stevie Stevie, Dream World art director (https://dreamworld.space/) and Willpower (http://willpowerstudios.com/)

When "oniric mirror" is installed vis-a-vis the main projection, both elements together create an interesting meta-feedback loop, adding perceptual and conceptual spice to the experience.

The whole installation is now wrapped up as a "feedback loop machine" with its own MIDI/OSC interface, therefore it can be used for VJ performances during live shows, while being operated by me, or someone else (see other proposals).

Possible collaboration:

- **Performers**, to create unique narratives where the bodies and the movement are augmented and extended by the visual.
- **Musicians**, who need visual effects during their show.
- **Dancers**
- **Choreographers**
- **Visual artists** and **directors of digital narratives** for choosing the finest fragile equilibriums of feedback loop coefficients.
- We can also shoot music videos with it.

I would love to upgrade the experience to more projectors and projection mapping, possibly with 360 degree immersion.

Examples:
https://vimeo.com/380148095
https://vimeo.com/342230851
https://vimeo.com/340095745
https://vimeo.com/364534611
https://vimeo.com/412656871
https://vimeo.com/381457788

"I see you in my dreams" is delivered as an experience, but it also has a conceptual aspect to it, which is very personal. I often call it "applied philosophy", because math formulas and simulations shaping the aesthetics are rooted in my philosophical beliefs on the nature of evolution. This time analyzed not only from the biological perspective, but also seen as a metatheory of culture and forces conditioning homeostasis of emergent phenomena. Susan Blackmore, the author of *The Meme Machine*, argues that we are entering the phase of the 3rd kind of emerging replicators after genes and memes. This time strictly related to the evolution of our technology. She calls them "temes". And in a sense my work is meditating on the theme of temes.

co(art) Timișoara

AI vs genocide
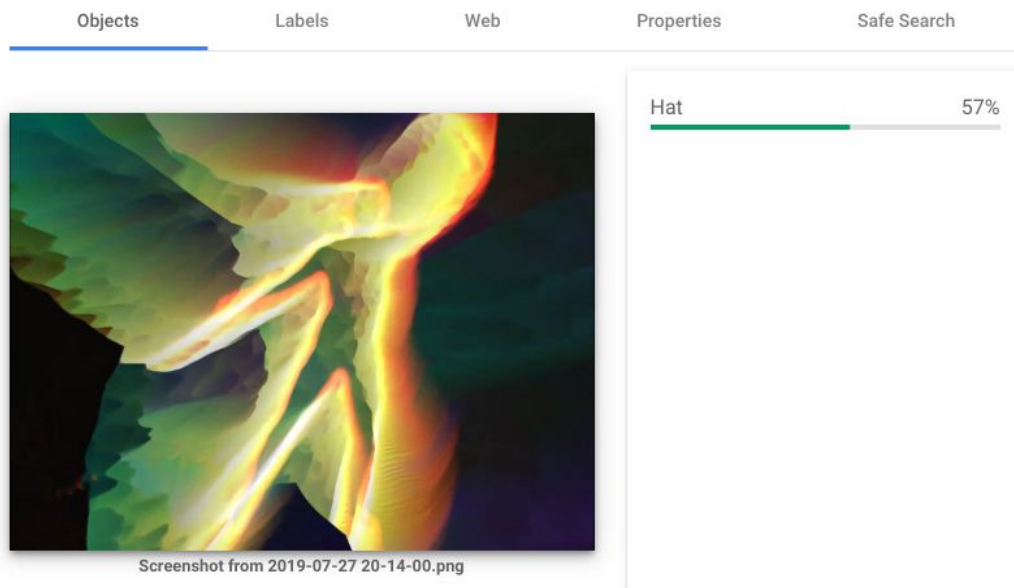
The machine who mistook it's wife for a hat

*An interactive installation visualizing realtime occurrences of hate speech all over the world as a study of **AI based genocide prevention survelience system**.*

Edward O. Wilson, the father of sociobiology which evolved into contemporary evolutionary psychology, once said:

*"The real problem of humanity is the following: **We have Paleolithic emotions, medieval institutions and godlike technology.**"*

This fragment is often quoted by Tristan Harris, the founder of Center for Humane Technology, advocating that technology platforms are **"downgrading humans"** and we should evolve them to put **humanity first**.

I would like to meditate on this theme, while visualizing how AI can be used to analyze hate speech occurrences all over the world, and how it can be used to prevent future genocides. I also want to show how practical use of machine learning is often exploiting our addictions to unimaginable degrees (Facebook feed, YouTube suggestion mechanisms, etc.). In science fiction an interaction with AI is usually pictured as a dialog with an extremely smart entity. But the **use of AI in contemporary technologies is paradoxically rather compatible with the "reptile" part of our brain**.

Big part of this project is already crystalized in terms of visual representation and the research on ontology of hate. Some narrative can be extracted from this article:

https://medium.com/@kazikpogoda/the-shroud-of-turing-cyberpunk-folklore-and-machine-mythology-c5c73dc0c2?source=friends_link&sk=a3028dde1192c1aaf77bd9ec5ec40109

Possible collaboration:

- Media artists
- Visual artist
- Machine learning specialists

Video skin - a costume for the robot

*This is a silicon work using optical fibers woven from Nishijin textile in Kyoto (https://youtu.be/80rOfJnfpgw)*

The extension of the "Emotional robots" proposal with a "video skin" made out of optical fiber submerged in the layers of silicone, with illumination patterns which can be programmed and which will move realtime, also in reaction to environmental conditions, maybe even touch.

I put it as a separate project because it requires additional effort next to what can already be provided with my robotic base and software. I picture the video skin of the robot as something less anthropomorphic, rather purely organic, closer to Cronenberg's aesthetic from ExistenZ. It would be possible to control the light patterns with shaders and associate them with supposed robot's emotional states, also in relation to AI sentiment analysis captured from human faces. I can also imagine reaction to touch as something shaping light patterns on the surface of the skin.

Possible collaboration:

- artists working with silicone
- makers of resistance sensors
- costume designers
- visual artists

Touching the Solaris "ocean"
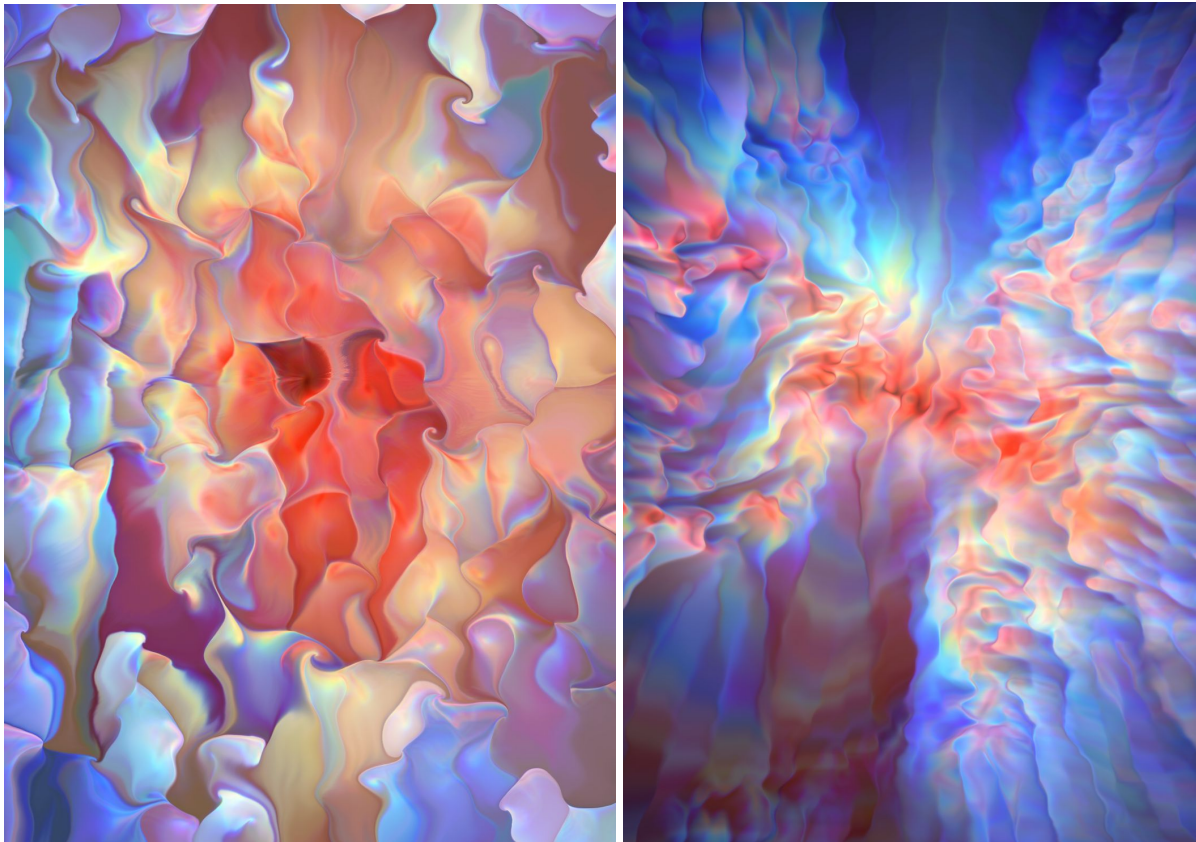
The Body of Noise and Negentropy (2019)

An interactive huge sheet of a "tissue" or "muscle" belonging to an intelligent but unknown creature of imagination, which is playing with us by reacting according to how we touch it. It is supposed to be "organic" and "natural" looking, but unlike any phenomena we know.

I am trying to be aware of the privileges I have, and one of them is to be able to read **Stanisław Lem** in original. His **Solaris** became S-F classics, and film adaptations followed, including one by legendary **Andrei Tarkovsky** and **Steven Soderbergh**. For Lem aliens are neither humanoid nor modeled after us. He is asking the question: **what if alien cognition is so different than ours, that any communication is impossible**? There is the contact, there is a message, but there is no context to understand the code.

The "ocean" covering the Solaris planet represents one "conscious" entity, but with "intelligence" so much different than ours, that after all we can only tell it is there - experience the presence of the phenomenon while being exposed to materialization of our unconsciousness.

I want to provide an installation evoking such a feeling, like if it was **less technological, more organic-like creature**. Like a "tissue" of some unbelievable life form. A "muscle" we can touch, and it even bends with the pressure we put, and it will counteract. But we cannot tell what the reaction signifies, only experience the aesthetic aspect of it.

Technicalities:
- Back projection, on elastic (lycra) screen.
- Pressure measurements also from the back with kinect depth camera.
- Associated audio installation with localized sound.
- Distance sensor measuring how much the screen was bent.

Possible collaboration:

- installation artists (scaffolding of the structure)
- tailors (lycra screen)
- media artists
- musicians / composers
- sound engineers
- performers who might stay hidden behind the screen and respond to the touch with back-pressure
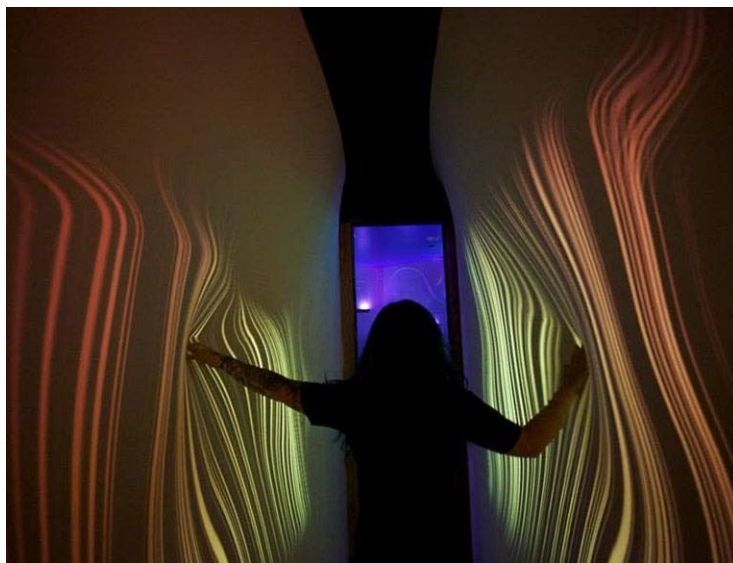
Inspiration (although much more static): "Lycra Tunnel" from Meow Wolf's House of Eternal Returns

Generative philosophy
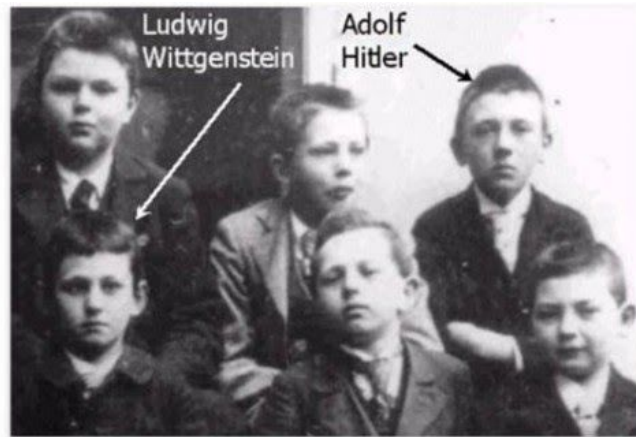
A visualization of Wittgenstein's Tractatus Logico-Philosophicus, probably the most important philosophical book of the 20th century, and the extensions of the original text synthesized by the machine.

This project was born during **AI & Artificial Creativity Workshop** by **CO : QUO x Digi-Gx** run by **Sofia Crespo** and **CJ Carr** (the 1st edition of this Artist in Residence program). When CJ showed us how to train the GPT-2 model for neural synthesis of text, I didn't hesitate a moment to put the bar for AI as high as possible, and used Wittgenstein's work as a base. I didn't expect much from the outcome, but what came out actually blew my mind. The *Tractatus* is a quintessence of *meta*, so the machine went *meta-meta*. The narrative behind this project is described here:

https://medium.com/@kazikpogoda/deconstruction-of-hitler-neural-synthesis-of-generative-wittgenstein-3682484a7669?source=friends_link&sk=369f1512ec89948e346ce0f814784118

"Maybe that's it, that's the thing. That people shaping the world are driven by certain aesthetics more than anything else. And we just need to pray so that they will focus on the shape of the discourse rather than the appearance of our bodies composed into social structure. But maybe the time has come to disrupt the discourse itself. Maybe all the traditions of modern Western philosophy, which are consciously or unconsciously regressing to Wittgenstein, should start questioning their own aesthetics?"

I have a very crystalized vision regarding how this project will be realized, with rich immersive and interactive aesthetic parts, and **political narrative intended at deconstruction and demolition of right-wing ideologies**.

Possible collaboration:

- visual artists
- media artists
- sound artists
- machine learning specialists

A. Scriabin: Prometheus or the Poem of Fire
a tribute to the first VJ
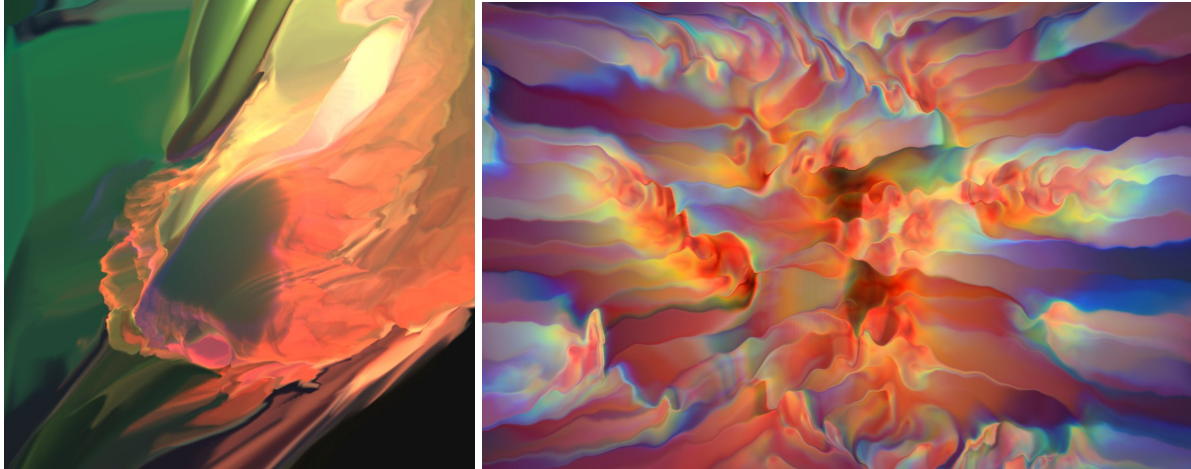
*Alexander Scriabin was composing for both - orchestra and the first "light organs" he designed. In this sense he is often considered **the first VJ**. Whenever his pieces are performed today, it's with a huge disappointment in regard to the visual part. I believe it's because visuals are prepared without proper understanding of Scriabin's original intentions, strongly influenced by his theosophic and deeply gnostic beliefs. He was certain about the very strong connection between physicality of music, harmony, mathematical structure of composition and physical properties of natural light.*

https://medium.com/@kazikpogoda/not-so-discreet-charm-of-machine-colors-1390d4dba3db?source=friends_link&sk=2ceccd011ec5452732b9156142e1cb48

I want to provide an immersive experience for Scriabin's pieces performed live. Normally *Prometheus* is performed by the orchestra, but fortunately there is also transcription for 2 pianos. Therefore we can start small with 3 pianists - one playing special light organs prepared for this purpose - *Clavier à lumières* - generating waves of colorful immersive fire.

Collaboration:

- Pianists
- Visual artists with experience in projection mapping

Fluidic floor
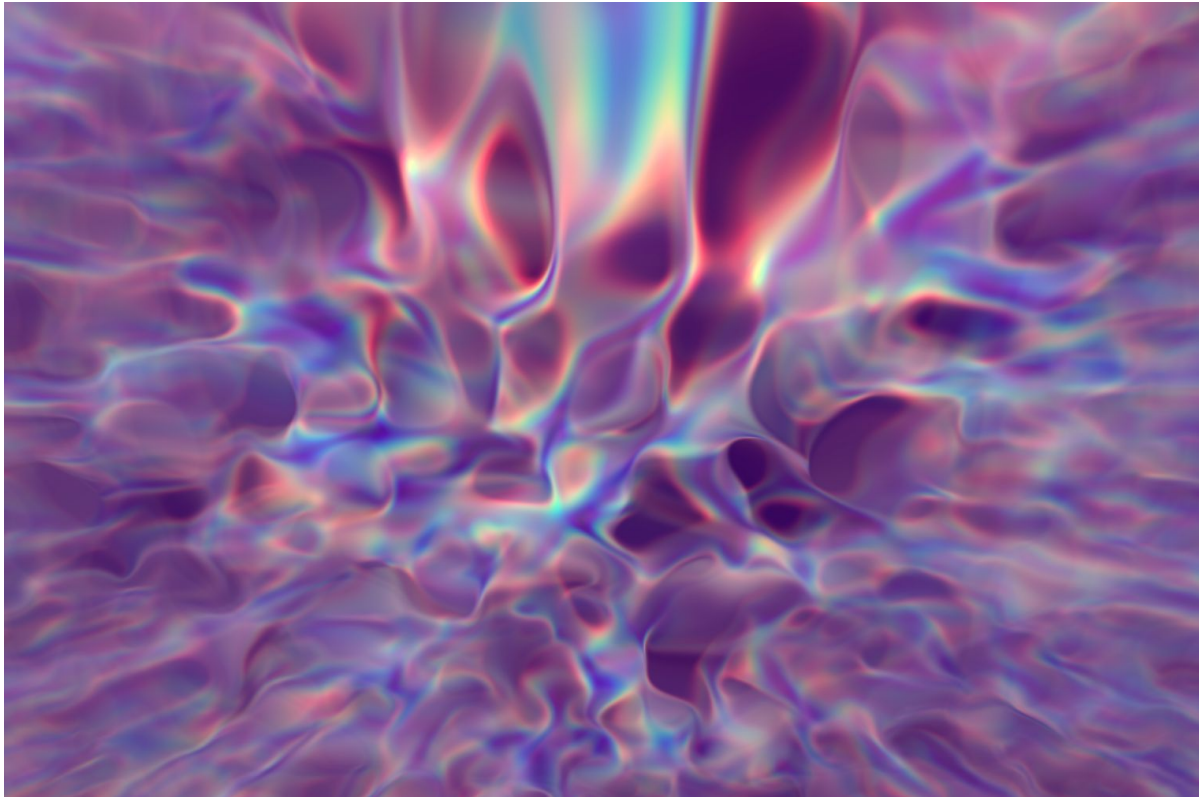
A study of generative iridescence (2020)

Projection on the floor, from 2 simultaneous projectors installed above and displaying the same content but in the way which is reducing shadows. It's a transposition of "I see you in my dream" installation, this time installed in vertical instead of horizontal axis. Generative visuals will constantly evolve, but with a big influence of the motion captured from above. Such a setup would create completely new possibilities for immersive digital "fluids" moving in waves according to the steps. Projection layers depending on the height of detected objects, etc.

Special features:

- Interesting exploration for kids.
- More suitable for contemporary dance performances happening closer to the floor level, giving the dancer unconstrained movement expression.
- Dynamic projection layers on objects elevated above the floor level (sand dunes, minecraft-like cubes, table tops, even food on the plates).
- This includes projections on human bodies.

Possible collaboration like for "I see you in my dreams" project.

Digital aura - Interactive holographic projections

Kia Kali's somatic explorations at Dream World

Extension of "I see you in my dreams" installation, but this time it would be back projection on glass, creating an illusion of seeing holographic aura of oneself. Imagine that what is black in this picture would become transparent.

Technicalities:

The technology of transparent projection films has been there for a while. Usually it is used for displaying regular video, not generative forms. The latter, if prepared properly in relation to immersive experience, can produce unseen aesthetics. When combined with possibilities like touch screen features, it will be something like Minority Report user interface, but organic. As the installation is supposed to evoke the feeling of sanctity or divinity, I would like to possibly use an interpretation of medieval mystique music composed by Hildegard von Bingen.

Possible collaboration:

- Installation artists
- Makers
- Visual artists
- Sound artists

Immersive performances with pixel feedback loop machine

Angelic appearance - generative visual prepared for the Angels In America opera staged at UdK UNI.T Theater (2019), these visuals were projected behind the stage in the key moments of the play, on the round screen having 7m in diameter.

Dream World's Clubhouse, open to our guests after the experience

It's about using "I see you in my dreams" installation mechanics on the dance floor as a visual behind or next to the DJ, or behind the stage in theatrical play, with own VJ setup or choreography, for the purpose of a particular show with its own narrative.

Possible collaboration:
- Performers
- Choreographers
- Dancers
- Directors
- Stage designers
- Musicians

Fluidic floor as a performance stage
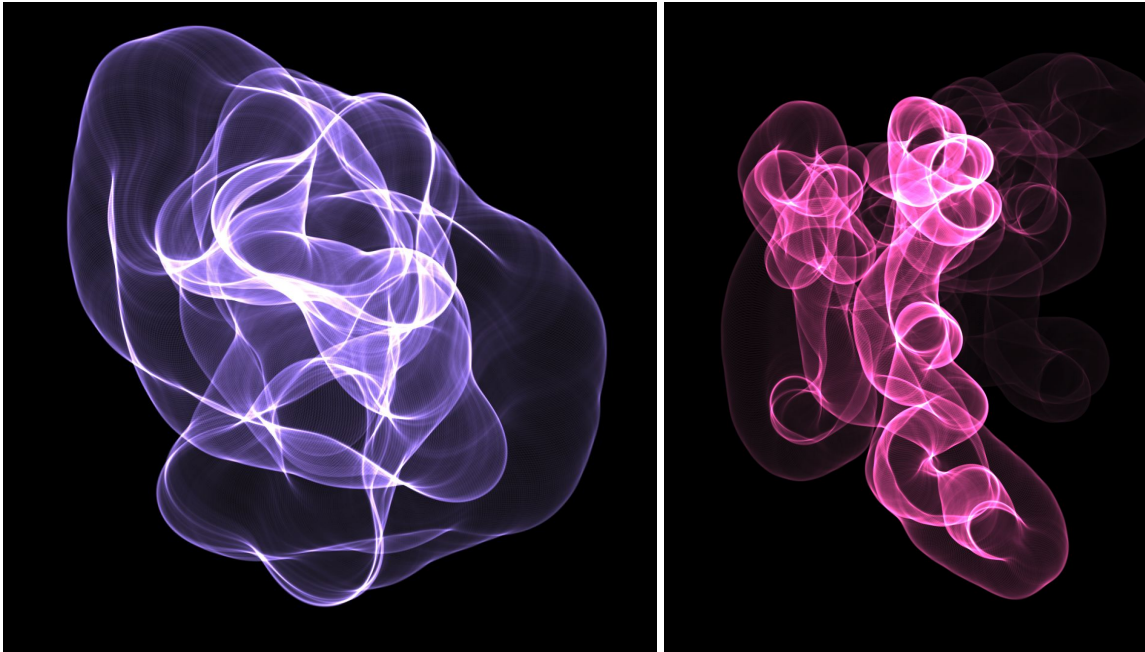
The "Fluidic floor" installation concept can be adjusted to specific performances with its own visual choreography, for example I picture contemporary dance performance, where a tracked dancer's body can leave a generative trace on the floor, therefore preserving the movement in time.
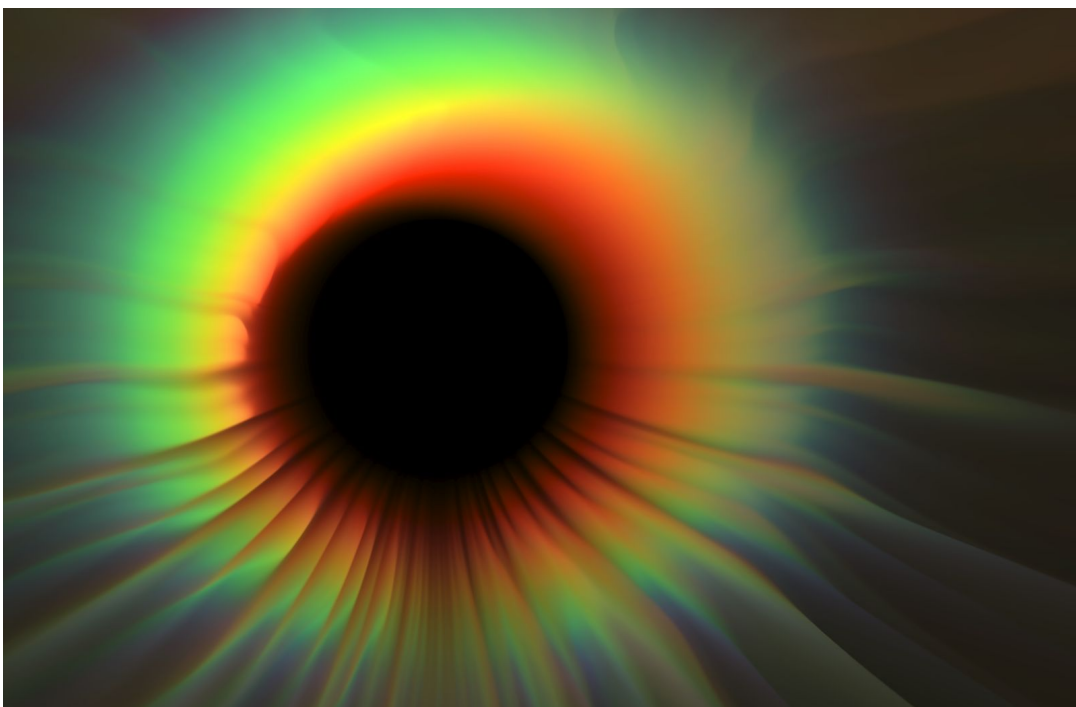
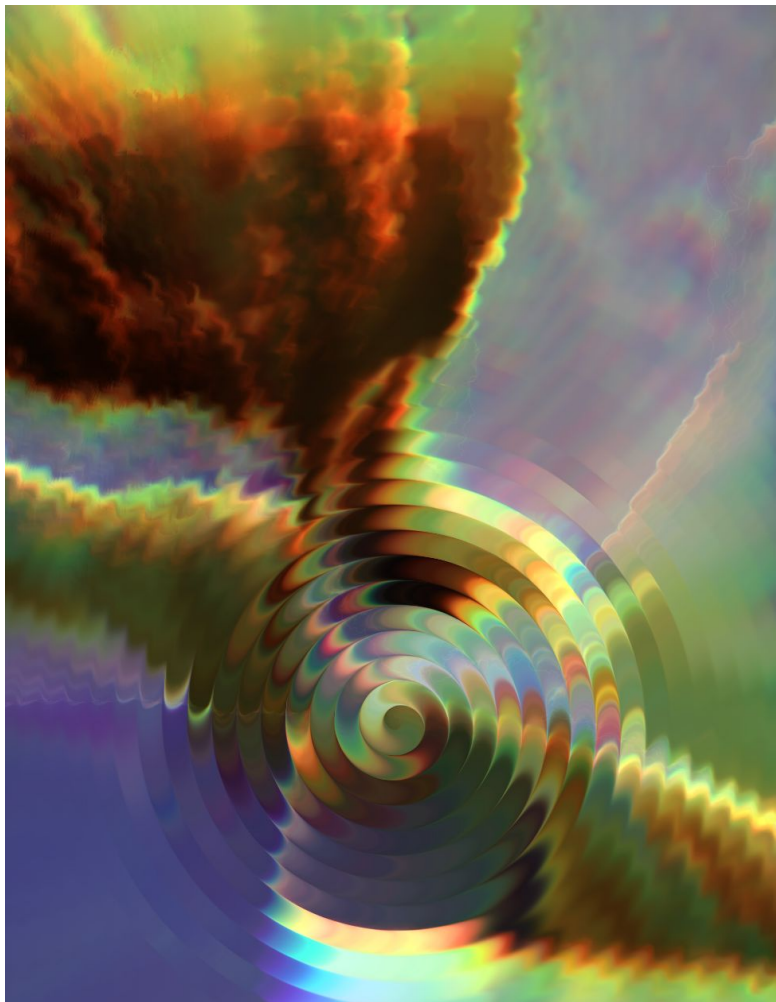Possible collaborations:

- Performers
- Dancers
- Choreographers
- Visual artists
- Media artists

Generative music videos

I often produce generative sound-reactive visuals, which might provide an interesting foundation for music videos of any genre. It is also possible to generatively alter any video footage.
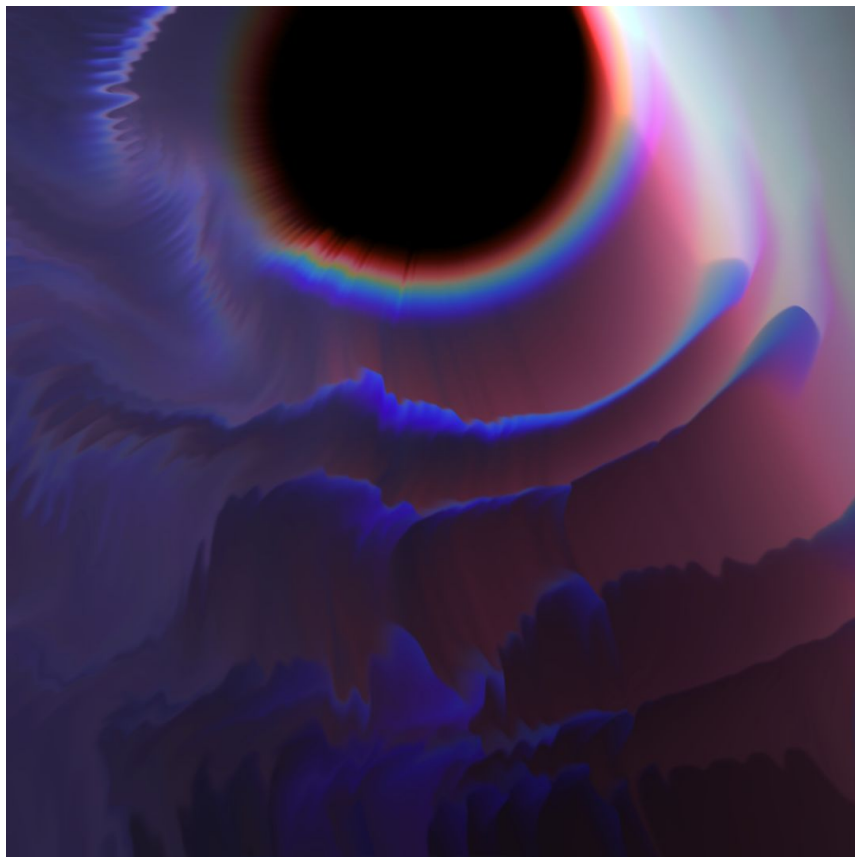
Collaboration:
- Directors
- Composers
- Choreographers
- Videographers
- Visual artists seeking special effects in Touch Designer, After Effects, etc.

CRT video wall

co(art), Timișoara (2019)

"The television screen has become the retina of the mind's eye. For that reason, I refuse to appear on television, except on television. O'Blivion is not the name I was born with. It's my television name. Soon, all of us will have special names, names designed to cause the cathode-ray tube to resonate." – Dr. Brian O'Blivion from Videodrome by David Cronenberg

I collected something like 7 random CRT screens from the older media art installations. It is possible to build a single video wall or a kind of gate out of them and synchronize the screens into a single display. It is also possible to obtain much more of these TVS for the sole cost of the transport.

I would also like to make a custom input controller controlling the whole visual across several displays with a single physical spin, like a spinning wheel. Therefore conceptually, an old school analog input would be connected with analog output, but through digital shading and projection mapping.

The hypnotic charm of the old display technology can also explore references like from Cronenberg's Videodrome:

Which leads directly to Marshall McLuhan, "The medium is the message". Something we tend to forget as it is becoming more transparent when the quality of new media transforms them into a fabric of perceptual phenomena we take for reality. The regression helps us to reflect on the precession of Baudrillard's simulacra and simulations, the thoughts which formed the canvas for the gnostic Matrix trilogy by Wachowski sisters.

"5.62 This remark provides a key to the question, to what extent solipsism is a truth. In fact what solipsism means, is quite correct, only it cannot be said, but it shows itself." -- Ludwig Wittgenstein, Tractatus-Logico Philosophicus

5.6331   For the form of the visual field is surely not like this

Eye —
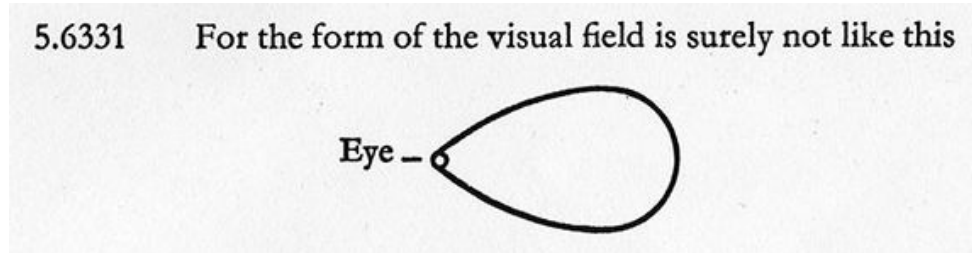
Technicalities:

- it is possible to achieve thanks to the composite video output of Raspberry Pi computers.
- glslViewer by Patricio Gonzalez Vivo, the author of The Book Of Shaders which became a bible of artists working with shaders, is by design running on low-end Raspberry Pi GPU
- Cathode ray tubes are producing constant 50Hz hiss. It used to be omnipresent at our homes, but nowadays we have forgotten this background sound of technology which can be annoying. For this reason the whole installation should be audio-separated from the surrounding.

Collaboration:
- Installation artists, who want to help with physical setup of the wall
- Media artists who want to design media content to be displayed (I can teach shaders)