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Who is the Next?

Detecting alcoholism, Not just us, Small

Addicts

The Rhythm of Wind

Smile

2015

Data Drops

Tree of Hands

WiFipedia

2014

Wishing Wall

Speed of Markets

The Highest Human Tower

Circular Knitic

Traveling Fish

2013

Binoculars to... Binoculars from...

NeuroKnitting

2012

The Rhythm of Sao Paulo

SPAMpoetry

Kombi

Wireless Poetry

Baltic Sea Radio

Budgie Waltz

Copyright is for Losers

2011

The Rhythm of City

The Flux of Sea

Popcorn for Cycling

Pixel Killers

2010

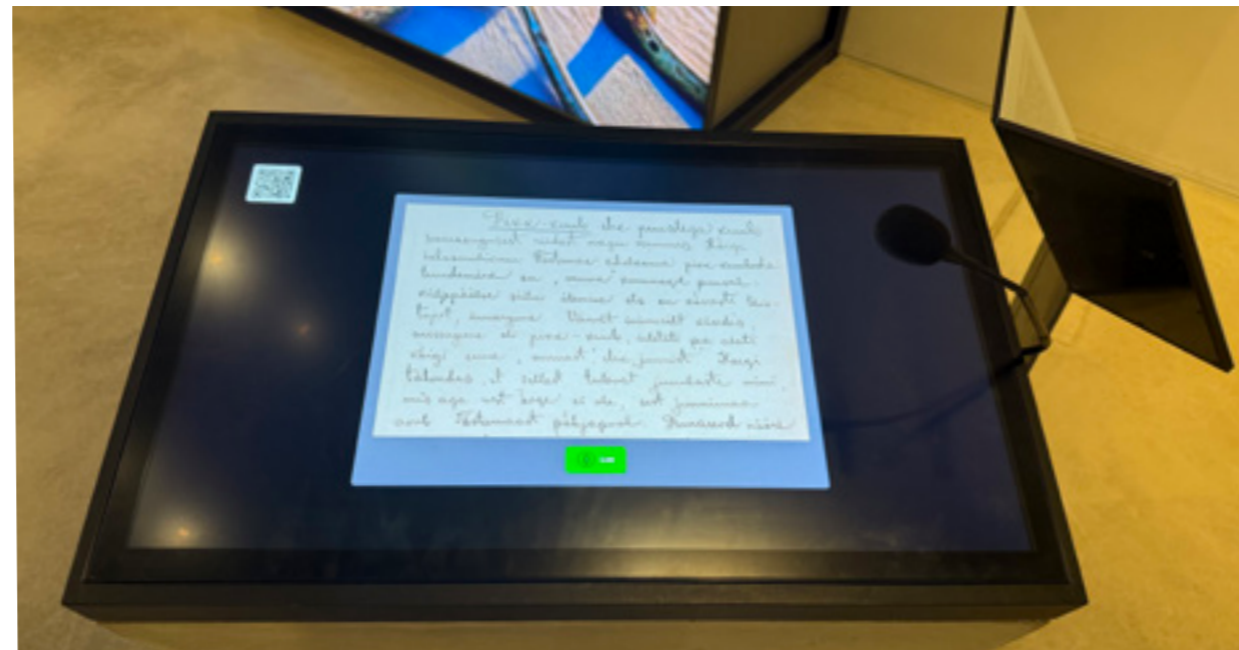
Echinodermata

Sonima

Shopping in 1 Minute

2009

My name is 192.168.159.16



## Quantum est in Libris

Varvara & Mar

Interactive art installation

2025

Exhibited:

– permanent exhibition of the Estonian National Museum (from 12 June '25)

Commissioned by the Estonian National Museum

Quantum est in libris is an interactive installation that sets Estonian cultural heritage into a playful dialog with the quantum age and artificial intelligence.

In 2025, Estonia celebrates 500 years since the publication of its first book in Estonian. Over the centuries, not only have our methods of writing and reading evolved, but also the ways how culture is created, preserved, and experienced. Culture exists in a perpetual state of tension — between conservation and transformation — a tension made more visible in today's era of rapid technological acceleration.

Quantum est in Libris gives form to this tension. It brings together two seemingly distant realms: century-old manuscripts from the Estonian National Museum's ethnographic archive and contemporary generative AI. On one side are handwritten fieldwork diaries: personal accounts of daily life, traditions, and lived experience. On the other, a machine learning model that interprets these fragments not through historical and cultural understanding, but through patterns derived from its own training data.

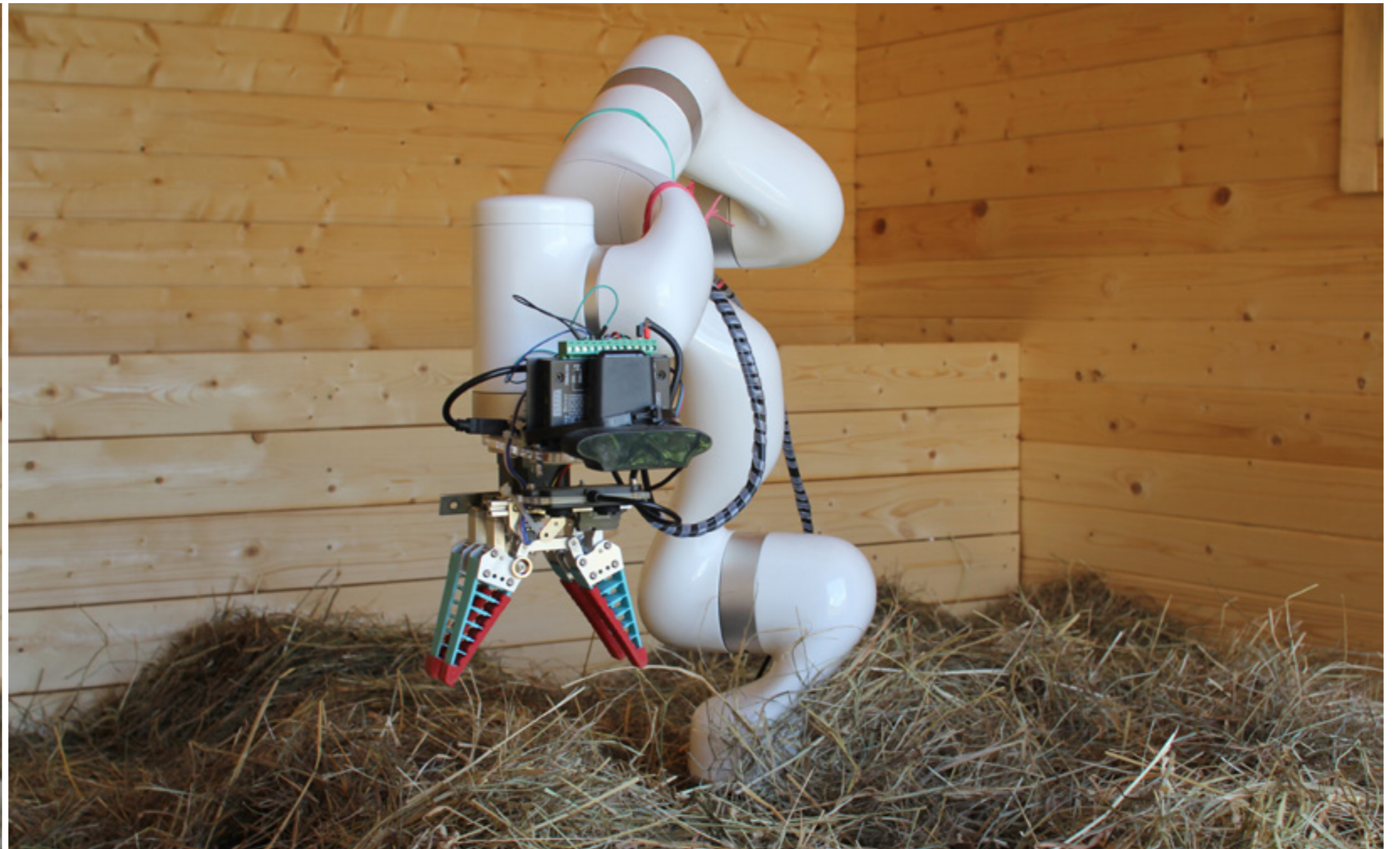
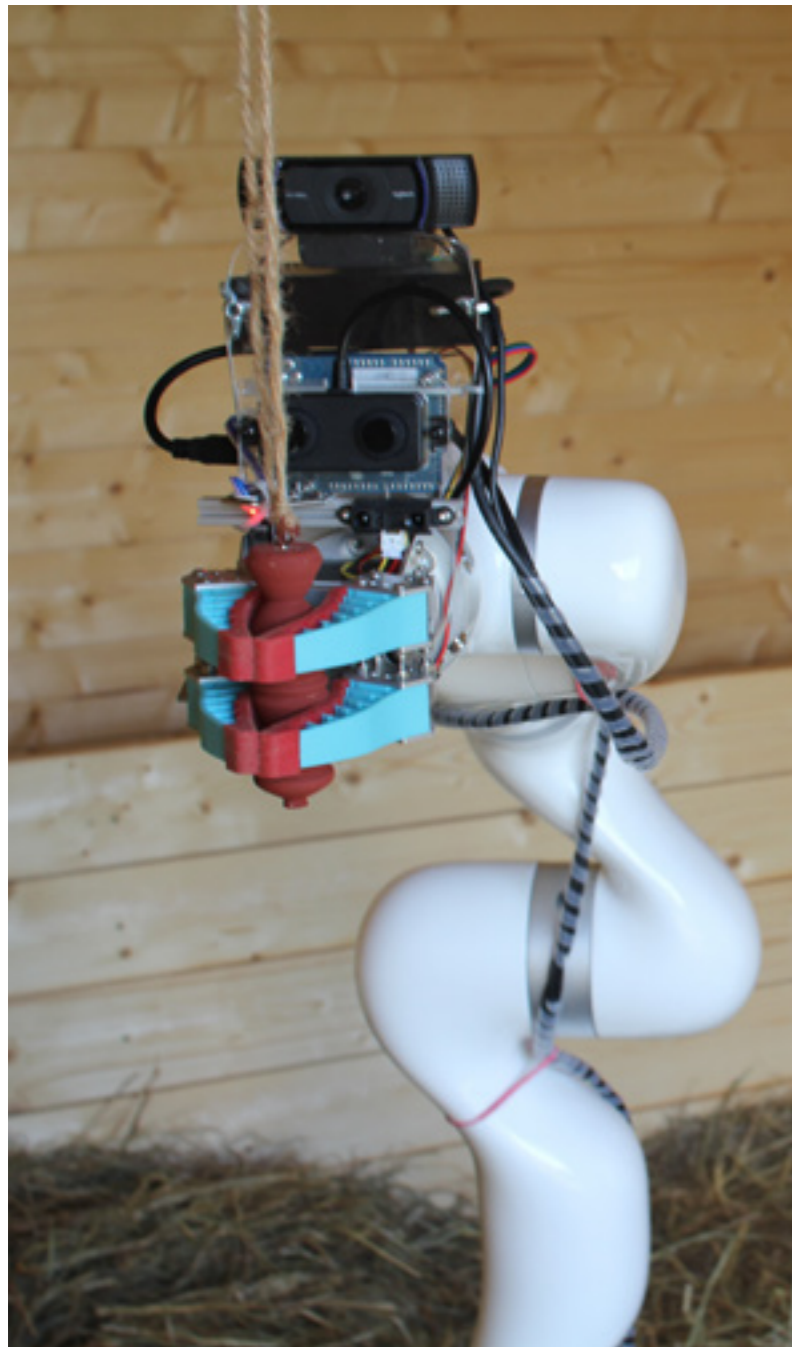
The active link between past and present, between archive and algorithm, is the visitor. At an interaction station, participants read aloud randomly selected passages from archival texts. These spoken words are captured and sent on a journey through a towering screen sculpture, where they are transformed into visual imagery. The Gen-3 and Gen-4 AI models that lack any direct training on Estonian cultural heritage, generate visuals based solely on linguistic input, revealing how machines "read"

without context or historical grounding.

Quantum est in Libris is not an act of preservation. It is an intervention, even a provocation that raises critical questions: What does it mean when machines interpret culture? What is the meaning and significance of this visual spectacle based on entered texts and prompts?

The art installation opens up a new, exciting, yet uncomfortable dimension to the concept of cultural heritage: in a world where data is fluid and interpretations are impermanent, the status of heritage is fragile. Digital heritage is no longer just a matter of preservation and transmission, it is equally about mediatization, machine creativity, and the potential for distortion.

Who shapes memory in the age of AI? What do we remember and what gets reimagined? And how do we navigate this shifting terrain where technology becomes a co-author of cultural meaning?



## A Needle in a Haystack

Varvara & Mar

Robotic art installation

2024

Exhibited:

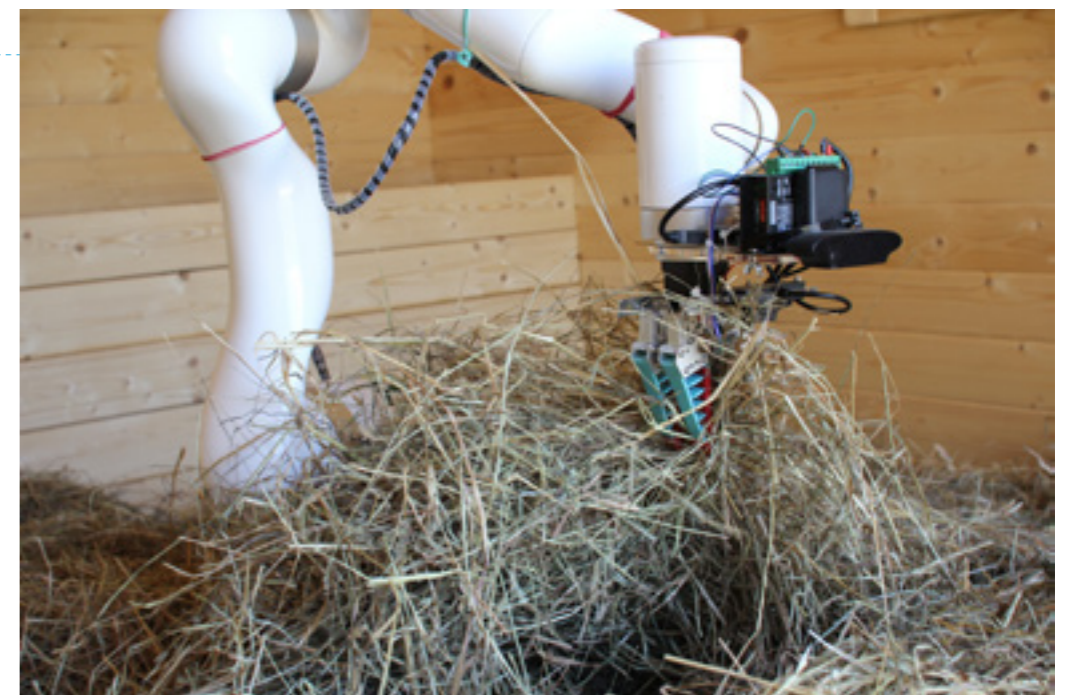
- Tartu Christmas City, Estonia (30 Nov'24 - 4 Jan'25)
- KIKK Festival, Namur, Belgium (17-27 Oct'24)
- land art exhibition Wild Bits, Maajaam, Estonia (25 May - 15 Sep'24)

Everyone knows that finding a needle in a haystack is an impossible task. But what about a robot? Positioned at the centre of a haystack, the robot's sole mission will be to locate a needle hidden in the hay. It will signal its triumph by ringing a sheep's bell if it succeeds.

This project is a provocative exploration of technology's limits when faced with tasks deemed impossible for humans. It challenges the notion of artificial intelligence as a mysterious, all-powerful 'black box'. Critics like Kate Crawford argue that AI is neither truly artificial nor intelligent. Similarly, Jeff Bezos has labelled it "artificial artificial intelligence", highlighting its reliance on human labour that is often underpaid work of crowd workers.

Moreover, this artwork prompts reflection on the relationship between humanity and the environment, adding a nuanced layer of commentary to the interaction between technological prowess and natural elements. The project also raises critical questions about our reliance on technology: Is this the right path forward?

Project is co-commissioned by Wild Bits and DDT Lab.





## Abello, Imaginary Landscape

Varvara & Mar

Solo exhibition

2023

Exhibited:

– solo show at Abello Museum, Mollet del Valles, Barcelona (16 Sep'23 - 7 Jan'24)

The exhibition *Abello, Imaginary Landscape* celebrates Joan Abelló 100 anniversary through the lens of contemporary artist duo Varvara & Mar. After having spent time in Joan Abelló archive and museum during their residency in summer 2022, the artists have connected with Abelló's practice and life, which is reflected in the new artworks presented at this exhibition. Moreover, Mar Canet, a native of Mollet del Vallès, recalls the influential presence of Abelló in his hometown.

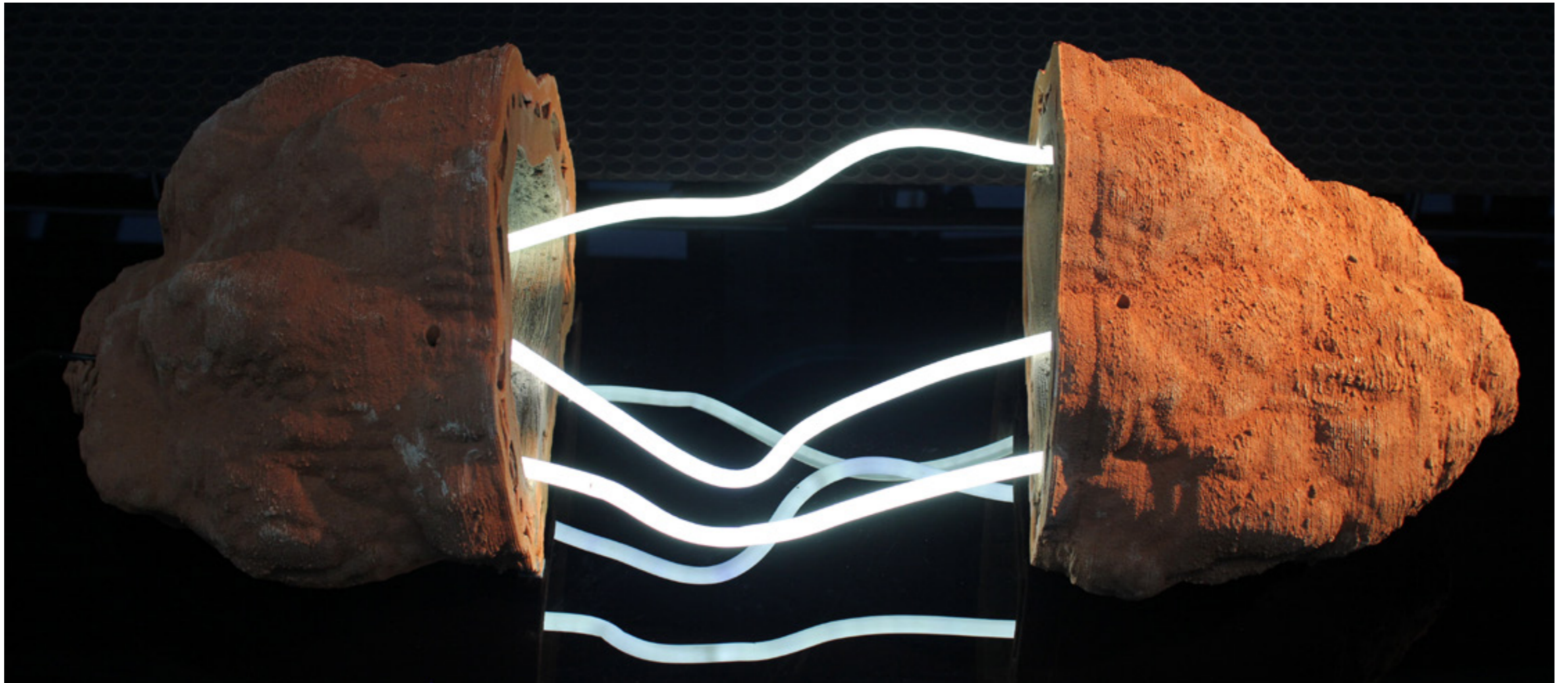
The exhibition unfolds in three segments. The initial space draws inspiration from Abelló's collection and his fascination with being depicted by fellow artists. The walls showcase portraits of Joan Abelló created by renowned artists, interspersed with AI-generated portraits that reinterpret the artist's visage in a multitude of ways and styles. This approach allows the artists to extend Abelló's obsession into the neural age, a time when it is speculated that artists will be superseded by AI.

The central section is a tribute to landscape and travel. Abello loved to travel and skillfully combined voyages with art practice. In the imaginary journeys that Varvara & Mar guide the audience through, the artists transport the viewers back to the locales that Joan Abelló visited and immortalized in his paintings. The video work on display reimagine these locations in the present day through the lens of Abelló's aesthetic, as

seen by machine eyes in the age of the Anthropocene.

In the final segment, the artists unveil their latest piece, 'Vision of Destruction'. This interactive artwork enables the audience to experience how a mere glance transform a stunning landscape view into an industrial site.

As early adopters of creative AI tools, Varvara & Mar are renowned for incorporating technology into their art practice and for their contemplation of social and environmental themes from a machine age standpoint. They probe into how technology has altered our viewpoints, transformed us, and impacted the environment we inhabit.



## Beneath the Cloud

Varvara & Mar  
ceramic sculpture (two of 50 x 50 x 50cm, neon tube) 3D printing with  
robotic arm, generative AI

2023

Exhibited:

– group exhibition Loading Ceramics curated by Martin Melioranski and  
Lauri Kilusk at the Estonian Architecture Museum in Tallinn (12 Sep – 12  
Nov '23)

The artwork delves into the foundational pillars of today's neural technology. While AI is frequently and excessively hyped as capable of thinking, making decisions, and even creating art autonomously, it fundamentally relies on human labor. This labor is, at times, carried out under unjust conditions, and the human part often remains unacknowledged. The artwork comprises AI-generated cloud at 1:100, crafted using robotic 3D printing in clay. The cloud is broken into two halves and neon lights placed in-between them symbolising the inner pillars of deep learning.

The work was produced in a short residency of the Estonian Academy of Arts, Faculty of Architecture 3DL and Department of Ceramics, which synthesizes critical spatial thinking with material and parametric additive layering technology.





## Visions of Destruction

Varvara & Mar  
Interactive installation (Stable Diffusion, eyetracking)

Technical realisation: Mar Canet and Isaac Clarke

2023

Exhibited:

- solo show at Abello Museum, Mollet del Valles, Barcelona (16 Sep'23 - 7 Jan'24)
- peer-reviewed conference exhibition In Unruly Times at Siggraph Asia 2023 Art Gallery in Sydney (13 - 15 Dec'23)
- AI art gallery at CVPR2024 in Seattle curated by Luba Elliot (17-21 June)

The interactive artwork "Visions of Destruction" presents an immersive real-time AI-driven experience that portrays humankind's devastating impact on terrestrial ecosystems. The viewers' gazes are seamlessly detected through an eye-tracking system, in the viewed areas unfold captivating exploration animations of the consequences of our actions on the environment. The simple act of observation results in transformations of the AI synthetic landscapes generated using Stable Diffusion.

With each fixed gaze upon the landscapes, the viewers inadvertently contribute to their visual pollution and destruction. However, amidst this sombre reality, a glimmer of hope emerges when users graciously grant the landscapes moments of respite by averting their gaze. It is in these fleeting instances, as indicated by the elapsed time when eye-tracking fails to detect any viewer, that the landscape begins its remarkable journey of regeneration. Through this symbiotic dance between human presence and absence, the landscapes find solace, allowing their inherent beauty to flourish once again. Let us recognize the profound impact of our actions, embracing the responsibility to protect and nurture these precious natural wonders.

Living in an era marked by disorder, climate crisis, inequality, and the threat of systemic collapse, we are driven by an urgent need to address these existential challenges. Our artwork mirrors this urgency and disorder, harnessing the vast power of AI to illustrate

the potential devastation of our ecosystems.

"Visions of Destruction" encapsulates deep time in its evocation of nature's splendor, while acknowledging the harsh reality of the irreversible damage we've inflicted on our environment. This piece brings to light the tension between the idyllic beauty of nature and the dystopian landscapes created by human activity.

As viewers interact with the piece, their gaze initiates a transformation in real time. Through this intimate interplay, we seek to inspire an understanding of the gravity of our actions and the fleetingness of time – finite, invaluable and irretrievable. Each gaze leaves an indelible mark, echoing the profound effect we have on our environment.

The installation software is built using Python and incorporates various open-source libraries along with custom-developed software. The AI Python code is built upon PyTorch libraries, primarily utilizing Stable Diffusion with Diffusers and Frame Interpolation for Large Motion models. Additionally, we leverage OpenCV to generate masks for eye-viewing areas. One noteworthy feature of our eye-tracking system is its automatic calibration-free functionality, which seamlessly detects the person most engaged with the sensor.



## After everyone has left for planet b

Varvara & Mar

Installation

2022

Exhibited:

– solo show at Kanal Gallery in Võru, Estonia (30 July-10 Sep'22)

Our solo exhibition, *After Everyone has left for Planet B*, invites the audience to think about what will remain after us on Planet A if we bet on Planet B.

General common sense would say that there is no Planet B, and we should focus and target all resources on fixing Earth that humanity has managed to bring to a fatal stage. We are living the geological time known as Anthropocene – the age when human activity began to influence the planet's climate and ecosystems significantly.

Nevertheless, the super-rich, like Elon Musk and Jeff Bezos, choose to invest (but also obtain a big junk of public funding) in space research and speculate about the possibility of leaving for Planet B. Such naive escapism surprisingly gains attention instead of undoing the ecological damage on Earth and begins to be considered as an alternative option to the heavily contaminated and problematic Planet A. The billionaires reassure the public of their altruistic intentions for a better future while realising their power, capital, and technophilia dreams. Why do the people like Elon Musk want to save us? And most importantly, why do they want us to believe that we need to be saved?

Our earlier work, *Tree of Hands* (2015), talks about Anthropocene and proposes a dystopian landscape letting the audience, through interaction, engage with it. Its' beautifully painful scenery served as a starting point for the other works and objects displayed in the exhibition.

We undertook a trip to La Pineda – probably the most contaminated beach in Spain

– close to Tarragona's chemical industry. This industry spills millions of plastic pellets into the sea, causing plastic pellets invasion. So far, no responsibility has been taken by the polluting industries. In plastic pollution, manufacturing and transporting pellets is in second place after plastic waste. Our research trip to Stroomi beach in Tallinn proved that transportation also causes considerable spills of pellets.

The sad reality is that microplastic is a part of our daily food chain. Moreover, the new fossils – the plastic glomerates – can already be found in the environment marking the geological age of the Anthropocene.

The exhibition should be viewed and experienced as a single installation that is comprised of multiple objects and installations stretched together by sound work.

In the exhibition, only found plastic waste and objects were used. All the technology used was owned previously.

Sound design by Taavi Varm

The track "Dead Planet 002" was recorded in the Norwegian mountains, Hestenesøyra, in a cabin without electricity, in the middle of rain and fog on an iPad. The monotonous bass is the Kurdistan flute duduk played by me, the waves are recorded by the Arctic Ocean, and Varvara's questions and answers are read aloud by NaturalReader. The track has not been mixed and all sounds are recorded in real-time.



## Psychedelic Forms / Varvara & Mar

3D printed ceramic sculptures, glazed by hand and co-created with AI-model / 2022

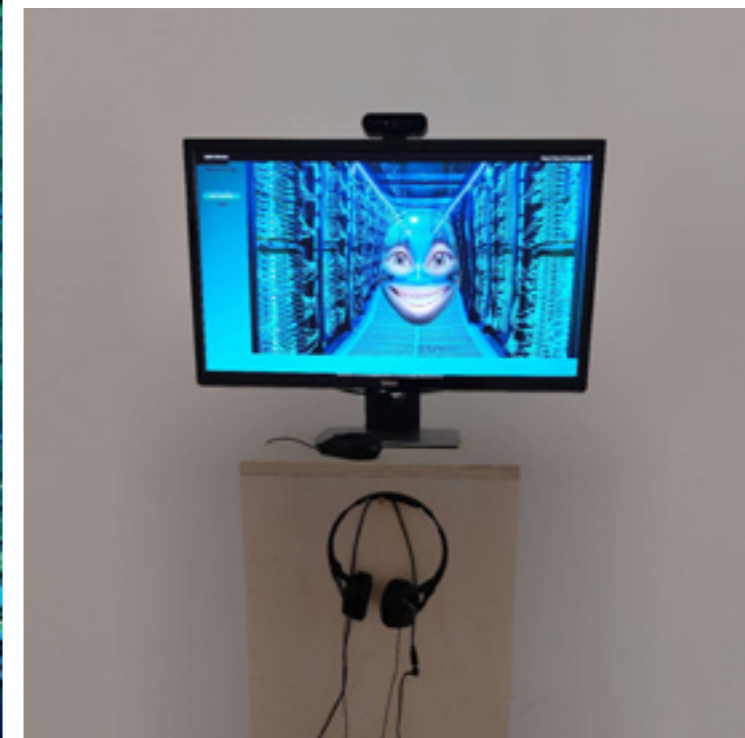
Exhibited:  
 - art gallery, TEI'23, Warsaw (26 Feb-1 March'23 )  
 - group show at Estampa art fair in the Alalimón gallery booth, Madrid, Spain (13 – 16 Oct'22)  
 - solo show Psychedelic Trips at Alalimon Gallery in Barcelona. Part of ISEA extended program and Barcelona Gallery Weekend (10 June – 18 Oct' 22)  
 - group show at Art Mesh curated by Torun Ekstrand, Cultural Center Ronneby Art Gallery, Sweden (5 – 22 Feb'22)

Psychedelic Forms is a series of sculptures that explore deep learning (DL) possibilities for creating a form guided by text prompt and 3D model. The selected generated digital 3D objects were then manually altered and prepared for 3D printing in ceramics. Glazing happened by hand, often inspired by the digital model's AI-generated vertex colors.

Psychedelic refers to unexpected or unexplored imagination that the human eye has not seen before. Although the original input was well-known ancient sculptures, like Venus, the AI model was capable of stylising the mesh with the inputted text prompt in such a way that the new form was hardly recognisable.

As we know, DL is known for the vast amount of content generation with its own style and aesthetic, which feels repetitive in the long run. However, it is impossible to achieve exact repetition from the same input. In the case of this project, the repetition was further destroyed or made impossible by adding material, physical forces, and chance into the quotation.

As a result, the neuro-avant-garde mixed with artisan techniques and processes offered irregular transformations that contribute to creativity and imagination augmentation. In other words, irregular mutations can lead to new creations that would not happen otherwise.



## Keep Smiling / Varvara & Mar

Interactive online performance / net.art

2022

Exhibited:

- Panoràmic Festival, Fundació Lluís Coromina – Espai Isern Dalmau, Barcelona (9 Nov-17Dec'23)
- art gallery SIGGRAPH ASIA, Daegu, South Korea (6-9 Dec'22)
- group show DRHA 2022 curated by Bill Balaskas at Stanley Picker Gallery, London (4-10 Sep'22)
- group show at xCoAx conference at Convento São Francisco in Coimbra, Portugal (6 July – 30 Sep'22)
- group show at Tabakalera, San Sebastian, Spain (7 Jan - 27 Feb'22)

Commissioned by Tabakalera for the exhibition "Technological unemployment" curated by Adonay Bermudez.

AI technologies are widely applied for making decisions instead of humans in numerous fields from medical diagnoses until hiring, and as well, firing the workers. For instance, an AI hiring startup in London called Human promises that their algorithm is able to choose the most prospective candidates for the client by analyzing the interviewee's emotional expressions. And there are hundreds (if not thousands) more companies, like HireVue, Emotient, Affect, that deploy affect detection systems for describing the human inner state and personal qualities. Meanwhile, there is no reliable evidence that the prediction of emotional state from a face is accurate (Barrett et al. 2019)

Hence, humanity has reached a point where machines can decide for and over people while ignoring all sensitive and emotional information that a human will take into account. For example, it is a known fact that Amazon applies automatic tracking of its employees in the warehouses. Moreover, the automated systems fire a worker if his/her performance has dropped below-set average (Lecher 2019). Of course, this AI algorithm does not consider all the human reasoning for working slower than other days. However, it seems that AI has become a new golden calf that is followed blindly: algorithms decide and a worker obey. This is how AI-powered efficient automatization functions. Instead of shortening our working hours, they are increased and we are paid less in insecure job positions. At the same time, the benefits of the companies in this area are growing.

Keep Smiling is an artwork that stages an online interview with the audience. By clicking 'start interview' begins the hiring process performed by Super Deep AI agent, which supposes to be an AI algorithm. The only thing that is evaluated is the rate of a smile, which determines when one will be fired. While doing the interview the system aims to extract the maximum profit from the participant. In the end, the art piece incorporates a number of elements from the AI industry illustrating how decision-making and labor culture have been shifted and how absurdly they are based on extraction and monitoring. For instance, similar to Amazon's 'picking rate' the artwork evaluates 'smiling rate'. If the audience performs below the set 'smiling rate', one is being fired. Although it is difficult, if not impossible, to judge one's happiness, AI emotion detection algorithms are deployed exactly for this purpose in real-life applications. Keep Smiling literally lets the audience experience how false AI is in detecting and codifying emotions.

While we are so occupied thinking about humans being replaced by robots, the experience of work is changing in relation to increased surveillance, algorithmic assessment, and the modulation of time. Furthermore, a collaboration between algorithmic systems and employees is not fairly negotiated. (Crawford 2021: 56) Keep Smiling illustrates vividly a situation of human's forced engagement with AI-system by constant monitorization and calculation of smile.

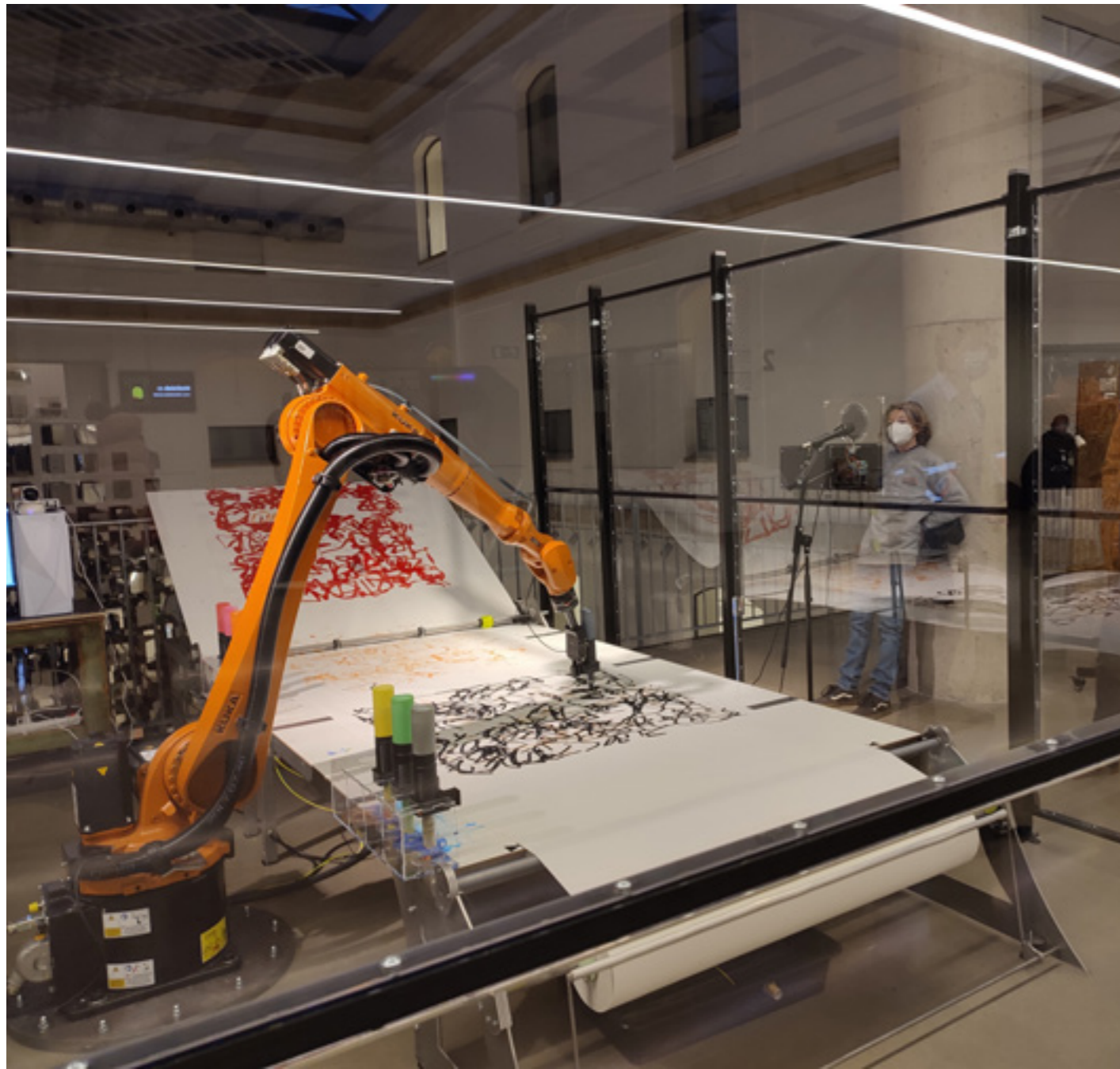


Photo: Jaime de los Rios

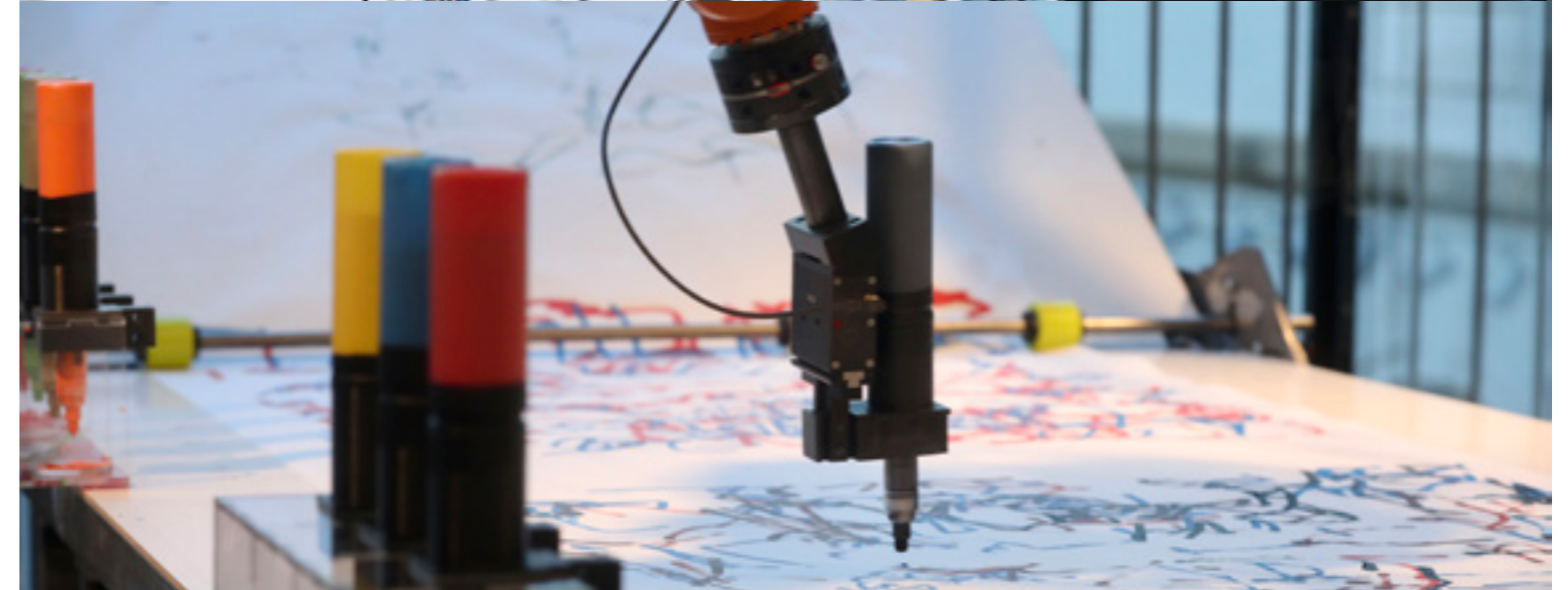


Photo: Tabakalera

## Dream Painter / Varvara & Mar

Interactive robotic installation

2021

Exhibited:

- art gallery at ACM Multimedia conference, Lisbon, Portugal (10 Oct - 13 Oct'22)
- solo show at Tabakalera, San Sebastian, Spain (22 Dec'21 - 20 Jan'22)

Commissioned and co-produced by Tabakalera in collaboration with Tekniker.

Dream Painter is an interactive robotic installation that turns the audience's dreams into a collective painting. Tell your dream that you saw last night to a robot and the machine will paint it!

The artwork consists of multiple parts: interaction station, painting robot, and creative coding that transforms a spoken word to art on the canvas. The robot paints with 8 colors.

We all dream. Some dreams we remember in the morning, some are just gone. Often, the ones we record we hardly understand until the end. Well-known psychoanalysis Sigmund Freud has dedicated a lot of effort in understanding the human unconscious through analysing dreams. Freud was convinced in the power of the dreamworld when understanding the human mind. In his famous book Interpretation of Dreams he states the following: "The interpretation of dreams is the royal road to a knowledge of the unconscious activities of the mind." (Sigmund Freud, 1899)

The artwork poses several important questions, like: can machine understand our unconscious? What happens if algorithms will be able to make sense of our dreams,

understand us better than we do? Is there a limit of trust when it comes to the relationship between humanity and technology?



**NFT Shop** / Varvara & Mar

Site-specific installation

2021

Exhibited:

– urban festival UIT curated by Kadri Lind and Marie Kliiman, Tartu, Estonia (18.-21. aug 2021)

During urban festival UIT we have turned an abandoned gas station into NFT Shop. We hijacked all the branding (including gas price totem) and turned an old business to a new one. The NFT Shop was present in the physical gas station and online at the Hic et Nunc platform. All the NFT art was specially made for NFT Shop opening. What is more important, the artists were present, offering a conversation over a cup of coffee discussing the hot topics of NFT and cryptocurrency.

So, what is NFT? NFT stands for a non-fungible token or simply put a certificate that proves the originality of the digital asset. We have already seen that cryptocurrency has its part in the economy. But what is NFT art, and what kind of art market it has to offer? NFT art shop operates within an alternative economy of cryptocurrency and speculates about the speculation. It is a shop / gallery / meeting place in an old gas station. Like the fuel's price, NFT gas prices and art value fluctuate a lot, creating new opportunities and definitely damages.



## Rescue Plan (PÄÄSTEPLAAN) / Varvara & Mar

Site-specific installation

2021

Exhibited:

– group show Life in Decline curated by Francisco Martinez in the Estonian Mining Museum (17 June – 3 Oct 2021)

Rapid growth is followed by a decline, which is very much characteristic to a post-industrial society. After extensive exploitation of natural resources, areas such as Ida-Virumaa in Estonia, are in need of help and reanimation – not only environmentally and economically, but also socially. There are too many problems that have been neglected for far too long.

In the middle of the artificial lake of the Estonian Mining Museum is a half-drown, half-floating lifebuoy ring, symbolising the region's heavy baggage of past and the failure of deployed rescue strategies by the government. The artists use this tension of gravity forces to talk about the complex problems of a broken world. This installation reflects poetically on the limits of top-down rescue plans, sometimes felt by the local population as a burden. Visitors can conveniently contemplate the slowly unfolding disaster.



## Phantom Landscapes of Buenos Aires

Varvara & Mar

two AI-generated video work , 00:20:00

2021

Sound by Cecilia Castro

Exhibited:

- group show at +CODE Festival curated by Tania Puente and Cristian Reynaga in Buenos Aires, Argentina (9 – 20 June 2021)

This is a video work generated by AI from images of the city of Buenos Aires. The artwork speaks of new landscapes that emerge like ghosts from the depth of the neural network, reminding us of an urban, empty, and deformed landscape. The work tries to reflect unusual views of the city in times of pandemics. The video work is accompanied by sound work created by Cecilia Castro.



Photo: Art Center Nabi

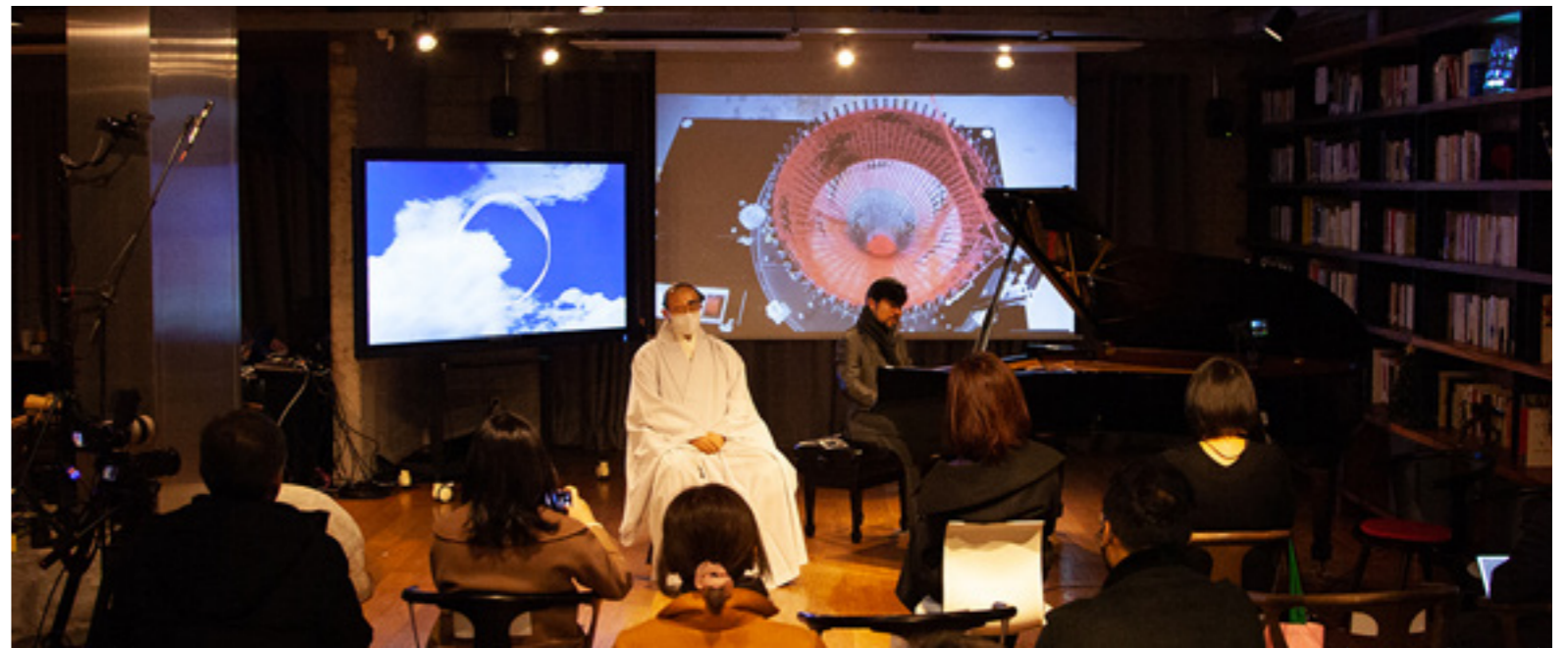
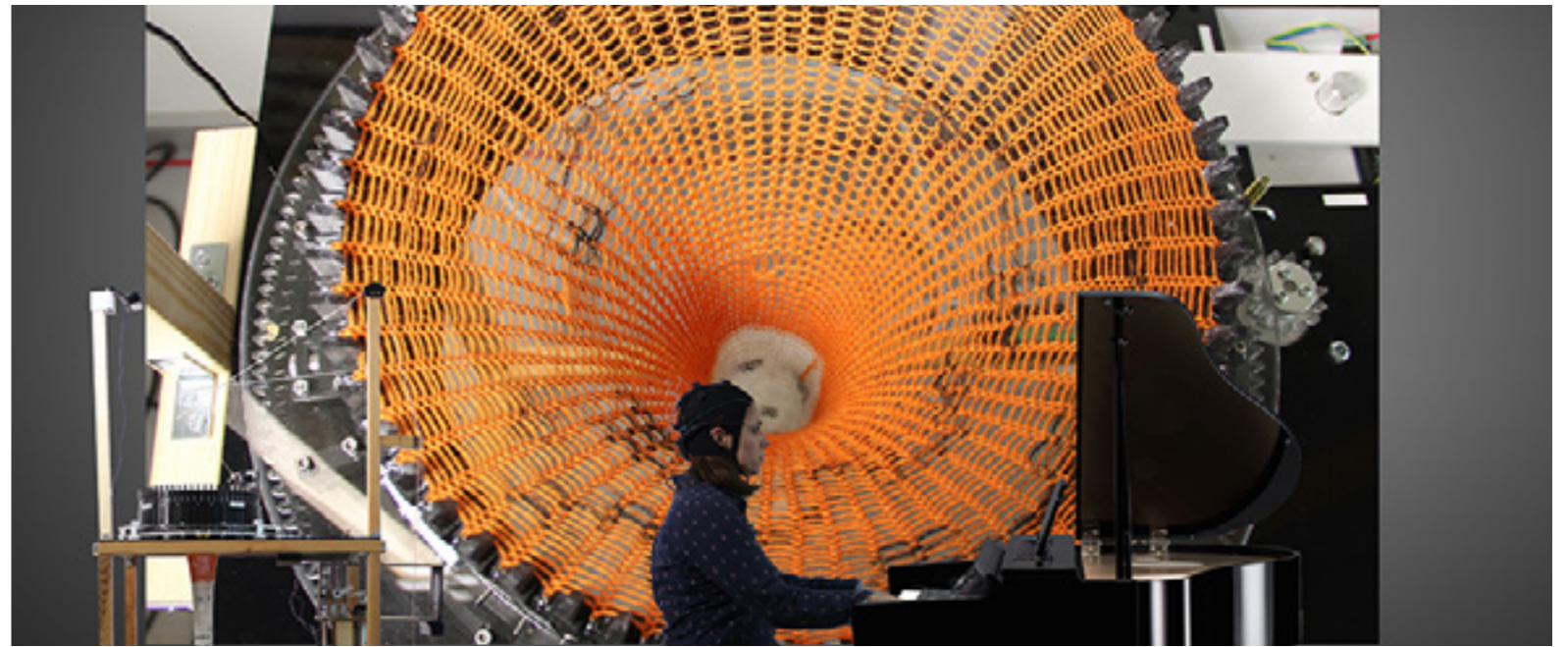


Photo: Art Center Nabi

## NeuroKnitting Beethoven / Varvara & Mar

telematic performance

2020

Project curated by Susa Pop (Public Art Lab) and commissioned by Goethe Institute.

Exhibited:

- performed at Hong Kong Art Centre and online (14 Nov'20)
- performed at Tazak Madang and online, organised by Art Center Nabi and Goethe Institute in Seoul (27 Nov'20)

NeuroKnitting Beethoven celebrates the 250th anniversary of great composer Ludwig van Beethoven by re-imagining his music through the creative application of brain waves and knitting.

In a classical music concert, we hear the interpretation of the composer's piece by a musician. What if we could also see and manifest in the knitting processes the musician's state of mind when performing?

NeuroKnitting Beethoven project re-visits Beethoven music by offering a novel experience of classical music at the interface between neuroscience, music and media art. During the concert, we record the brain waves of a pianist (in Seoul we recorded Buddhist monk's brain waves), which affect Circular Knitic's (our circular knitting machine) pattern and knitting speed. The first one is composed of the peaks of attention level, and the second corresponds to the meditation state. In other words, the higher is the attention, the more dense is the pattern. And higher is the meditation level, the faster knits the machine. All these processes are real-time and take place simultaneously.

In addition to the affective knitting with brain data, performance has also visuals that represent all data that is received from the EEG headset and has thematic videos

that were generated with AI algorithm (StyleGAN2) and that react also to the audio input (music in this case).

The project was initially planned as an on-site interactive performance-concert that has been transformed into a telematic performance due to Covid-19, which added an additional twist to the project. Meaning, the concert, capturing brain data, and visuals were happening in the physical space of the performance with the audience. Knitting happened in our studio and was streamed to the performance place, and at the same time, brain data from the performance place was sent over the internet in real-time to our studio that controlled the knitting machine. Also, the entire performance was streamed online.

In Hong Kong Art Centre piano play was performed by Linda Yim Chui Chu (Hong Kong New Music Ensemble) playing Beethoven's 'Piano Sonata No. 17 – Tempest'.

Jongwha Park (Pianist, College of Music Seoul National University Professor) was playing piano in Seoul performing Beethoven's 'Piano Sonata No. 8 – Pathétique' and 'For Elise'.



## POSTcard Landscapes from Lanzarote

Varvara & Mar

two AI-generated video works , 00:18:37, 00:18:40

2020

Sound by MIISUTRON and Adrian Rodd

Commissioned by Veintinueve trece

Exhibited:

- Solo show Psychedelic Trips at Alalimon Gallery in Barcelona. Part of Barcelona Gallery Weekend (15 Sep – 18 Oct '22)
- group show Expeditions curated by Victor G. Moreno, festival Veintinueve trece, Lanzarote, Spain (9 – 21 Nov '20)
- art gallery at CONSTRUCTING CONTEXTS of the Symposium Art Machines 2.0 curated by Tobias Klein and Rodrigo Guzman-Serrano, in City University Hong Kong

The project draws attention to the influence of the tourist gaze on the landscape and identity formation of the Lanzarote island in Spain. Heavily dominated by the imaginative geographies that have been constantly reproduced by the visitors, create a conflict between desired touristic rituals that we are preprogrammed to reproduce when arriving at the destination and the reality. Hence, as states Jonas Larsen “[...] circulating images overpower reality: ‘reality’ becomes touristic, an item for visual consumption.” (Larsen 2006, 242)

We downloaded all circulating reality of imaginative geographies of Lanzarote from Flickr, dividing them into two: landscapes and tourism. After carefully preparing each pool of images, we applied the AI algorithm StyleGan2, which generated new images.

The project consists of two videos representing a journey of critical tourism through the latent space of AI-generated images using StyleGan2.

The first video work, POSTcard Landscapes from Lanzarote I, is accompanied by a sound work by Adrian Rodd. Adrian is a local sound artist from Lanzarote, whose

idea was to add a social-critical direction to the work.

The second video work, POSTcard Landscapes from Lanzarote II, is accompanied by a sound work by Taavi Varm (MIISUTRON). Taavi intended to introduce mystery and soundscapes to the imagescapes of the project.

The new deep learning artificial intelligence age transforms the work of art and creates a new art-making process. In his book “The Work of Art in the Age of Mechanical Reproduction,” Walter Benjamin anticipated the unprecedented impact of technological advances on the work of art. Benjamin argues that technology has fundamentally altered the way art is experienced. The new artificial intelligence is the latest technology that is hugely impacting cultural production and providing new creative minds tools.



# ENA

Nomen Nescio

PERDONEU  
Només entenc l'anglès

**MTM:** To acting, I suppose.

**ENA:** I think you can do it

**MTM:** I can do what?

**ENA:** I can do what?

*(ENA picks up a skull)*

**MTM:** (MTM looks at the skull) What can we do? (MTM looks away) Is anything impossible on a stage?

**ENA:** Nope. We can do what ever we want.

**MTM:** I agree with you.

**ENA:** I second this. My response is just gonna stay at work, if you know what I mean.

[Type your message to ENA...]

**ENA** / Varvara & Mar in collaboration Roger Bernat  
chatbot online

2020

Exhibited:

- performed at Theatre Lliure web site (14th May – 14th June'20)
- Commissioned by Theatre Lliure in Barcelona
- performed at Zonak theatre web site in Milano (18 Nov – 6 Dec'20)

ENA is a generative chatbot that talks to its audience. During the time of close down when the only social window is a screen ENA has been created and hosted on the Theatre Lliure web site.

ENA doesn't understand what it is saying, or what it is being told, in the strictest sense of the word. For ENA, language is simply a sequence of signals it receives, which it analyses based on a calculation of probabilities, and which it responds to by sending another sequence. Any dialogue with ENA will only make sense to the human taking part in the conversation and to the audience that is reading the conversation on the theatre's website at the time. Because it doesn't understand language, ENA doesn't take offence, is never surprised, and doesn't get tired. Having a dialogue with ENA is like playing squash, as it is like a wall that returns the ball to you. Interacting with ENA is a training session for dialogue, which may come in handy after weeks of lockdown. Bear in mind that as a human being, you may become surprised or angry, or get tired.

We live surrounded by bots: those which answer the phone when we call big corporations, those which take over social media when an election approaches, our fake followers, or those we face when we play digital games. ENA, on the other hand, is a bot which has been programmed without any purpose in mind. It doesn't want to sell us anything, he doesn't want to tell us any news (fake or real) and it's not trying to lift our spirits or comfort us. ENA has only been conceived to impersonate

a human being, or in other words, to do theatre.

The experience of a dialogue with ENA is a substitute for the conversations we used to have with oracles, gods, or nature, when humans were able to address non-human beings. Our cries, wails, and joy are heard, and in response, we hear the words of something which expects nothing in return.

According to Wikipedia, a bot, an abbreviation of robot, is a computerised sequence that performs repetitive tasks which would be too tedious for a human being to do. In this case, talking to anyone on a 24/7 basis.

Most of the bots built to date have been reactive: they have had a large library of preconceived answers and when they detected a certain word from the person they are talking to, they sent an answer from their library. If the bot did not find any recognisable words, it sent stored phrases such as "yes, I understand," "carry on," or "can you explain it to me again?", Eliza, the first bot programmed in 1966, was one of these.

At the turn of this century, the challenge for artificial intelligence programmers was to build a machine that would learn to speak. These bots have been called generative. Google's Transformer, OpenAI's GPT-2 and Microsoft's DialoGPT are currently the tools that best reproduce human speech. ENA works with a combination of these three models.



Photo: SITE Photography



## We Are the Clouds / Varvara & Mar

interactive installation, urban projection

2020

Commissioned by Surrey Art Gallery

Exhibited:

- UrbanScreen of Surrey Art Gallery, Canada (30 Jan - 26 April'20)

We Are The Clouds is an interactive and participatory artwork on a media facade, which invites the audience to become a cloud. In other words, a participant can have his/her silhouette transformed into the shape of a cloud on a large interactive outdoor video projection of a sky scene. The media facade becomes a sky space that contains audience's silhouettes, which progresses like clouds do, over the digital sky: slowly drifting away and taking a form of somebody from the audience and then some else's.

When one stands in front of the art installation a Kinect camera picks up its silhouette and participant appears as a cloud in the sky in real-time. The other clouds on the urban projection are the local people, who have participated with their movements in the project earlier. Hence, the artwork brings together audience participation and real-time interaction on site.

More about the participatory component, local audience participated in the process of creation. Hence, We Are the Clouds contains pre-recorded videos of participants that in random order and position appear in the sky, and in different speeds drift over the sky as they were clouds.

In terms of audience interaction, when approaching the installation one gets converted into a cloud and superimposed on the digital facade along with other participants, who are also clouds. In other words, all the clouds are the people in the digital sky.

Apart of being poetic and playful, artwork contains also a critical layer of concept. A word cloud makes us think about cloud computing first, instead of a cloud in the sky. No wonder, because our whole lives have been uploaded to a cloud. Moreover, a word cloud is the most expensive adword today. Hence art installation We Are the Clouds has a dual meaning: from one side it is a playful, poetic, imaginary, and full of hope piece. And from the other side, we talk about highly digitalised society, and at the same time vulnerable and controlled one, which live in the cloud.

When experiencing the artwork one sees his/her body shape that follows his/her movements. Similarly, in the digital cloud there is a clone or a copy of a user. Only it is with much "higher resolution" in terms of data, enabling to know every aspect of its life.



## PlasticLand / Varvara & Mar

video sculpture

2019

Exhibited:

- Traveling exhibition "NOT out of sight, NOT out of mind" in frames of WasteArt project in Latvia and southern Estonia for 2 years (2019-2020)

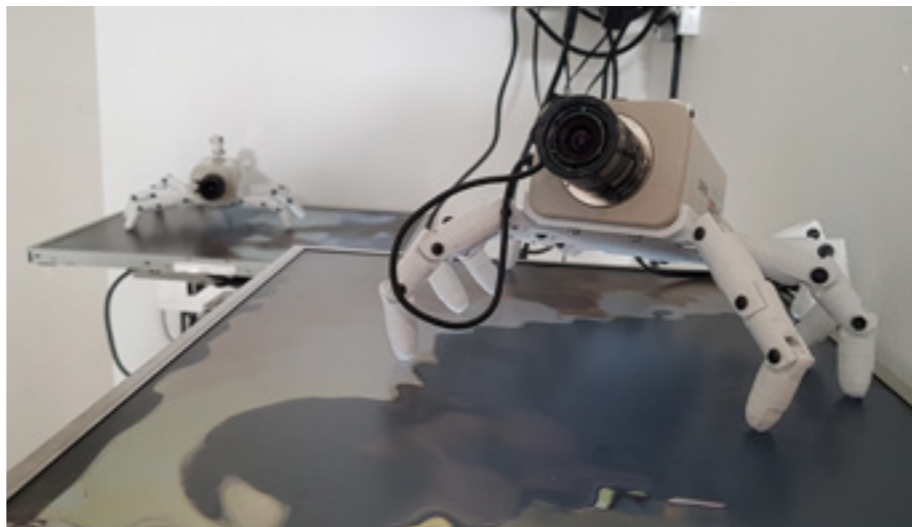
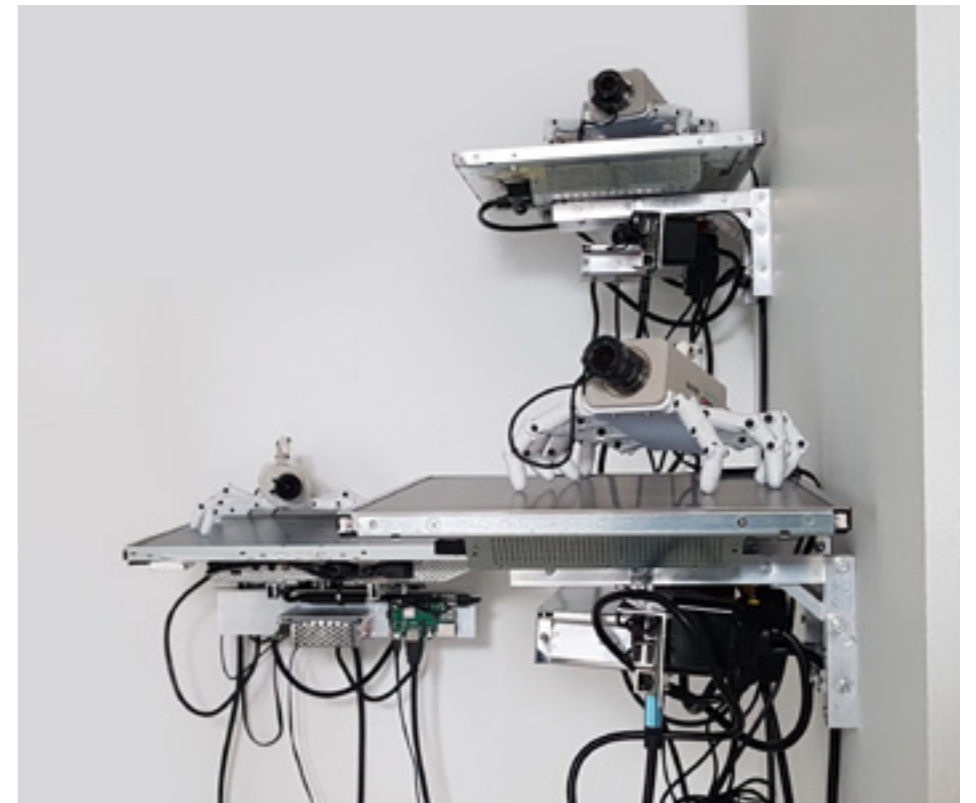
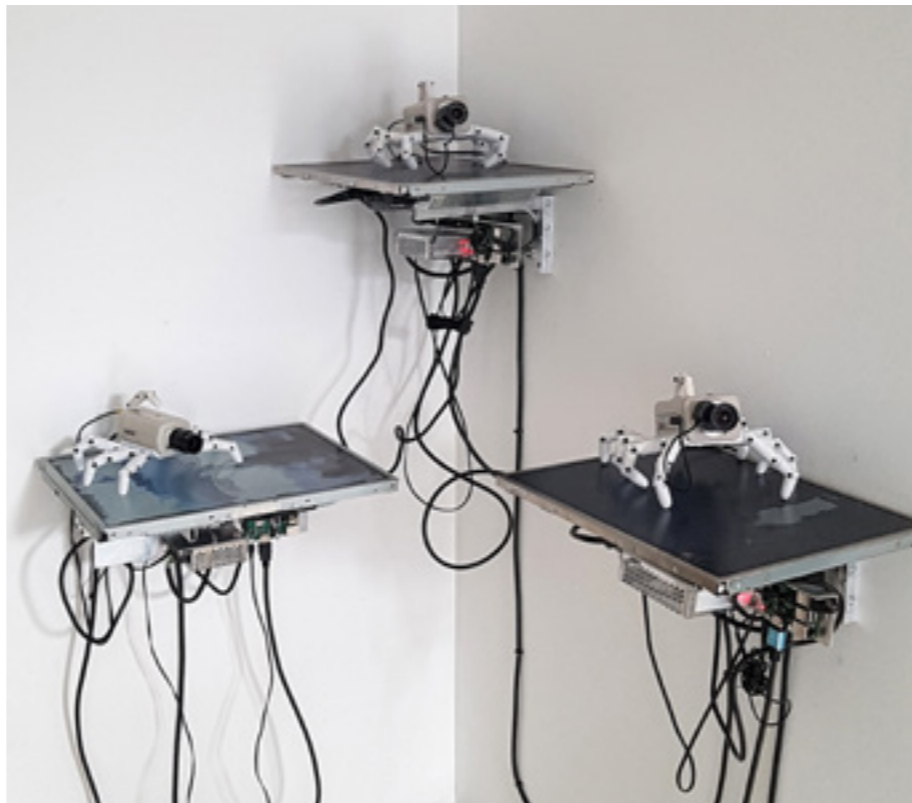
The population is sinking into its own trash. Seems that our consumption has no limit. Sad thing is that society starts to think about the problem when it knocks on the door. Unfortunately, since the most of people do not see plastic and rubber tires in their backyards, continue careless plastic consumption without thinking about alternatives and recycling strategies.

Meanwhile our oceans are full of plastic. Water birds, animals and fishes have microplastic inside them. We are eating plastic. Soon we become PLASTIC!

PlasticLand is a video sculpture, which contains four videos from artificial images, which were made by training an artificial intelligence (AI) algorithm on the data sets of real images. AI neural network generates speculative images of the anthropocene, images that have never seen before.

The first video is made from images of landfills, the second is from trash on top of the water, the first is from plastic under the water, and the last is from plastiglomerates. Plastiglomerate is a new fossil that contains plastic.

The aim is to let machine to imagine what our surroundings will look like soon if society would not change their lifestyle. The artwork calls to stop and think what we are about to lose. On the other hand, the art project also proposes to use technology for coming up with solutions.



## Fantasy of Escape / Varvara & Mar

interactive installation

2019

Exhibited:

- Synthetic Landscapes, Digitaliseum, Malmö, Sweden (21th May - 10th Sep'2022)

- JustMAD Art Fair, Palacio Neptuno, Madrid, Spain. In collaboration with Alalimón Gallery (26th Feb – 3th Mar'19)

The installation talks about the loss of privacy in our society. We like to think that we can escape when we want this surveillance environment, although it is still a fantasy that Evgeny Morozov defines as Cyber-utopianism.

The code-manipulated real-time video image that imitates image reflection on the water and is captured by the CCTV cameras, is a symbol for the liquid modernity of Zygmunt Bauman that describes the current unstable, chaotic and changing society. The author also writes how this late modernity is marked by global capitalism economies, increasing privatisation of services and the revolution of information. On the other hand, as the American literary critic and theorist said Fredric Jameson: it is easier to imagine the end of the world, than the end of capitalism.

The analogue camera, as an icon of the massive data capture, is converted in a kind of animal or insect articulated by human fingers printed in 3D. This capability of movement refers to surveillance capitalism (term coined by Shoshana Zuboff in 2015) that defines the new economy model, which generates revenues by surveilling the customers.

An utopian animal captures the image in front of it, which is turned into a watery image displayed on the screen that the sculpture is placed upon, watching tirelessly our changing and unstable society.

CCTV cameras of the installation were formerly responsible for monitoring art in several museums and galleries and now they have become the work of art itself. In other words, before the cameras were part of the gear of surveillance economy and now they are part of the artwork and concept of it.

At the same time, we like to think that we can escape when we want this surveillance environment, although it is still a fantasy that Evgeny Morozov defines as Cyber-utopianism.



## Under the Water / Varvara & Mar

Chromalux prints (70x70cm)

2019

Exhibited:

- Synthetic Landscapes, Digitaliseum, Malmö, Sweden (21th May - 10th Sep'2022)
- group show Ecodata curated by Rasa Smite, Raitis Smits and Yvonne Volkart, RIXC Art Science Festival, National Library of Latvia, Riga (8 Oct - 17 Nov'20)
- JustMAD Art Fair, Palacio Neptuno, Madrid, Spain. In collaboration with Alalimón Gallery (26th Feb - 3th Mar'19)

What do we see under the water? Beautiful marine life or domination of plastic trash, which reaches everywhere and stays there forever?

The population is sinking into its own trash. Seems that our consumption has no limit.

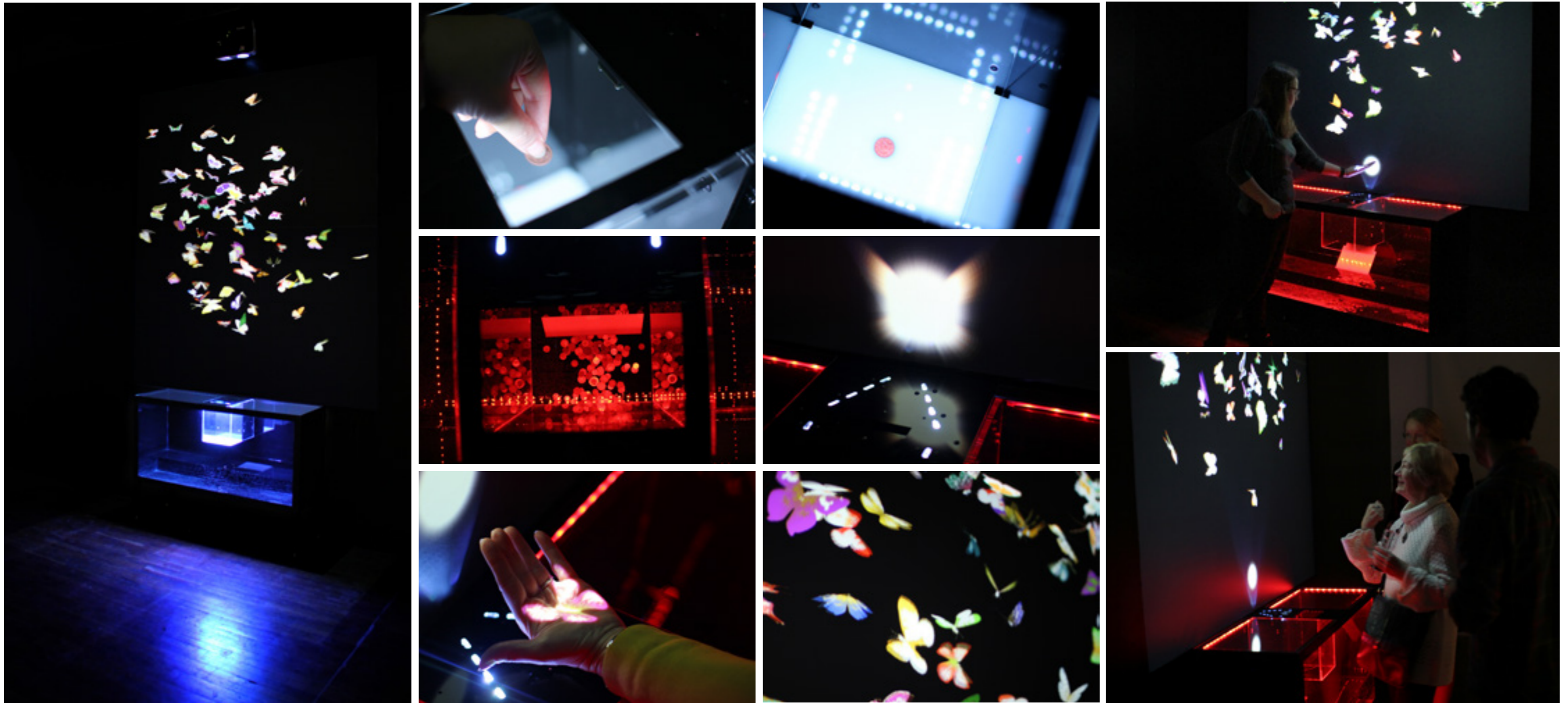
Sad thing is that society starts to think about the problem when it knocks on the door. Unfortunately, since the most of people do not see plastic and rubber tires in their backyards, continue careless plastic consumption without thinking about alternatives and recycling strategies.

Meanwhile our oceans are full of plastic, water birds, animals and fishes have microplastic inside them. We are eating plastic. Soon we become PLASTIC!

Under The Water is a series of prints produced with machine learning algorithm. We are working with AI neural network that generates speculative images of the anthropocene, images that have never seen before.

We have prepared several data sets of plastic in ocean, which were used for training Progressive GAN algorithm to generate images of trash under the water.

The aim is to let machine to imagine what our surroundings will look like soon if society would not change their lifestyle. The artwork calls to stop and think what we are about to lose.



## Wishing Well / Varvara & Mar

Interactive installation

2018

Exhibited:

- Group show *Estonia: a mindscape* (part of EV100 art program), Rapla County Centre for Contemporary Art (13th Oct - 11th Nov 2018)

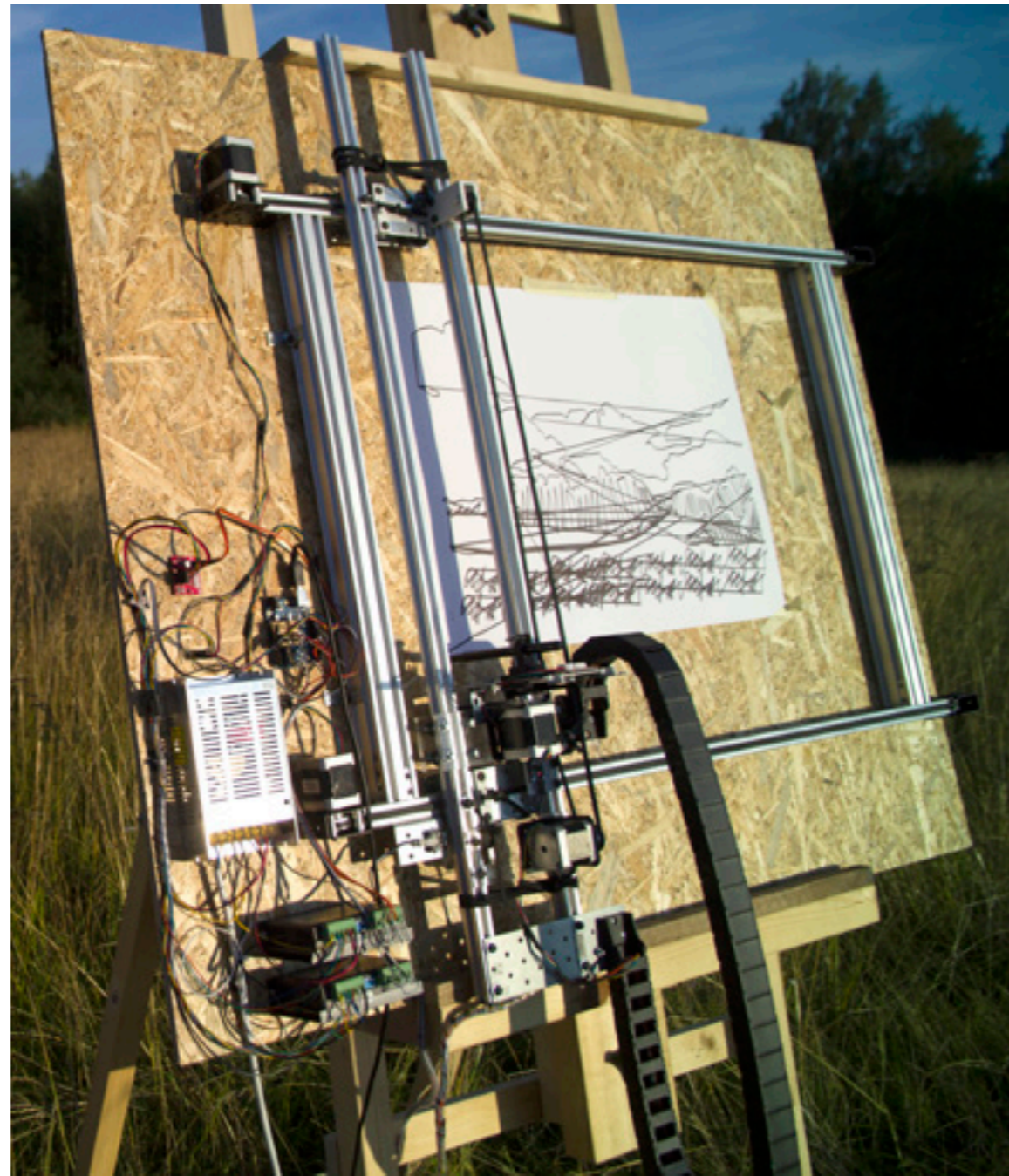
Wishing Well is inspired by our previous work *Wishing Wall*, which focuses on the audience wishes.

There is a number of traditions how to make a wish, for example, one should make a wish when blowing the candles on birthday cake, when a year is changing, by throwing a coin in a fountain and much more. Making a wish is always connected to a magic, at the same time there is no visual manifestation nor any continuity after a wish is made.

Our intention is to retain the magic around making a wish, and at the same time, slightly alter the traditional approach around it. Hence, our aim is to encourage the audience to dream and offer them a magical experience. One makes a wish by throwing a coin to *Wishing Well*. From each wish is born a butterfly, which lands on a spectator's hand for a moment and then joins the other butterflies on the digital wall of made wishes.

We liked the idea to think of a metamorphoses of wish that was also an inspiration and reason for using butterflies in the piece. In addition to that, a butterfly is a creature that has a magical and beautiful appearance. Maybe that's why people tend to catch and even collect butterflies. Thus, metaphorically our installation does similar things: invites audience to catch butterflies, explore others' wishes, and collects all wishes made.

*Wishing Well* was produced with the help of the *Cultural Endowment of Estonia*.



## Sunday Painter / Varvara & Mar

Kinetic installation

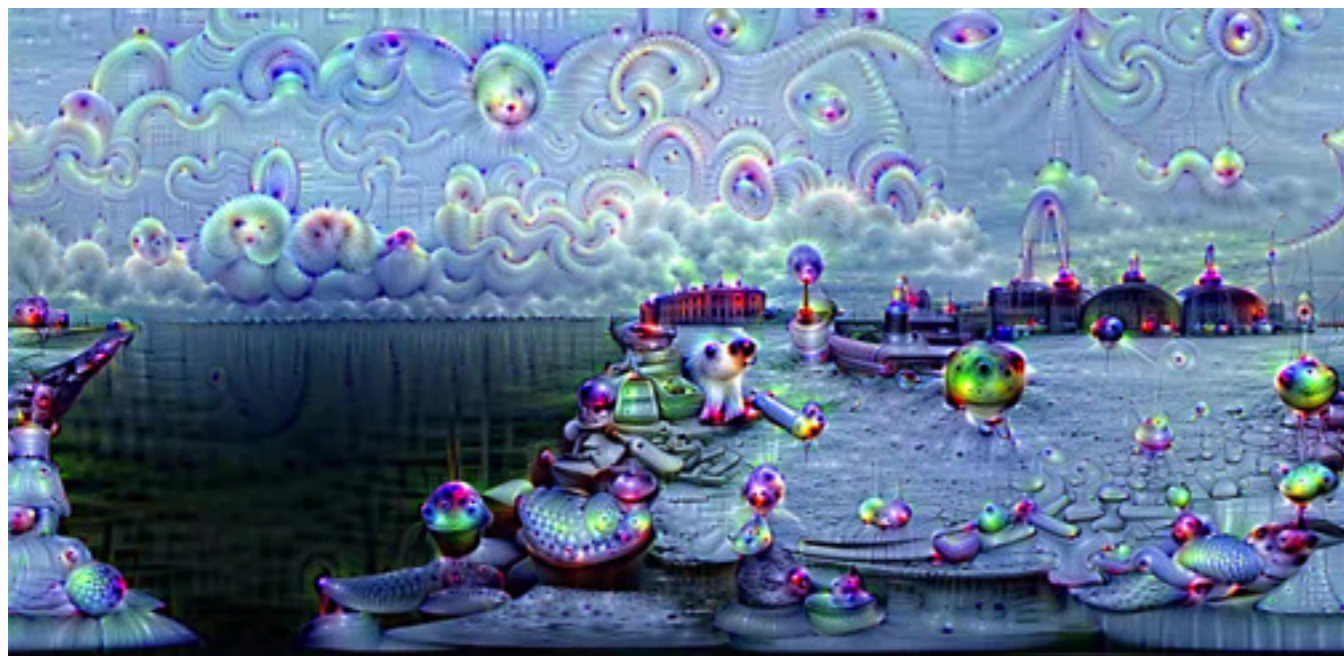
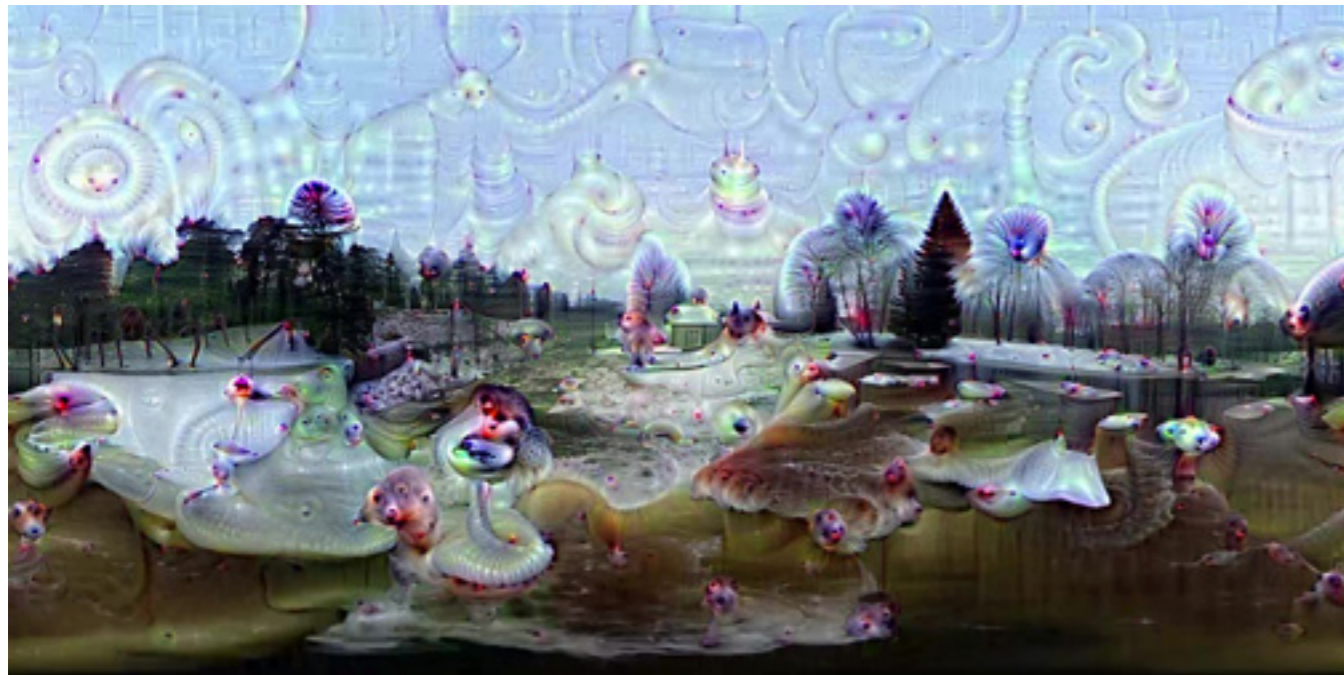
2018

Exhibited:

- Wild Bits curated by Timo Toots, Taavi Suisalu, Kadri Lind, and Marie Kliiman (21st-22nd July 18)

The idea of the project is to rethink what is a romantic vision of countryside in the post-digital age. A pen plotter is painting a landscape on a perfect Sunday. Like the modern times require, our eyes stop seeing without a computer vision and artificial intelligence. Hence, the landscape is conformed by artificial intelligence image classification algorithm. In other words, on the canvas is appearing the machine's romantic vision of a landscape.

Sunday Painter was produced while in residency at Maajaam and part of the group exhibition Wild Bits curated by Timo Toots, Taavi Suisalu, Kadri Lind, and Marie Kliiman (21st-22nd July 18)



## Neuronal Landscapes / Varvara & Mar

VR video, 09:48

2018

The artwork was commissioned by Estonian History Museum and is a part of its collection.

Neuronal Landscapes are part of permanent exhibition "My Free Country" in Estonian History Museum in the room 9, which talks about Estonia after 1000 years.

Exhibited:

- Solo show Neuronal Landscapes, Inter Arts Center, Malmö, Sweden (26th – 30th Nov'18)
- Mobile Week Coruña, A Coruña, Spain (24th Nov'18)

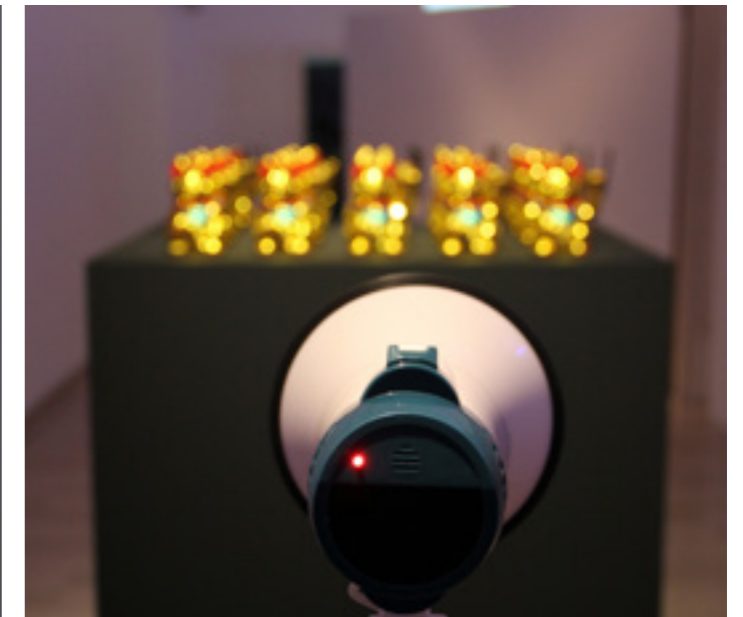
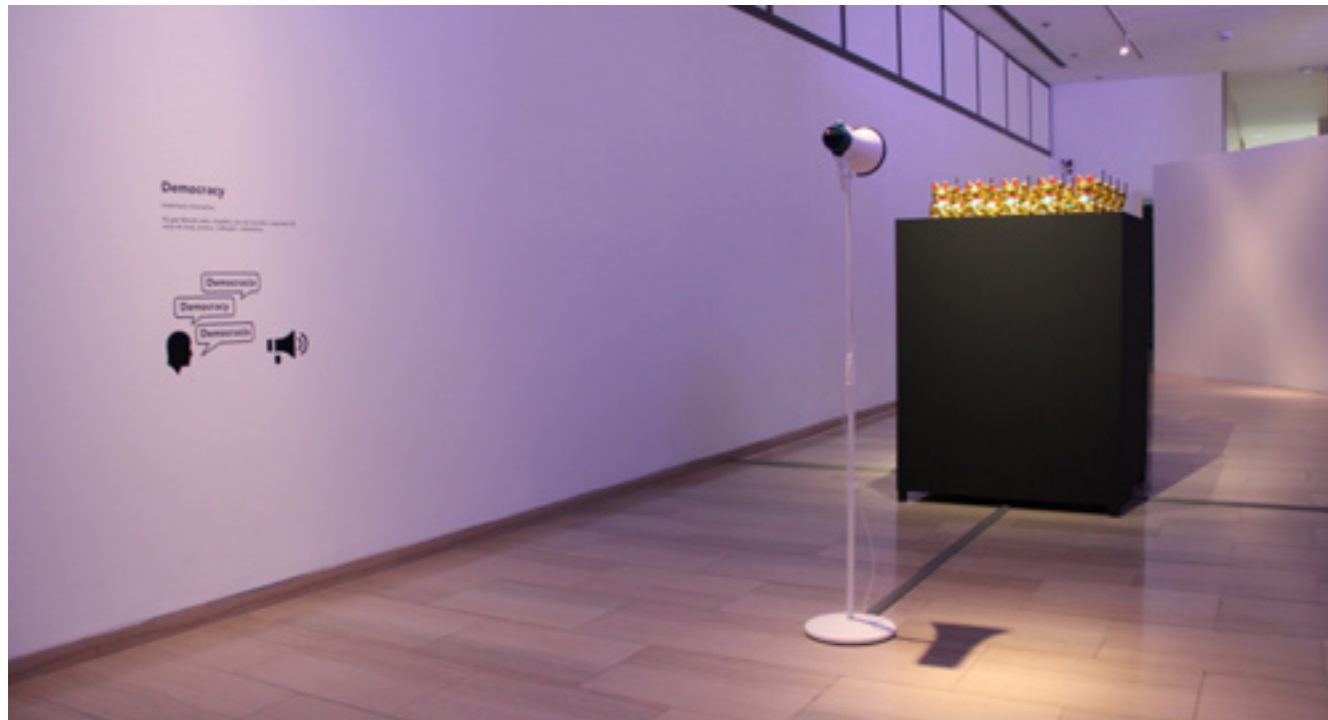
How would you see through the eyes of an artificial intelligence (AI)? Probably in the future we won't need our eyes to perceive the world any longer, the machine will do it instead of us. Already today a screen is a window to the many realities for us.

By applying the potential of the new immersive media, already today we have an opportunity to perceive our surroundings in a completely different way. Neuronal Landscapes allow to dive into a parallel reality and see the environment through the eyes of AI.

The installation applies the potential of virtual reality (VR) and Deep Dream, which generates a neural network simulation inside a machine, to change our point of view of the reality.

Neural Landscapes takes the viewer to an ancient forest, see coast, rural and urban areas of Estonia. The viewer sees a natural and urban landscapes like a fairy tale or an illusion in a way machine dreams about all of that. The artwork is not using artificial spaces, the artists have traveled around the country and recorded the views with a flying drone and two 360-degree cameras. The video material was later re-generated by applying the Deep Dream algorithm. In other words, the project aims to see the landscapes through the eyes of machine.

The artwork was commissioned *Estonian History Museum* and is a part of its collection.



## Democracy / Varvara & Mar

Interactive installation

2017

Exhibited:

- Solo show Chameleon, Tallinn Art Hall Gallery, Estonia (30th Nov'18 - 27th Jan'19)
- Solo show Camaleó, Museu Abelló, Mollet del Vallès, Spain (14th Dec'17 - 25th Mar'18)
- Solo show Chameleon, New Gallery, Calgary, Canada (6th April - 11th May'19)

DEMOCRACY talks about the abuse of power and different understandings of democracy.

It seems that we are living in the democratic Europe, but is it so for everyone? We cannot assume democracy comes by default, we have to stand for and care about it. Especially in the moment, when the right wing power is gaining radicalization in the world and super rich think that money can bend and over right laws.

The installation consists from 20 golden Maneki-Neko cats batons in their hands and a megaphone. The cats symbolize capital and baton violence.

Talking about the audience experience apart of a contemplation, if into the megaphone is said "democracy", the cats are activated and start to wing the batons. The installation works in 3 languages: English, Catalan and Spanish (it is possible to add more languages, if needed).

*Produced with the support of the Abelló Museum, Barcelona.*



## The Rhythm of Heart / Varvara & Mar

Interactive Installation

2017

Exhibited:

- Addaya Centre d'Art Contemporani. Casal Son Tugores, Alaró, Mallorca (10th Feb – 10th Mar'18)
- Eufònic, festival, Museo de la Mar, Sant Carles de la Ràpita, Spain (2nd Aug'17)
- MEQ festival, hTh, Montpellier, France (12th – 14th Oct'17)
- Solo Show Surveillance Capitalism, Sodu 4 gallery, Vilnius, Lithuania (12th Dec – 26th Dec'18)
- symposium Unboxing e-Realities curated by Christiane Kühn and organized by Goethe Insitute in Estonia at Vaba Lava in Tallinn, Estonia (27 – 28 Sep'19)
- e-group show Data are emotions | Emotions are data curated by Joanna Rutkowska and Magda Kochanowska in frames of Gdynia Design Days, Poland (4-11 July'20)

During half a year the artists have monitored their heart beat, which they have used for composing the rhythm of a metronome. A viewer can travel back in time and browse through the hearts' rhythm of the artists, and thus, set the metronomes on the selected moment to perform that rhythm. Hence, the work acts as an archive of the artists' hearts.

The work questions what can be done with the data that are constantly collected from us by the third parties and used for monetary purposes (surveillance capitalism). Also the duo address the meaning and changing form of personal archives.

*Interactive installation (3D-print, custom-made electronics and software, Fitbit data)*

Produced with the support of **3Angled**

(Contemporary Audiovisual Creation in the Pyrenees–Mediterranean Euroregion).



## The Big Other / Varvara & Mar

VR video

2017

Exhibited:

- Addaya Centre d'Art Contemporani. Casal Son Tugores, Alaró, Mallorca (10th Feb – 10th Mar'18)
- Eufònic, festival, Museo de la Mar, Sant Carles de la Ràpita, Spain (2nd Aug'17)
- MEQ festival, hTh, Montpellier, France (12th – 14th Oct'17)
- Solo Show Surveillance Capitalism, Sodu 4 gallery, Vilnius, Lithuania (12th Dec – 26th Dec'18)

The work contains three immersive videos, which are filmed in different places and put a spectator in the center of the action. The Big Other is the main and only character in the video, who is in black with a white mask and yarn. The 360-degree camera that is the eyes of audience is gradually wrapped with yarn slowly destroying the vision until it is impossible to see and do anything.

In the age of information we witness expanding significance of data body, which is part of our identity. The interesting fact is that the large part of our digital identity does not belong to us but to the Big Other. Metaphorically speaking we trade our souls to the Big Other by accepting each time the terms, allowing to share location, photos, videos, text, contacts, and it happens even without our knowledge. We are hooked by data and networks. There is no place to be where the Other is not.

PEW Research report, 'Digital Life in 2025: There is no putting the genie back in the bottle ...Everyone will expect to be tracked and monitored, since the advantages, in terms of convenience, safety, and services, will be so great ... continuous monitoring will be the norm (PEW Research, 2014).

*Video performance (VR glasses, smartphone, 360-degree video)*

Produced with the support of **3Angled**  
(Contemporary Audiovisual Creation in the Pyrenees–Mediterranean Euroregion).



## Data Shop / Varvara & Mar

Installation

2017

Exhibited:

- Group show E scap ES, Association of Electronic Art and Experimental, Centro C. Galileo, Madrid, Spain (20 Feb – 15 March '20)
- "Nemo" biennale "Autonomie Zero" - curated by Gilles Alvarez and Dominique Moulon, Cité internationale des arts Paris, France (21st Nov – 1st Dec '19).
- Group show Breaking the 5th Wall, Pixelache festival, Helsinki, Finland (20th – 26th May '19)
- Solo Show Surveillance Capitalism, Sodu 4 gallery, Vilnius, Lithuania (12th Dec – 26th Dec '18)
- Group Show at the Digital Design Weekend, Victoria and Albert Museum, London. UK (22nd – 23th September '18)
- Solo Show Data Soup, ArtDealProject, Barcelona, Spain (12th Dec '17- 30th Jan '18)
- Solo Show Data Soup, Digitaliseum, Malmö, Sweden (21th April – 3rd June '17)
- Data Soup, Digitaliseum, Malmö, Sweden (21th Apr – 3rd Sept '17)
- Group show PERRO curated by Javier Galán, Hobusepea Gallery, Tallinn. Estonia (17th Mar – 3rd Apr '17)
- Supermarket Art Fair represented by Espai Sant Marc, Stockholm. Sweden (23th – 26th Mar '17)

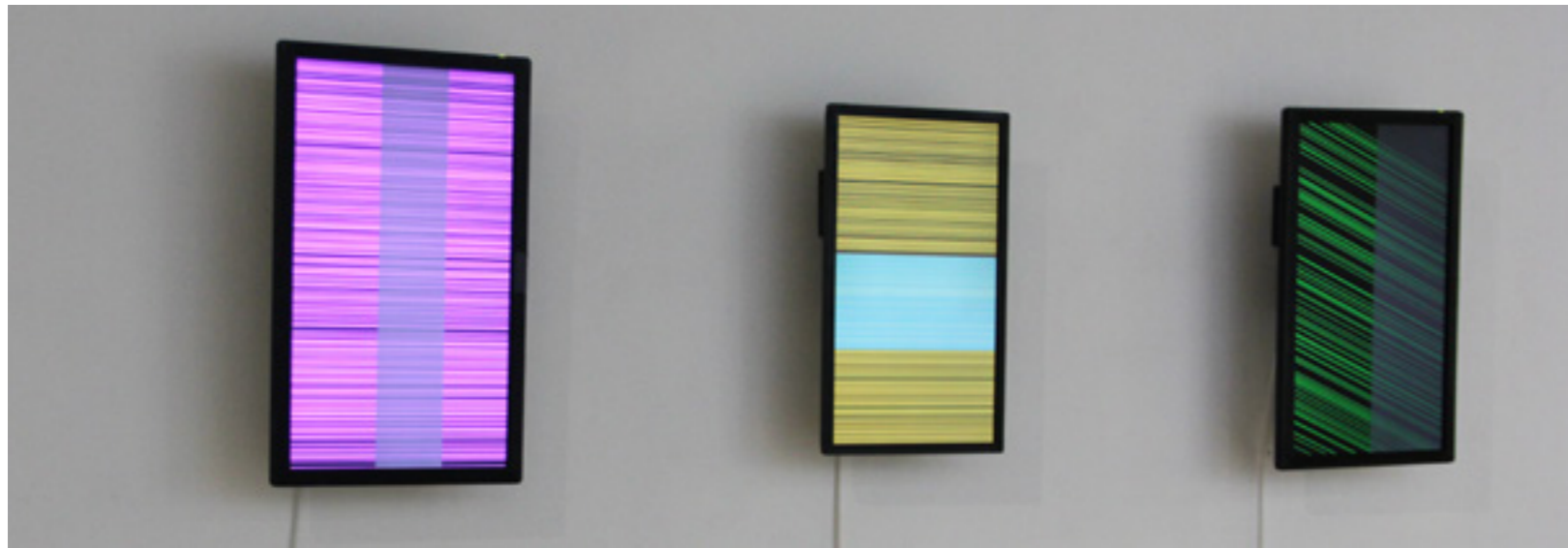
Data Shop is a shop-like installation, which speculates with the idea having a shop that sells and at the same time stores personal data. The artists have put on the pen drives their personal data extracted from Facebook, Google Takeout, Visa, and Mastercard. The pen drives were carefully canned and labeled accordingly as the real products.

The aim is to bring up the topic of data market that is exponentially growing. Our data is collected, used, sold, stolen and traded constantly. Data Shop confronts the audience with the questions on one hand about the value of personal data, and on another, the value of an artwork and the relation between them.

The cans are definitely a hint to Andy Warhol's Campbell Soup, whose work was an attempt converting an artwork to a product. Also the personal data has a connection to Piero Manzoni's work Artist's Shit from 1961. Manzoni explained the content of art piece as his personal DNA. Likewise with Data Shop contains online-me DNA. Personal data can be seen as residual products of data bodies of the contemporary time.

*Production was supported by Cultural Endowment of Estonia.*

*Research residency related to the project supported by THE SPUR / ETACEC 16-18, project subsidized by the Creative Europe Programme of the European Union and Bòlit, Center for Contemporary Art, Girona.*



## Glitch 'n' Hit / Varvara & Mar

Interactive Installation

2017

Exhibited:

- Solo Show Data Soup, ArtDealProject, Barcelona, Spain (12th Dec'17-30th Jan'18)
- Solo Show Data Soup, Digitaliseum, Malmö, Sweden (21th April – 3rd June'17)

"Accidents transform the way we see the normal. Every accident transforms the normal."  
*Glitch studies manifesto*, Rosa Menkman.

Glitch'n'Hit talks about the dichotomy of hitting and repair, obsolescence of technology, and explores esthetics of machine error. Despite living in the hi-tech age human behavior pattern is slow to change: if the reason for dysfunctionality of a device is unknown to us, we tend trying it to fix by hitting. Ironically, the artwork make use of this intuitive interaction with a device and transforms it into a play with the artwork. Hence, the audience is invited to solve the machine mistake by hitting technique. Glitch'n'Hit engages a viewer ludically by allowing to explore different glitch mutations by softly shaking the screen.



**Antenna** / Varvara & Mar

Digital prints on museum paper, aluminium (110x55cm)

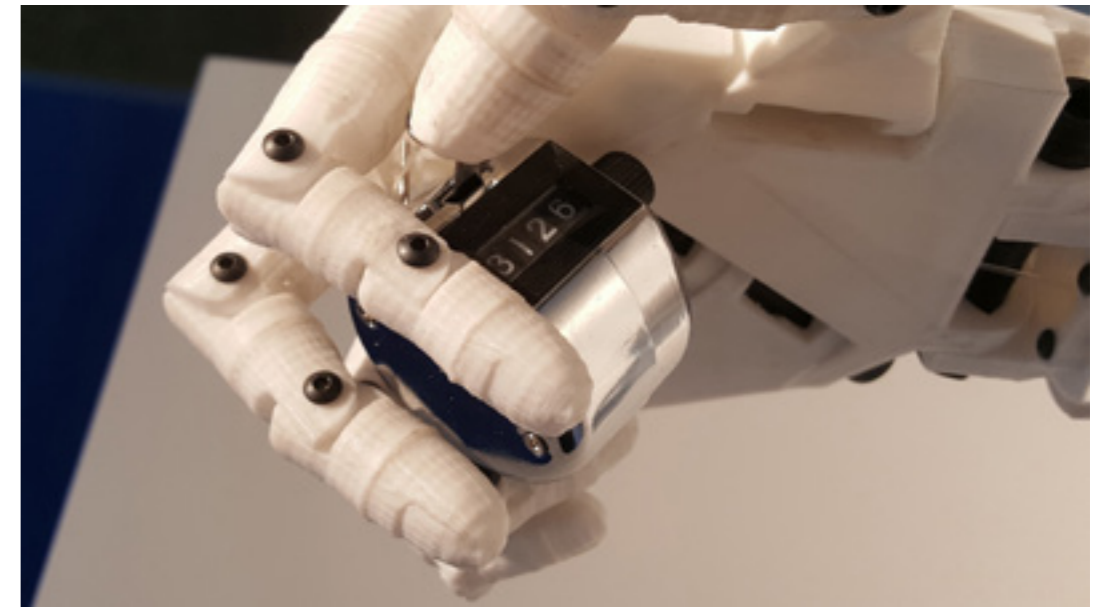
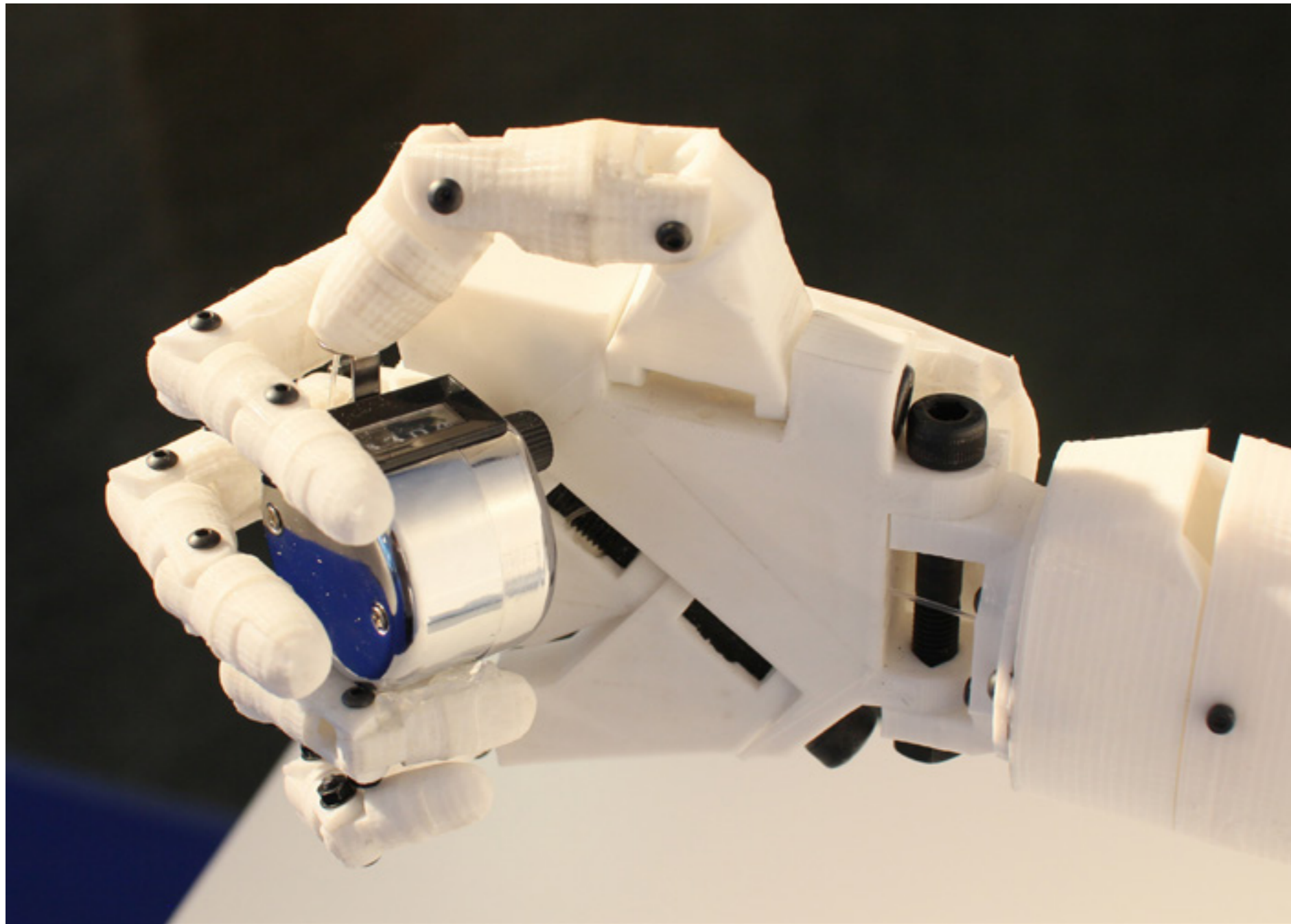
2017

Exhibited:

- Solo Show Data Soup, ArtDealProject, Barcelona, Spain (12th Dec'17–30th Jan'18)
- Supermarket Art Fair represented by Espai Sant Marc, Stockholm, Sweden (23th – 26th Mar'17)

Series of digital prints on aluminium created by executing self-made algorithm multiple times. The code generates a unique visual composition each time when applied by spinning around a number of points, which create a line when colliding.

*Generated with custom-made machine code, digital print on paper, aluminium composite, 110 x 55 cm.*



## Humans Need not to Count / Varvara & Mar

Direct post-participative installation

2017

Exhibited:

- group show *Decision Making* curated by Dominique Moulon and Alain Thibault, Canadian Cultural Centre, Paris, France (10 Dec'21 - 15 April 2022)
- Group exhibition *Objects of Attention*, Estonian Museum of Applied Art and Design, Tallinn (12th Jan - 14th Mar'19)
- Group exhibition *Open Codes*, ZKM, Karlsruhe, Germany (1st Sep'18 - 6th Jan'19)
- Group exhibition *Humans Need not Apply*, Science Gallery Dublin, Ireland (10th Feb - 14th May'17)

This work poses questions about employment, robotics and quantification. It was inspired by the title of the exhibition, HUMANES NEED NOT APPLY, and presents a robotic arm that counts visitors with a clicker, offering a performative representation of the takeover of routine jobs, even in the gallery space. The work also embodies our idolatry of quantification; the obsessive need to count and measure everything.

Last century's automation may have been largely hidden from everyday view, in factories tending production lines, or out in fields tilling the land. In this century, we will confront the reality of automation more intimately, as suggested here — it will be right beside us.

*The artwork was commissioned by Science Gallery Dublin.*



## Katusepoisid / Varvara & Mar

Public art

2017

NUKU visual theater in Tallinn, Estonia.

Award:

– 1st prize, public art competition NUKU Theatre by RKAS, Estonia 2016

Katusepoisid (in English Roof Guys) got its name from the location: the wall roof of NUKU visual theater in Tallinn old city (Nunne str.). Being inspired by the fantasy world of a visual theater, the artists got an idea to create curious characters called Katusepoisid, who live on the top of the wall and offer a light play on the street. The aim was to build a bridge between the NUKU Theater and the street, and also give to a viewer a role of an actor and offer a ludic experience in urban space.

Katusepoisid is an interactive kinetic light installation, which wakes up when the sun is set and plays a light game with the passers by. The sculptures have eyes and lamps as the light elements. The last ones and the body of each Katusepoiss are kinetic and move to the left and right. If someone is under the installation's lamp, it gets activated and the artwork starts playing with the person moving its light to the left or right and then moving it away again and again until it finishes its ludic cycle and returns to the original position.

The artwork is installed permanently in the NUKU Theater according to the percent law for art in public building in Estonia. Commissioner is AS Riigi Kinnisvara.

Material: metal, LED light, stepper motors, electronics, custom-made software.

Measures: 920 mm x 440 mm x 1287 mm (each sculpture). In total three sculptures are placed on the roof of the wall at NUKU Theater (Nunne 4, Tallinn, Estonia).



Photo: Pablo Argente.

## Chameleon / Varvara & Mar

Interactive light installation

2016

Exhibited:

- Solo show Chameleon, New Gallery, Calgary, Canada (6th April – 11th May '19)
- Solo show Chameleon, Tallinn Art Hall Gallery, Estonia (30th Nov'18 - 27th Jan'19)
- Solo show Camaleón, Museu Abelló, Mollet del Vallès, Spain (14th Dec'17 – 25th Mar'18)
- Solo show *Camaleón*, Rambleta art centre, Valencia, Spain (10th Nov'16 – 28th Jan'17)

“Chameleon is a white flag made of a fabric with embedded LEDs that allow it to become the flag of any country. The piece reacts to the people’s presence by showing in a compulsive way the flags of different countries, chosen at random from a database. The design of each flag is never completed, but mutates constantly from one nation to another, blending colours and shapes in such way that it becomes an amalgam of all flags and none of them at once. Like a scared animal who tries to adapt to its environment, the piece is immersed in a never-ending process” (Pau Waelder, 2016).

The inspiration for the artwork came from the multi-cultural backgrounds of the artists. The aim is to communicate the problematic of national identity, belonging, and tolerance in the cosmopolitan times, and at the same time, rising and extremely polarised nationalism. Varvara & Mar use light for two reasons: first, for being able to mutate one flag to another. And second, for affecting entire space. It means, not only the Chameleon takes the colours of the flag but entire space changes together with the artwork.

Materials: 142.5m RGB LED strips, fabrique, metal frame, 5 power supplies, electronics, computer (300x220x30cm).

*The artwork received the Rambleta art production and research grant 2016.*



Photo: Pablo Argente.

## One Flag Every Day / Varvara & Mar

Installation

2016

Exhibited:

- Solo show Chameleon, New Gallery, Calgary, Canada (6th April – 11th May'19)
- Solo show Chameleon, Tallinn Art Hall Gallery, Estonia (30th Nov'18 - 27th Jan'19)
- Solo show Camaleó, Museu Abelló, Mollet del Vallès, Spain (14th Dec'17 – 25th Mar'18)
- Solo show Camaleón, Rambleta art centre, Valencia, Spain (10th Nov'16 – 28th Jan'17)

“One Flag Every Day consists of a software that collects data from Google News and, by using an analysis tool based on the artificial intelligence Watson by IBM, determines which countries are most referred to in mass media every. Based on this information, the software generates a new flag, which is the combination of the elements of the flags whose countries are more present in the news of the day. The resulting composition is automatically posted on the Twitter account @oneflageveryday. The hybrid flag also materializes in the exhibition space, joining every day other paper flags that progressively occupy the room” (Pau Waelder, 2016).

The installation aims to transmit a composition of dominance in the world, which are stars and stripes in the end. The artwork mirrors the main happening: Olympic games, election of USA president, war in Syria, Brexit, etc.

Materials: Custom-made software, wooden sticks, 3D printed parts, print on paper (variable measures).

*The artwork received the Rambleta art production and research grant 2016.*



Photo: Pablo Argente.

## Who is the Next? / Varvara & Mar

Kinetic sculpture

2016

Exhibited:

- Solo show Chameleon, New Gallery, Calgary, Canada (6th April – 11th May'19)
- Solo show Chameleon, Tallinn Art Hall Gallery, Estonia (30th Nov'18 - 27th Jan'19)
- Solo show Camaleó, Museu Abelló, Mollet del Vallès, Spain (14th Dec'17 – 25th Mar'18)
- Solo show *Camaleón*, Rambleta art centre, Valencia, Spain (10th Nov'16 – 28th Jan'17)

“Who is the Next? is about the exit of the United Kingdom from the European Union, well-known as Brexit. A device randomly shows the two-letter codes (ISO 3166-1 alfa-2) of the EU countries next to a luminous sign displaying the word “EXIT”. This way, it speculates about which nation could be the next one to leave the European Union (or to be expelled from it), which is shown as something completely accidental. The codes of the member countries follow one another on a panel whose moveable parts clatter as the information panels at international airports used to do in the old times. Each time these parts stop, a new border emerges in our imagination, changing the lives of millions of citizens” (Pau Waelder, 2016).

Materials: Lasercut plexiglas, aluminium profiles, red LED strip, electronics, motor, 3D printed parts, print on paper (61x43x33cm).

*The artwork received the Rambleta art production and research grant 2016.*



**Detecting alcoholism, Not just us, Small Addicts,** / Varvara & Mar

VR video

2016

Exhibited:

- Group show HOOKED curated by Hannah Redler Hawes, Science Gallery London (21th Sept'18 – 27th Jan'19)  
 - Ingràvid Festival, Santa-Monica, Barcelona and Museum of L'Emporda, Spain (10th - 25th Sept'16)

This art & science installation was realized in collaboration with the neuroscientist Mario de la Fuente Revenga from Virginia Commonwealth University.

An actual experiment that studies addictive behavior and alcohol consumption in mice is the basis of this artwork. The C57BL/6 mice employed correspond to a strain well-known for their high propensity to consume alcohol in a pattern that matches alcohol abuse in humans – to such an extent that the effects of this consumption become noticeable on their moves and gait. The effects on drinkers, and lack thereof in non-drinkers, were recorded on a 360° camera within the experimental arena.

This 360° video, mounted on a customized 3D-printed virtual reality device, gives the viewer an on-site experience within the actual experimental set-up. In a movement-responsive 360° environment, the viewer is shown alternate clips of mice in both inebriated and sober states. He can then assess, under his own judgement, which specimens are addicted or not.

**Audience experience.**

Because of the 360° experience, the audience members become active witnesses of a real

experiment on the study of addiction. They will have access to a world generally restricted from laypeople – how science is actually made, directly from the experimental arena.

Inebriation in mice is subtle in nature so the viewer is challenged to determine which of the animals are under the influence of alcohol. Exploration, sniffing activity, and frequency of grooming are decreased in addicted mice. They appear to become a shell of their former selves. Like in humans, the effects of addiction in these mice are only noticeable when their adaptation to the environment is impaired. Altogether, the viewer is provided with a piece of thought on the addicted-self and the social perception and visibility of addiction.

Through this lens, the viewer observes the effects of addiction, commonly regarded as a human trait, reproduced in a will-lacking animal. This experience invites to reflect on the human/cognitive component of addiction. Is addiction the result of badly-made conscious decisions or weak will? Are we all liable for addiction or, are some of us –like mice– more likely to be driven by short-term reward?

*The artwork received the award of Ingràvid-Arts Santa Monica competition.*



Photo: Ludovic Combe

## The Rhythm of Wind / Varvara & Mar

Kinetic sculpture

2016

Exhibited:

– Group show *Horizons Arts in Nature*, Sancy natural park, France (16th June - 25th Sept'16)

Award:

– 3rd prize in the public art competition of Põlva Gümnaasium by RKAS (State Real Estate), Estonia

The Rhythm of Wind is a kinetic artwork that explores hidden properties of the wind. We are talking about speed and direction of wind, but never listen to its rhythm. The aim is to establish a dialog between the environment and the artwork. The wind is completing the art piece, and thus, resonating in it.

The sculpture is totally mechanical. Hence, it needs only wind for performing. Slower the wind, slower is its rhythm; stronger the wind, faster ticks the metronome.

Materials: metal, cardan and differential from an old car, pendulum is made of stainless steel.



## Smile / Varvara & Mar

Interactive light installation

2016

Exhibited:

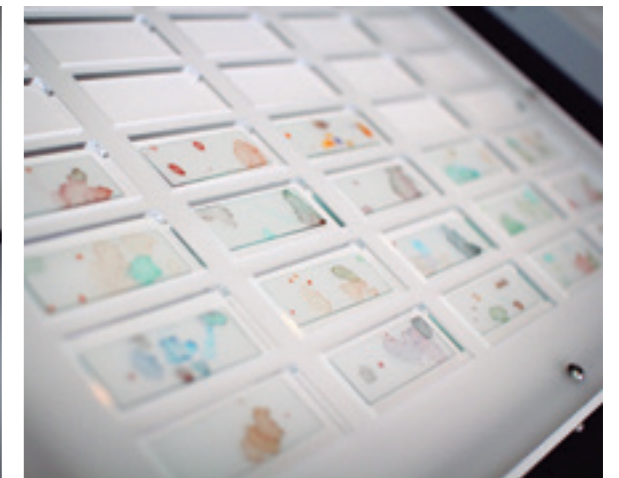
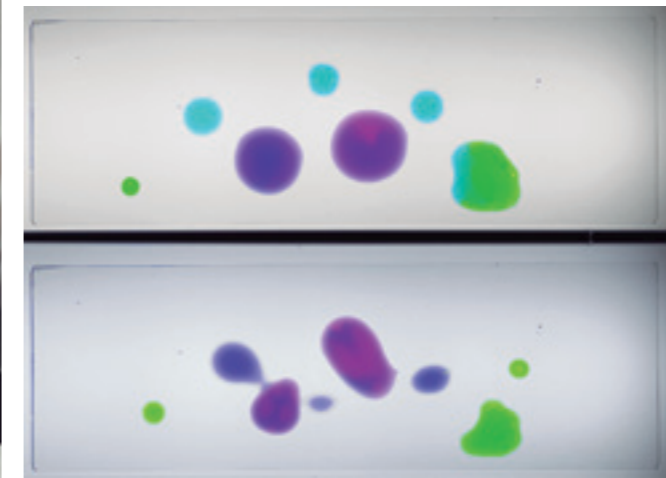
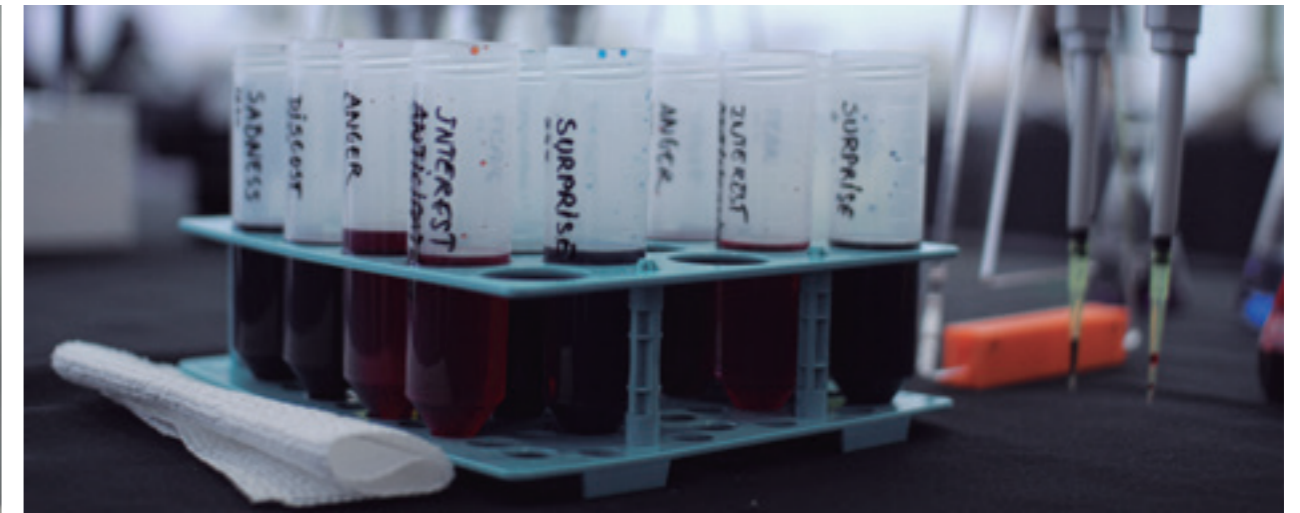
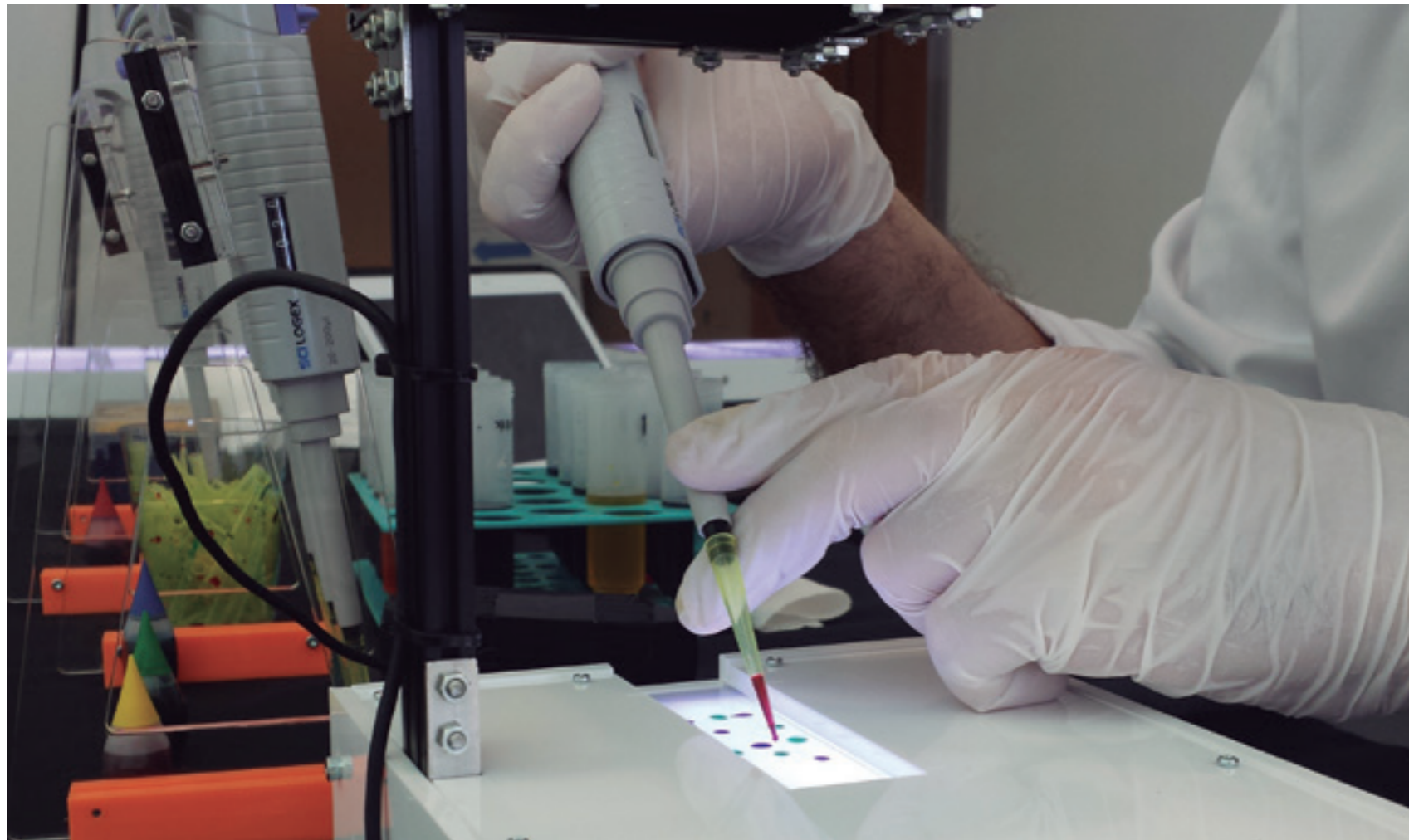
- Maintenant Festival, Rennes, France (10th-15th Oct'17)
- GLOW Winter Lights Festival, Calgary, Canada (17th-20th Feb'17)
- TAVA Tartu Valgus, Tartu, Estonia (21th-23th Oct'16)
- Group exhibition Remote Signals, curated by Pau Waelder, ARS building, Tallinn, Estonia (14th - 20th Mar'16)
- Group exhibition Tallinn Winter Festival, Tallinn, Estonia (5th - 7th Feb'16)

The idea of light installation SMILE is to make people smile. Often, especially during the dark time of the year, we forget to smile. However, a single smile can make your and also maybe someone's else day.

How does the installation make people smile? The artwork is composed of two parts: the interaction station, which recognises smiles, and a smiley made out of light tubes. When someone smiles to the interaction station, only then the light installation lights up. The idea is to smile and the artwork will smile with you. The artists want to forward the idea that a simple act as smiling, can make a big change, like lighting up all the neighborhood.

Happiness starts from a smile. We tend to smile, when we are happy. Hence, a smile seems to be a consequence of being happy or feeling good. At the same time such a behaviour pattern could be reversed: why not to smile first and then maybe comes also happiness or good feeling?

In short, the aim is to shake a passive behaviour of the audience and ask them to be active and smile. More smiles, more light!



## Data Drops / Varvara & Mar

Performance

2015

Exhibited:

- Group show *Reverberadas*, Etopia, Zaragoza, Spain (20th May-18th Sept'16)
- DTL 2015 in MIT Media Lab, Boston, USA (16th – 17th Nov'15).

Data Drops is a data sculpturing project, which through a metaphor aims to tackle the issue of personal data collection and its usage.

Data Drops project was produced in the collaboration with a scientist Mario de la Fuente PhD. The project has been shown for the first time in Data Transparency Lab conference 2015 took place at MIT Media Lab, sponsored by Telefónica and organized by Ramon Sangüesa.

The data source of this project is the survey designed by the researcher Ramon Sangüesa (<http://www.thecityandyourdata.net/>), which is concerned about people emotions towards personal data being used by the third parties. People's reported emotions are matched to colours according to Robert Plutchik's wheel of emotions. Plutchik's theory of emotion introduced 8 primary emotions out of which all the rest of emotions are derived.

The colours resulting from people's emotional data are visualized as droplets in microscope slides. The droplets move freely on the slide, chasing, merging, and beautifully interacting between each other like performers in a dance choreographed by molecular physics. The mechanics behind this droplets dance was reported by Stanford researchers Nate J. Cira PhD and Manu Prakash PhD thus, showing how evaporation-mediated surface gradients drives the movement of coloured propylenglycol-water drops without any additional external inputs. In Data Drops this physical mechanism is employed to drive people's emotion-describing data without any external influence, in the same way like we lose control over our personal data given away in our ever-connected devices.

The emotions of four people are placed as coloured drops in microscope slides and left to freely interact between them for few minutes. The interaction is recorded, and the final emotional pattern placed in light boxes. The collected drops represent the personal data footprint left in all our actions. And the pattern that compose all the slides can be seen as

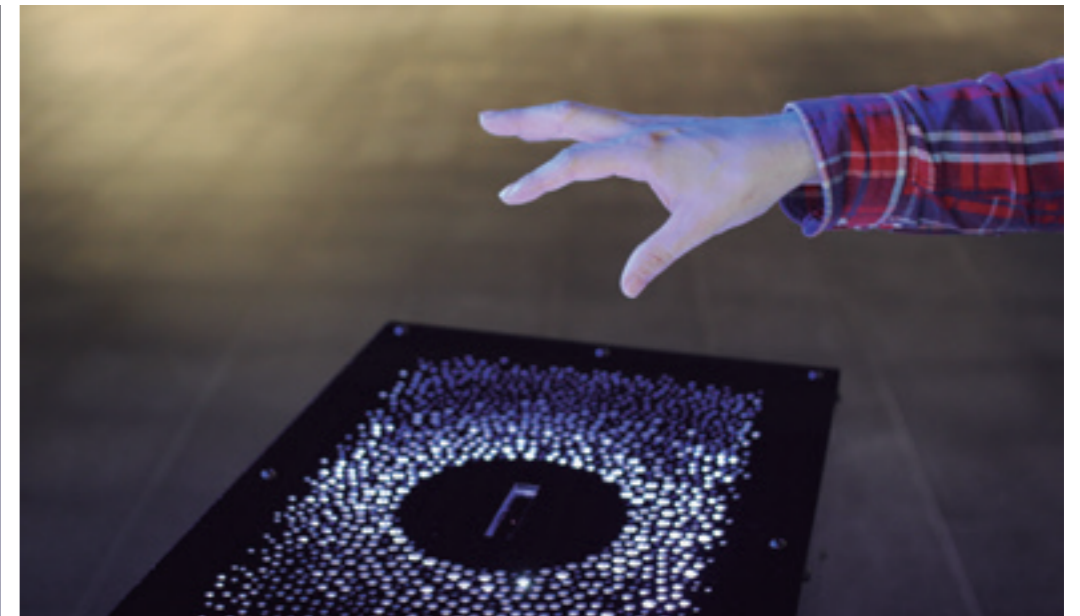
the aggregation of different people's data forming a picture of the big data.

Relevance: Personal Data and personal data online, in particular, are increasingly being extracted and used by governments, business and other agents. It is difficult to see what is happening with this part of our identity. However, we all have a personal feeling about it, whether it is a positive or negative one. So, this projects makes it visible how people feel about their digital identity being used by third parties. Through our feelings we can come closer or be repelled by others attitudes towards privacy and transparency online. E-motion, comes from latin, emovere, to move, to agitate. An that is precisely what the data droplets do: they continuously move towards or against each other reflecting how our feelings move closer or further away from others' emotions towards the same questions (<http://www.thecityandyourdata.net/#!/blank/cgfe>).

Each glass slides continuously reproduces the dynamics of personal emotions around technical identity use. On each slide, unknowing to themselves as it happens online, people's opinions and feelings about privacy and identity move and fought their own battle.

Implications: performing as a group of researchers in a research setting makes "Data Drops" a inquiry on research process. Not by chance the setting of Data Drops was a reunion of the most important researchers on data privacy and data transparency within an institution that is the bulwark of hi-tech research: the MIT Medialab.

The performative aspect of Data Drops is both a reproduction and a questioning of these same researcher's feelings an attitudes towards the implications of their own work.



## Tree of Hands / Varvara & Mar

Interactive installation

2015

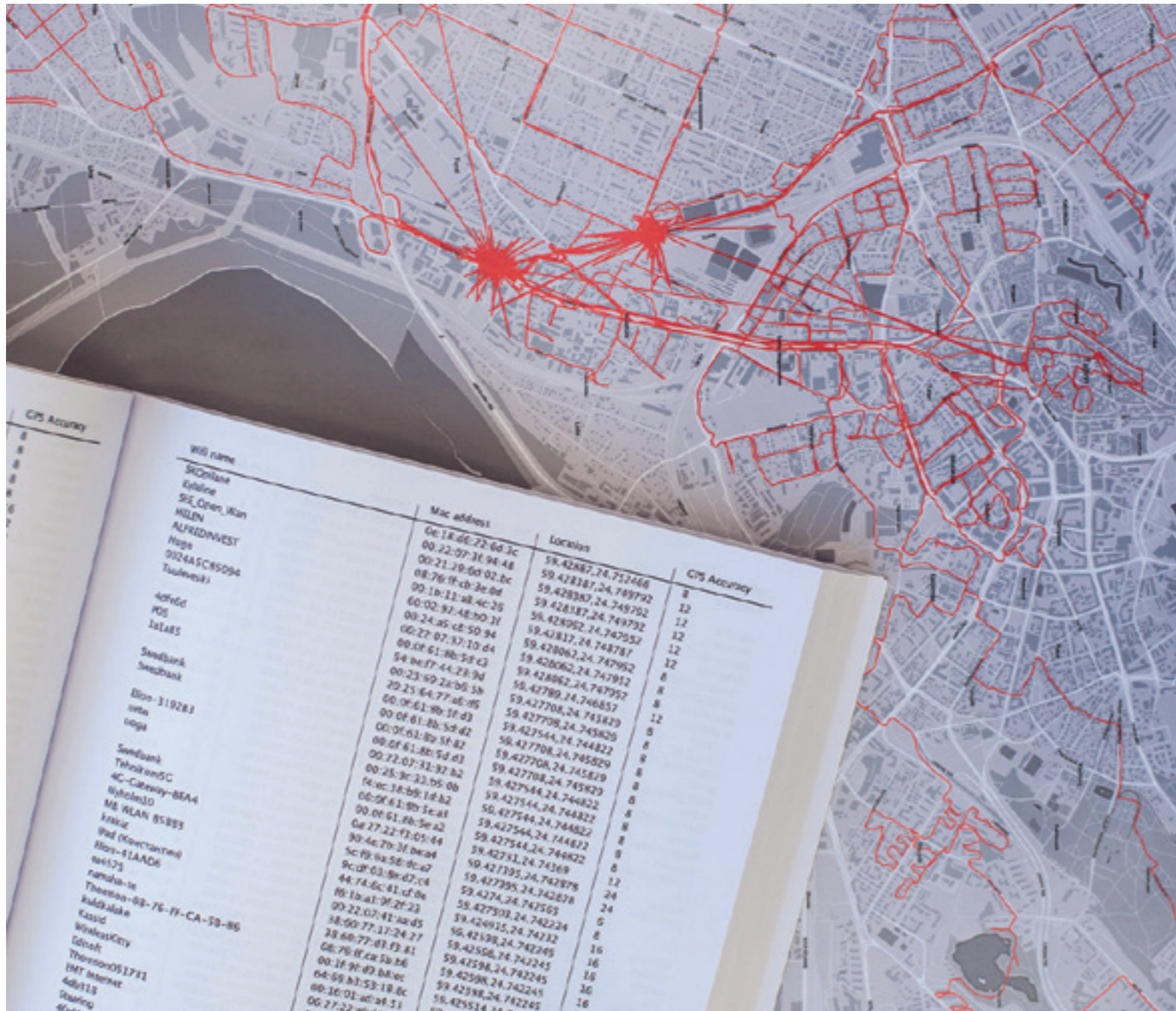
Exhibited:

- Culture Festival SÄRIN, Rapla County Contemporary Art Centre, Estonia (15th – 16th Sept'17)
- Group exhibition Remote Signals, curated by Pau Waelder, ARS building, Tallinn, Estonia (14th - 20th Mar'16)
- Solo show, curated by Oyuki Matsumoto, Malmö Live Concert Hall, Sweden (22nd Oct - 22nd Nov'15)
- Group exhibition #digitallandscapes, Lo Pati Art Centre, Amposta, Spain (19th Aug - 11th Sept'16)

Tree of Hands creates a digital illusion of immersive and mysterious landscape, which flirts with the ideas behind Anthropocene discussions. The post-human landscape forwards the fears of today: rising sea level, the danger and insecurity of technology, and unpredictable effects on us and our nature of biotechnology.

With the last one Varvara & Mar tried to imagine the consequences of gene modifications. Since the effects are unknown really, the artists have decided to create genetically mutated tree, which has moving hands instead of leaves. All the hands were created by the spectators, who has recorded their hand movements. Hence, the tree memorizes and captures the hand movements. The hand movement detection sensor in the middle of a frame records each movement of one's hand.

The artwork is easily scalable from a high resolution screen to a big-scale projection or a video wall.



## WiFipedia / Varvara & Mar 2015

### Exhibited:

- WiFipedia Buenos Aires, group exhibition Asuntos de nuestro espacio curated by Cristian Reynaga, EAC Espacio de Arte Contemporáneo, Montevideo, Uruguay
- Special creation of WiFipedia Buenos Aires in group show Asuntos de nuestro espacio curated by Cristian Reynaga, Centro Cultural Rojas, Buenos Aires, Argentina (10 Oct - 9 Nov'19)
- Group show OOPS curated by Julian Staddon, Gallery University of Hertfordshire Arts, Hatfield, UK (10th-11th Dec'18)
- Group exhibition #digitallandscapes, Lo Pati Art Centre, Amposta, Spain (19th Aug - 11th Sept'2016)
- Group show Väljavaade curated by Keret Altpere in Gallery Noorus, Tartu, Estonia (28th Jan - 13th Feb'16)
- Group exhibition TL;DR curated by Stacey Koosel, Tallinn Kunstihoone Gallery, Estonia (31st July - 23rd Aug'15)

The artists were interested in exploring urban information layer and its' network density. Metaphorically speaking, the art project underlines the digital landscape of the city and invisible communication and creativity layer of its inhabitants.

Varvara & Mar have developed a tool that enables them to discover wireless communication devices around us. It means, wherever the artists went scanning, their application was constantly searching for WiFi networks and saving each and every new name, its mac address, location and GPS accuracy encountered. The artists discovered protective, creative, political, racist, attempts to communicate and cyber world descriptive network names.

It was striking to discover the amount of information and graffiti messages-like, which teenagers would write on a wall, that are floating in the air, which could potentially find a use in social, cultural, or ethnographic studies. Just by looking at the networks one could say whether it is a business or residential area, neighbourhood highly populated and/or minority living there.

The most interesting is the undesigned use of technology. People tend to personalise their WiFi's, they try to be creative, communicate with the neighbours, or express their opinion (usually politically). Hence, the 32-character- space for naming a WiFi network, has become in away a location-specific mini Twitter. In other words, Varvara & Mar talk about the age of bite-sized self-expression. Their aim is to relate to this phenomenon artistically by revealing the names of networks and memorizing their location. The idea is to make sense of novel communication and create a big picture of citizens' voices and reveal digital landscape of city. The scanning trips of the artists took the form of publication that contains all the networks found and the map with the trajectory.

*Project production was supported by Cultural Endowment of Estonia.*

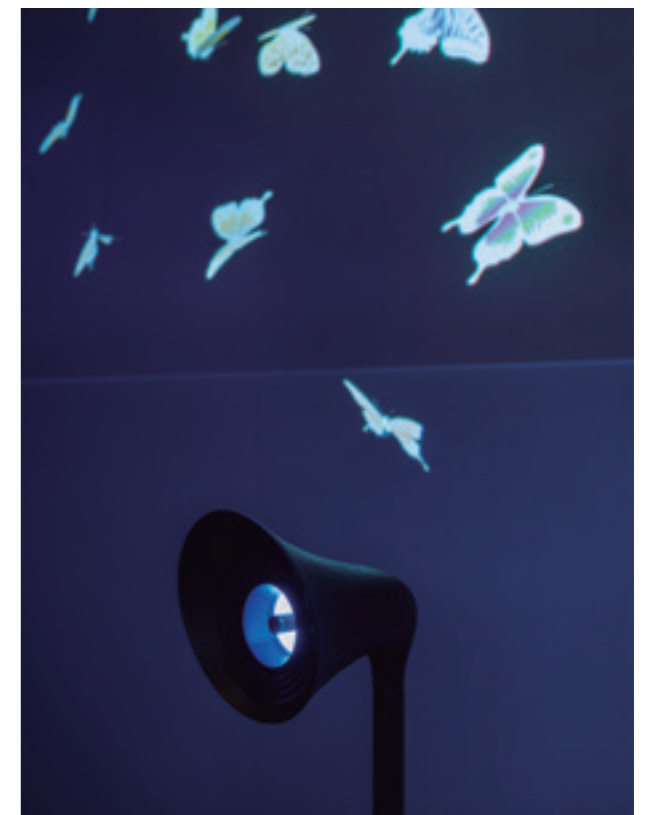


Photo: Andrew Meredith

## Wishing Wall / Varvara & Mar

Interactive installation

2014

Exhibited:

- Group exhibition Digital Revolution in WF Central, Beijing, China (Jan – May'18)
- Group exhibition Digital Revolution in Zorlu Centre, Istanbul, Turkey (Feb – June'16)
- Group exhibition Digital Revolution in Onassis Cultural Centre, Athens, Greece (Oct'15 – Jan'16)
- Group exhibition Digital Revolution in Tekniska Museet, Stockholm, Sweden (Oct 14 – Aug'15)
- Group exhibition Digital Revolution in Barbican Centre, London, UK (July – Sept'14)

There is a number of traditions how to make a wish, for example, one should make a wish when blowing the candles on birthday cake, when a year is changing, by throwing a coin in a fountain and much more. Making a wish is always connected to a magic, at the same time there is no visual manifestation nor any continuity after a wish is made.

Wishing Wall looks at re-imagining how we share our innermost wishes with the world. What if you could say your wish out loud and have it magically released into the world for people to see? In this piece spoken words are transformed into butterflies that are diverse in form and colour as they represent the sentiment of the spoken words. The gallery visitors are invited to interact with the butterflies and discover released wishes.

The intention is to retain the magic around making a wish, and at the same time, slightly alter the traditional approach around it. Hence, the aim is to encourage saying a wish out loud and explore made wishes by playfully interacting with the butterflies. Yes, a spoken wish turns into a butterfly. Each butterfly carries a wish that can be released when one catches the butterfly or lets it land on his/her arm.

In addition to that, the artists want to understand and also visualize the sentiment behind the spoken wish. The idea is to turn the feelings into the butterfly's appearance. Since those insects are very colourful and in different size, it makes sense applying their attributes for representing different moods of wishes. For this Varvara & Mar have used Robert Plutchik's Wheel of Emotions, which maps eight basic emotions to colours, for instance, joy is yellow and red is anger. The sentimental analyses of made wishes is realized with Word-Emotion Lexicon by Saif Mohammad, a researcher at the National Research Council Canada (NRC).

The artists liked the idea to think of a metamorphoses of wish that was also an inspiration and reason for using butterflies in the piece. In addition to that, a butterfly is a creature that has a magical and beautiful appearance. Maybe that's why people tend to catch and even collect butterflies. Thus, metaphorically their installation does similar things: invites audience to catch butterflies, explore others' wishes, and collects all wishes made.

Technically speaking, all the visual part of the work is realized with code using Three.js.

*Wishing Wall was commissioned by Google and Barbican London.*



## Speed of Markets / Varvara & Mar

Installation

2014

Exhibited:

- Group exhibition In Time (The Rhythm of the Workshop) curated by Shannon R. Stratton at MAD, New York (23th Feb – 22th May'16)
- Art15 art fair in London (21th – 23th May'15)
- Art Miami New York art fair (14th – 17th May'15)
- by Priveekollektie gallery at PAD Fair, London (Oct'14)

The aim of art installation is the visualization of stock markets' volume in real-time. The volume is an interesting figure to play with, since it is an indicator for a liquidity on the markets.

Speed of Markets is very unique artwork in terms of material: it uses live financial data. At this point Varvara & Mar would like to thank Bloomberg for their kind collaboration. The art installation talks about volume of the stock markets. We are used to follow the price of shares and its' change. However, this information does not tell everything.

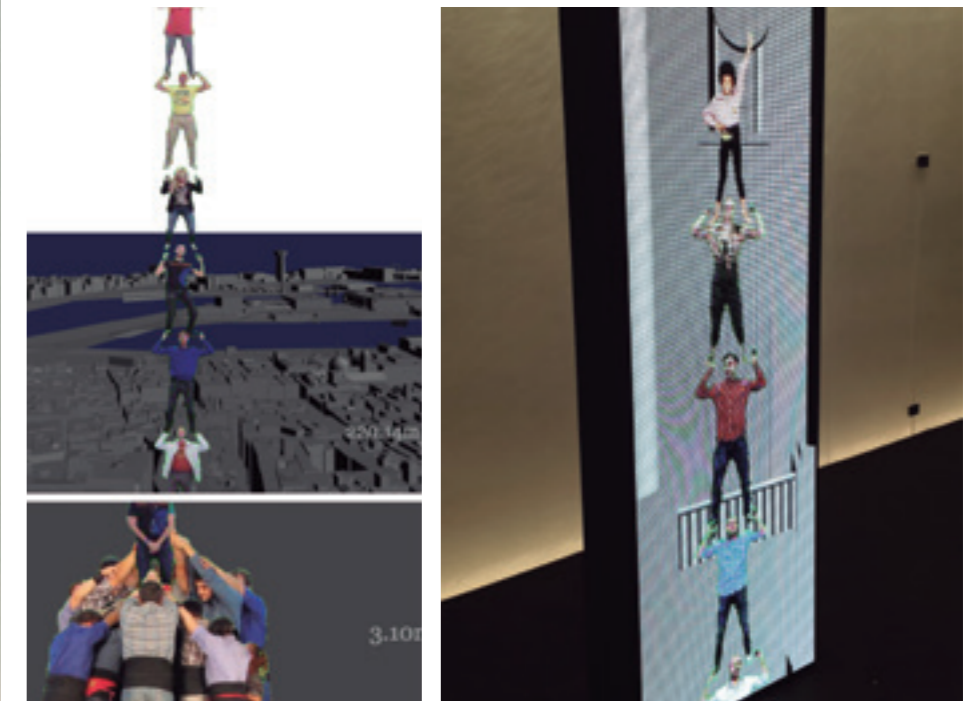
In the age of innovative financial models, trading with future contracts takes place. Hence, a market can be super busy, and at the same time, the prices of stocks very stable. It means, following just the price in a stock market does not give the whole picture of its' activity. Therefore, the artists got an idea to use the volume data of stock markets to underline the actual situation and flux of the financial world. Speed of Markets makes use of big data of financial world that enables them to uncover the stock markets' pace of life.

Speed of Market is an art piece that points out an innovative and artistic way for applying stock market data as a score. At the same time, the data represents the activity of a stock

market, because the score is composed by its real-time data. The goal is to metaphorically describe financial activity by extracting the stock market data and translating it into the rhythm of a physical metronome in real time. In short, a metronome represents a stock market and follows its rhythm in real-time. It means when there are no trading going on, like weekends, the metronomes are still. The installation consists of 7 custom-made metronomes whose rhythms correspond to the selected stock market's volume: the bigger volume of a stock market, faster moves the metronome.

The 7 markets are: NYSE, NASDAQ, JAPAN exchange group, Euronext, London Stock exchange, Hong Kong Exchange, and Deutsche Bourse.

The audience is given a chance to discover and experience an alternative way of perceiving stock market's data. The concerns of the artists are about the malleability of the digital world to the physical one, and the interpretation of financial data for artistic purposes. The installation is a sonic and at the same time visual interface for perceiving the volume and also pace of life of different stock markets, which are normally described in numbers and graphs.



## The Highest Human Tower / Varvara & Mar

Interactive installation

2014

Exhibited:

– Group exhibition *Music+Art* exhibition curated by Alpha Ville, Mobile World Centre, Barcelona, Spain (21st Oct – 13th Dec '14)

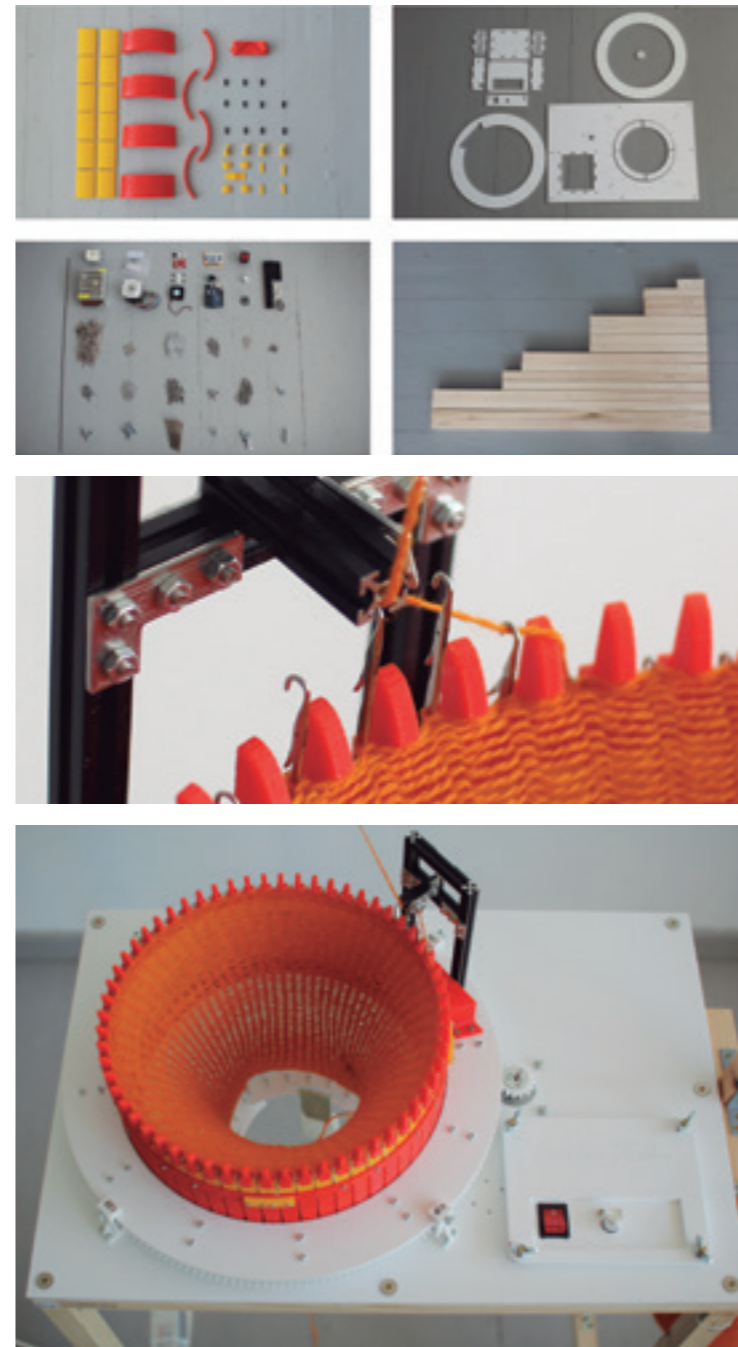
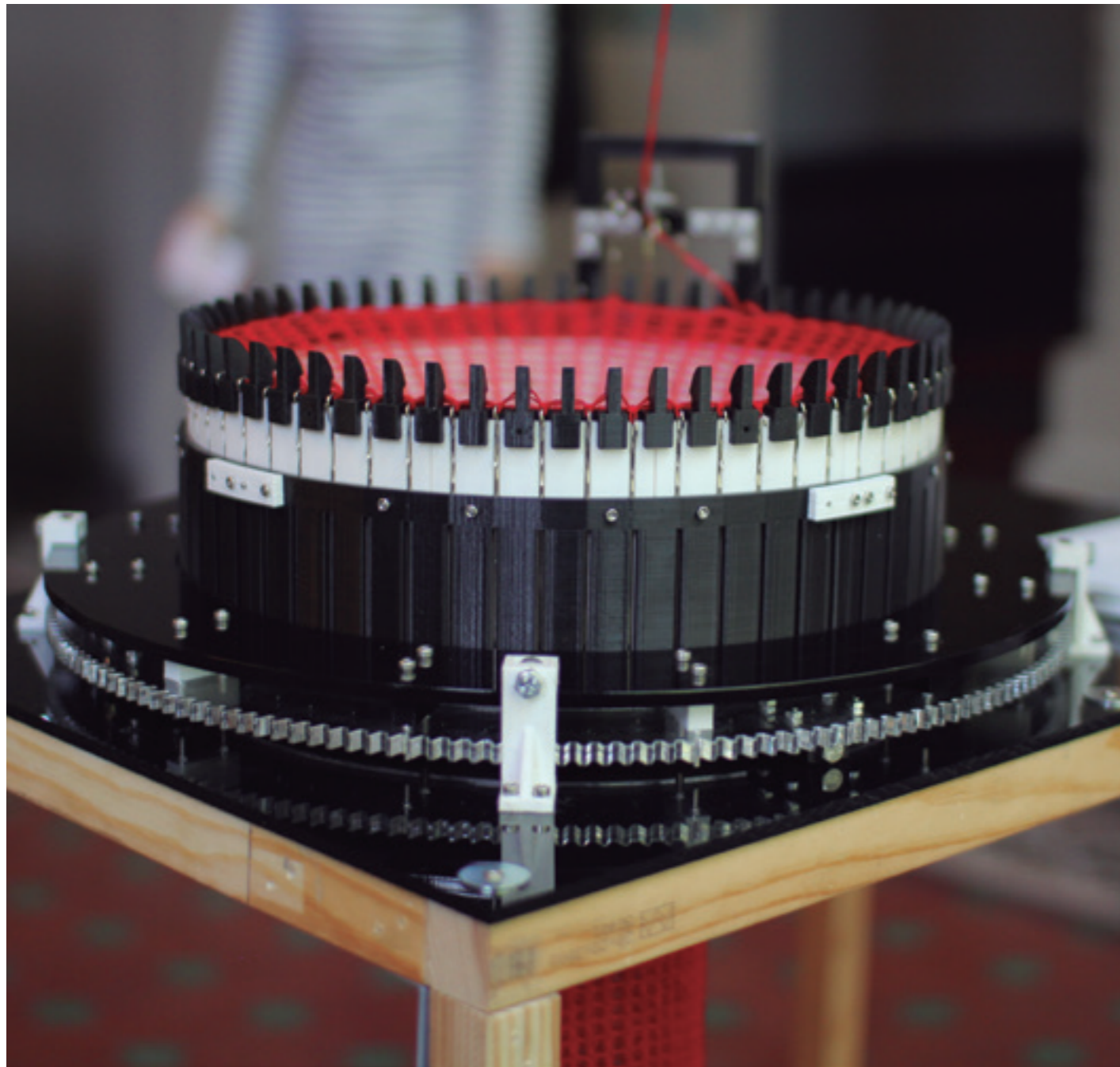
The tradition of human tower or Castells in Catalan language comes from Catalonia. Each autumn the teams of Castellers are competing to build the highest tower in the region. The tradition goes back to 18th century and the record of the highest human tower is 9 levels. On November 16, 2010, castells were declared by UNESCO to be amongst the Masterpieces of the Oral and Intangible Heritage of Humanity. (Wikipedia)

The artists want to build the highest human tower in the world! The installation invites visitors to be a part of the tower. Hence, with each participant the tower grows. The interactive piece tries to relate to Castells tradition in very extraordinary way giving audience a super power to construct a tower of kilometers.

The Highest Human Tower is very ludic and participative installation that also establishes a connection with a cultural tradition to build human towers called Castells. The aim to crash human physical limits in an extreme way: by the end of exhibition it was constructed a human tower out of 3000 participants and more than 4.5km high tower. The artists really enjoy working with digital tools, since the virtual environment allows them to realize even the most impossible ideas.

*The artwork was commissioned by Mobile World Capital Barcelona.*

Software assistance: Martin Nadal  
3D modelling and assistance: Jesús Rodríguez



## Circular Knitic / Varvara & Mar 2014

### Exhibited:

- Solo show Digital Stitches, Narva Art Residency, Estonia (21th – 22th Sept'18)
- Solo show "Kootud eksperimentid" / "Knitted Experiments", Draakoni Gallery, Tallinn, Estonia (11th Oct – 24th Oct'17)
- Circular Knitic made to finalists of YouFab Award '16
- Solo show KnitFab at Super Surface Space Moscow (28th Sept – 16th Oct'15)
- V&A Museum during London Design Festival (26th-27th Sept'15)
- FabAwards 3rd prize '15
- Award of 3D Printing Contest of Instructables '15
- Group exhibition DOERS curated by David Cuartielles. Etopia Center for Art & Technology, Zaragoza, Spain (Dec'14 – July'15)
- KnitFab, Super Surface Space Moscow, Russia (29th Sept - 14th Oct '16)

Circular Knitic demonstrates a different line of the duo's works, which lays in open source design and digital fabrication. To be more precise, Circular Knitic is another example of the artists' aims to integrate textile manufacturing into the contemporary makers' culture. They call it soft digital fabrication.

The artists have been working with knitting and knitting machines since 2012. That time they already had a vision about a 'reprint' knitting machine. And finally they have achieved it or at least got the idea rolling: Circular Knitic is completely open source machine that is produced by using digital fabrication tools, and thus, allows to be replicated by everyone, who has access to a 3d printing and laser cutting. Also the artists really hope that the community will pick up their work and develop further. They are very excited to see how this project will evolve.

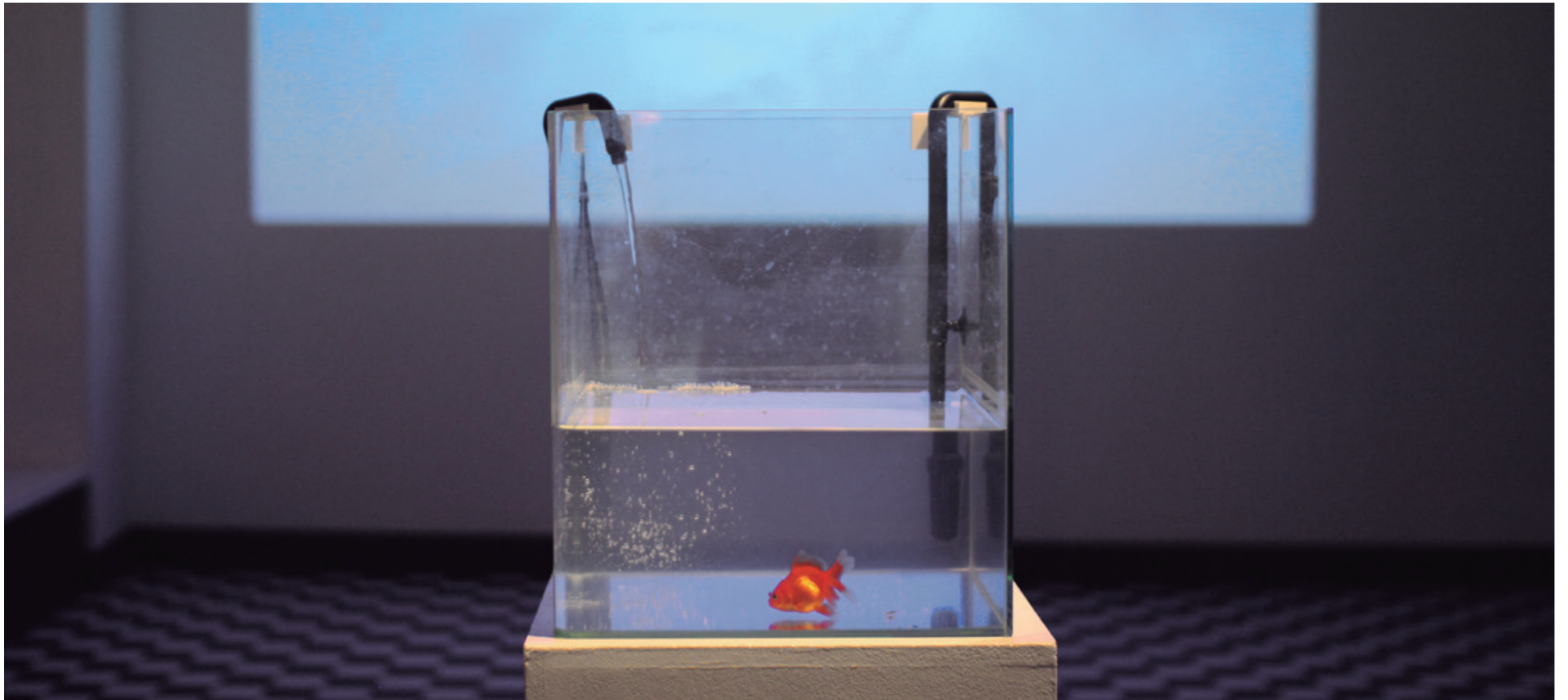
Circular Knitic is an open hardware project. By using digital fabrication and makers' tools, like 3D printing, laser cutting, makerbeam, and Arduino, Varvara & Mar have designed an automated and replicable circular knitting machine.

Fab Labs and makerspaces are a lot about hard-surface object production. At the same time, the 1st digital fabrication tool, which is an electronic knitting machine back to 1976, has been forgotten and discontinued. Hence, with this project, Circular Knitic, and their earlier one called Knitic, the artists aim to integrate textile fabrication to the makers' culture.

For the DOERS exhibition curated by David Cuartielles in Etopia Center for Art & Technology the artists have produced 5 Circular Knitic machines, which will be knitting for the time of the show (8 months). Hence, slowly the ceiling of art centre will be covered with knitted garment.

*Commissioned by Ayuntamiento de Zaragoza.*

*Circular Knitic has received the 1st prize of Instructables 3D Printing Contest and the 3rd prize of FabAwards in 2015.*



**Traveling Fish** / Varvara & Mar  
2014

Exhibited:

– Solo show, Design and Architecture gallery, Tallinn, Estonia (13th-22nd Mar'14).

What if a fish could surf the Internet? What if a fish could travel through a city?

Taking into account the digital age paradigm that allows us to travel the world without leaving our living room or an office, the artists aim to allow a fish to do the same: to travel through various cities without leaving its aquarium. Hence, the audience are confronted with the familiar Google street view but from the perspective of fish and its navigation will. It means the center of artwork's interaction is a fish and not a spectator. Instead the audience are invited to follow the immersive journey of a fish.

Moreover, since a fish lives in water, all the street views will be under the water. Hence, the audience will be able to discover familiar or discover new places but under the water and from the perspective and a will of a fish.

The idea is to make use of fishes' traveling nature and twist it in the sense of digital age. Continuing with the point of information era, the artists are relating to the ideas of Marc Auge, who argues about excess of space, time, and ego nowadays. The artwork aims to demonstrate that even a fish is able to travel and be present in number of places. Thus, it will excess its ego, space and time similarly to people.

In addition to that, it is curious to relate to the famous quote and cartoon by Peter Steiner: "on the internet, nobody knows you are a dog". Only in the case of the artwork everyone will know that it is a fish, who is on internet and on Google street view.



## Binoculars to...

Binoculars from... / Varvara & Mar  
2013

Exhibited:

- Ghent Light Festival, Belgium: 31st Jan – 4th Feb'18
- Aurora Festival in Dallas, Texas on the 16th Oct'15
- Liverpool (FACT): 22nd Aug – 5th Oct'13
- Madrid (MediaLab Prado): 6th Sept – 6th Oct'13
- Berlin (CHB): 6th-7th Sept'13
- Melbourne (Fedsquare): Sept'13
- Dessau (Bauhaus): 6th-7th Sept'13
- Riga (Riga2014): 7th-12th Sept'13
- Helsinki (m-cult, MediaFacade Festival): 22nd – 25th Aug'13
- Linz (Ars Electronica): 5th Sept – 14th Oct'13
- Brussels (iMal, White Night): 4th – 6th Oct'13

Binoculars to... Binoculars from... is an installation, which is able to connect to a number of cities in an extraordinary way. When a spectator looks through the binoculars, instead of seeing the scene physically in front, he/she is transported to a different site. This opening of a real-time window into another location is not unidirectional: when looking into the binoculars, the beholder's eye is captured and displayed on an urban screen at the observed place. Hence, the inhabitants of the other, connected city will see the huge-scale, searching eye looking at them.

As well as playfully connecting to other cities, and dealing with issues of extended surveillance. In this respect Binoculars enables to see also the observer from the other side.

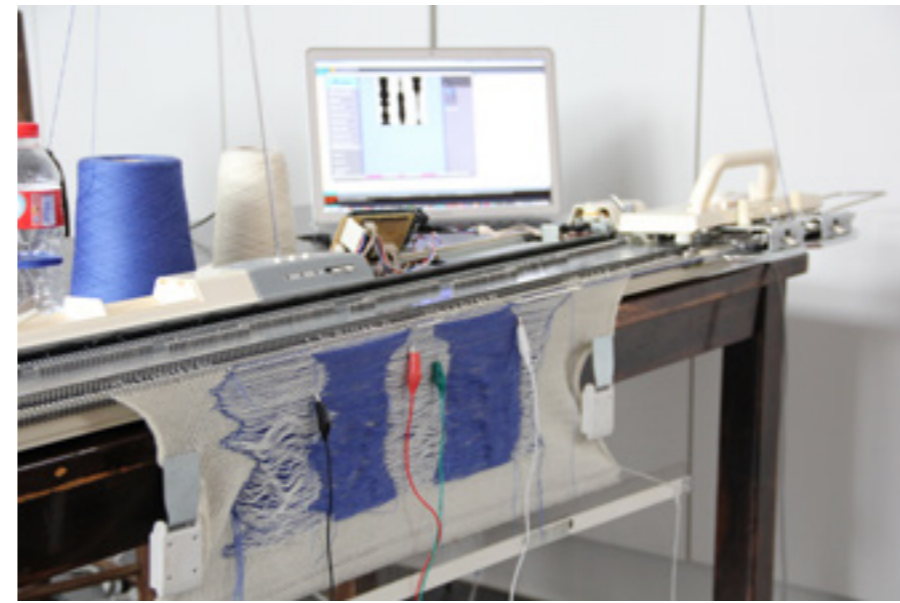
Also this work underlines the ideas of the French anthropologist Marc Augé. Binocular creates an excess of time and space, allowing one to travel to a totally different location and be present there in a matter of milliseconds, whilst still remaining in their first physical location.

The artwork creates situation where observer gets observed.

Software assistance: Martin Nadal

*The art piece produced and curated within Connecting Cities project (producing organization FACT Liverpool).*

*Special thanx to John Moores University Liverpool where the physical part of the installation was developed and produced.*



## NeuroKnitting / Varvara & Mar 2013

### Exhibited:

- Solo show Digital Stitches, Narva Art Residency, Estonia (21th – 22th Sept'18)
- Solo show "Kootud eksperimentid" / "Knitted Experiments", Draakoni Gallery, Tallinn, Estonia (11th Oct – 24th Oct'17)
- Solo show KnitFab, Super Surface Space Moscow, Russia (28th Sept-16th Oct'15)
- Solo show Knitting Experiments, curated by Jerneja Rebnak, Maribor City Gallery, Slovenia (29th Aug – 28th Sept'14)
- Group show subnetAIR, City Gallery Salzburg, Austria (6th-22nd Mar'14)

Varvara & Mar have plotted brainwave activity into a knitted pattern. Using a wearable, non-invasive EEG headset, the artists recorded users' affective states while listening to Bach's "Goldberg Variations", concretely the aria and its first seven variations. The audio was about 10 minutes long and they downsampled each second of the signal coming from the 14 channels of the EEG device. Three main features were measured: relaxation, excitement, and cognitive load. After recording, those features were converted into a knitting pattern. Hence, every stitch of a pattern corresponds to a unique brain state stimulated by the act of listening. It means the user's affective response to music is captured every second and memorised in the knitted garment pattern.

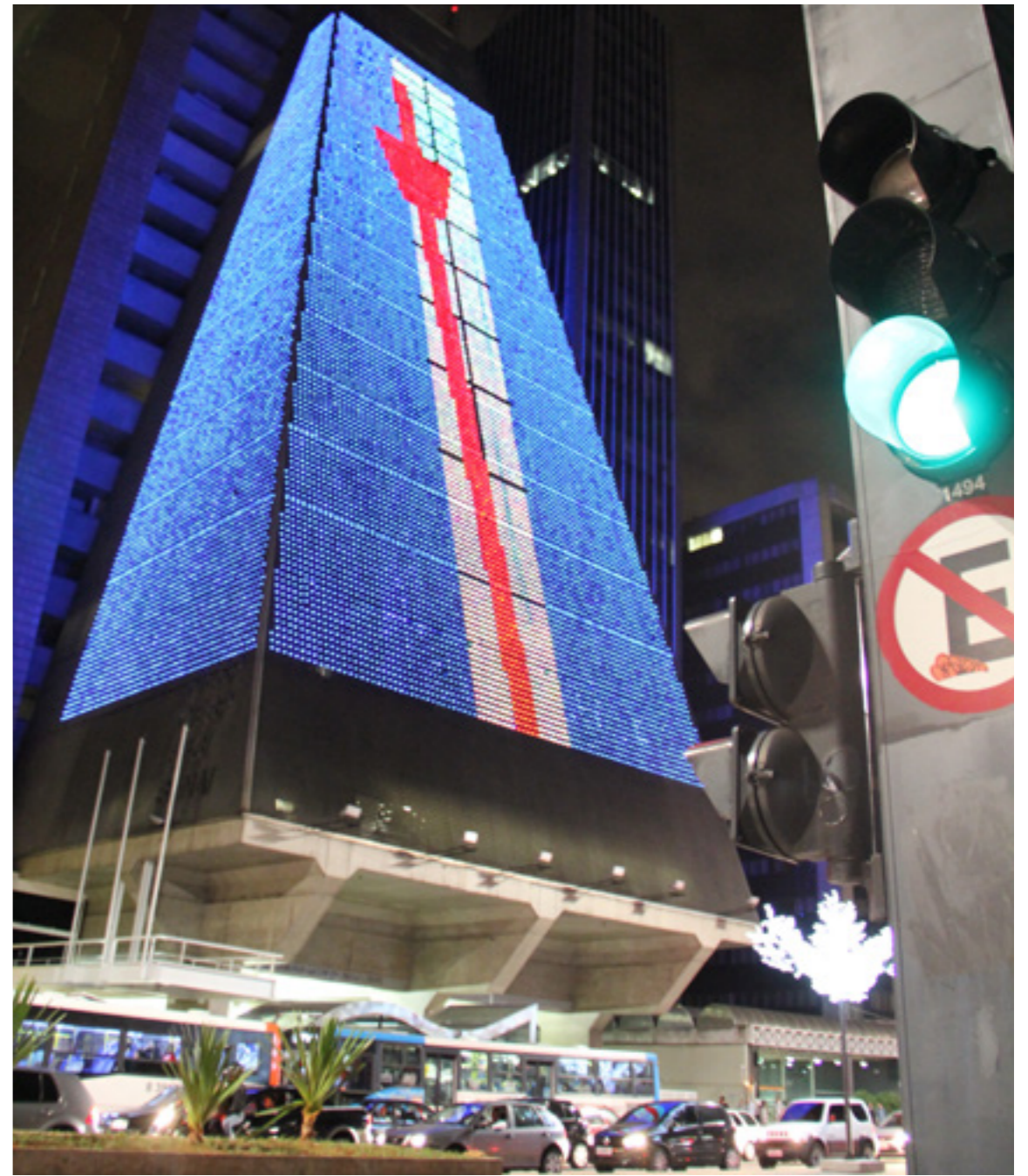
Why music was used? Because music is one of the most powerful mood inducers, provoking immediate affective reactions that can be deduced by looking at human physiology, as in the case of brain cortical activity. These affective states, that are implicit to every human being, can be measured through EEG technology. By applying this technique, the artists were able to create unique patterns coming from unique humans traits. In other words, personalized, implicit knitting with context and message.

Concerning the selected music, the first case study uses Bach's Goldberg Variations as a stimuli for the users. After the statement of an aria at the beginning of the piece, there are thirty variations, from which the first seven were taken. The variations do not follow the melody of the aria, but rather use its bass line and chord progression. The EEG correlate of relaxation, engagement and cognitive load was recorded while the users were listening to the musical pieces. This information was later sent to the Knitic framework to create a bicolor pattern for knitting.

The knitted garments picture the listener's affective and cognitive states during the experiment. It is a way of making tangible the implicit states of users and visualizing them in an original way as a large and personal data footprint.

Neuroknitting represents a novel way of personal, generative design and fabrication. An approach that brings together affective computing and digital crafts. And thus, it offers new applications and creative thinking to both areas.

The project is realised in the collaboration with Sebastian Mealla.



## The Rhythm of Sao Paulo / Varvara & Mar 2012

Exhibited:

- Group exhibition, Sao Paulo City Anniversary, FIESP, Brazil (24th-27th Jan'13)
- Group exhibition, SP\_Urban Digital Festival, Sao Paulo, Brazil (9th-13th Dec'12)

The Rhythm of Sao Paulo was produced especially for SP\_Urban Digital Festival curated by Susa Pop / Public Art Lab in December 2012. The artists were inspired by the triangular shape of building (FIESP in Sao Paulo), which reminded us a metronome. Hence, they connected this work with their existing art piece called The Rhythm of City, which consists of 10 real metronomes performing in the rhythm of 10 selected cities' digital pace.

The Rhythm of Sao Paulo allowed the artists to talk about one city and display its activity by quantifying geo-located social media data in real-time and in a large scale. It means, the artwork mirrors and reflects Sao Paulo's digital pace of life. Moreover, the tempo of metronome is composed by the citizens of Sao Paulo. When the participation is not an aware act and work applies uninterrupted and real-time activity, then the artists call it post-participation. Hence, this allows them to reflect upon life and embed it into their work.

In a way, "The Rhythm of Sao Paulo" is like a clock tower and a huge-scale interface: one can say just from looking at look what is happening within the city. Social media platforms, like Twitter, Flickr, Youtube, and Foursquare were applied in order to get the real-time data and use it as a score.



## SPAMpoetry / Varvara & Mar 2014

### Exhibited:

- Solo show Digital Stitches, Narva Art Residency, Estonia (21th - 22th Sept'18)
- Solo show "Kootud eksperimendid" / "Knitted Experiments", Draakoni Gallery, Tallinn, Estonia (11th Oct - 24th Oct'17)
- Supermarket Art Fair represented by Espai Sant Marc, Stockholm, Sweden (23th - 26th Mar'17)
- Group exhibition, TADAEX festival, Mohsen Gallery, Tehran, Iran (2nd - 7th Jan'16)
- Solo show KnitFab, Super Surface Space Moscow, Russia (28th Sept - 16th Oct'15).
- Solo show Knitting Experiments, curated by Jerneja Rebnak, Maribor City Gallery, Slovenia (29th Aug - 28th Sept'14).
- Group exhibition Unspoken, Mitte Gallery, Barcelona, Spain (5th - 29th Feb'14)
- Group exhibition Malmö Festivalen, Sweden (17th-24th Aug'12)
- Group exhibition Incubarte Festival, Valencia, Spain (21th-23th Jun'12)
- Solo show SPAMpoetry, STPLN, Malmö, Sweden (11th-18th May'12)

SSPAMpoetry is a series of knitted works containing visual poetry from collected spam emails.

Concerning the concept, the artists are interested in bringing together digital culture and traditional handicraft. To be more specific, the idea is to experiment with the form and meaning of SPAM. Varvara & Mar turn SPAM into a romantic, funny or even sarcastic poetry and present it in unusual tangible form as a knitted garment. To be more specific, they call final result dysfunctional wearable, because it reminds a sweater but is not really a one. Like SPAM, their dysfunctional wearable does not have a purpose. Talking about the form of artworks, one is able to recognize sweater parts in unusual position and size.

Coming back to SPAM, it is generated automatically nowadays. Hence, the artists aim to apply the same technique for recycling it, generating poetry from SPAM algorithmically, converting into a pattern and uploading to the knitting machine. Of course, the process of knitting is done manually. Thus, it is created a contrast between rapid and overwhelming digital world and slow, careful knitting process.

Why the artists speak about SPAM? First, SPAM generation, distribution, and reception consume a significant amount of energy that is wasted basically. Hence, with this project the aim is to draw attention to this fact and find a meaning and usage for SPAM.

And finally, Varvara & Mar apply locative SPAM. In the places where the SPAMpoetry has been produced the duo has been collecting SPAM from locals. The works presented in this exhibition contain locative SPAM from Eindhoven and Malmö.



**Kombi** / Varvara & Mar  
2012

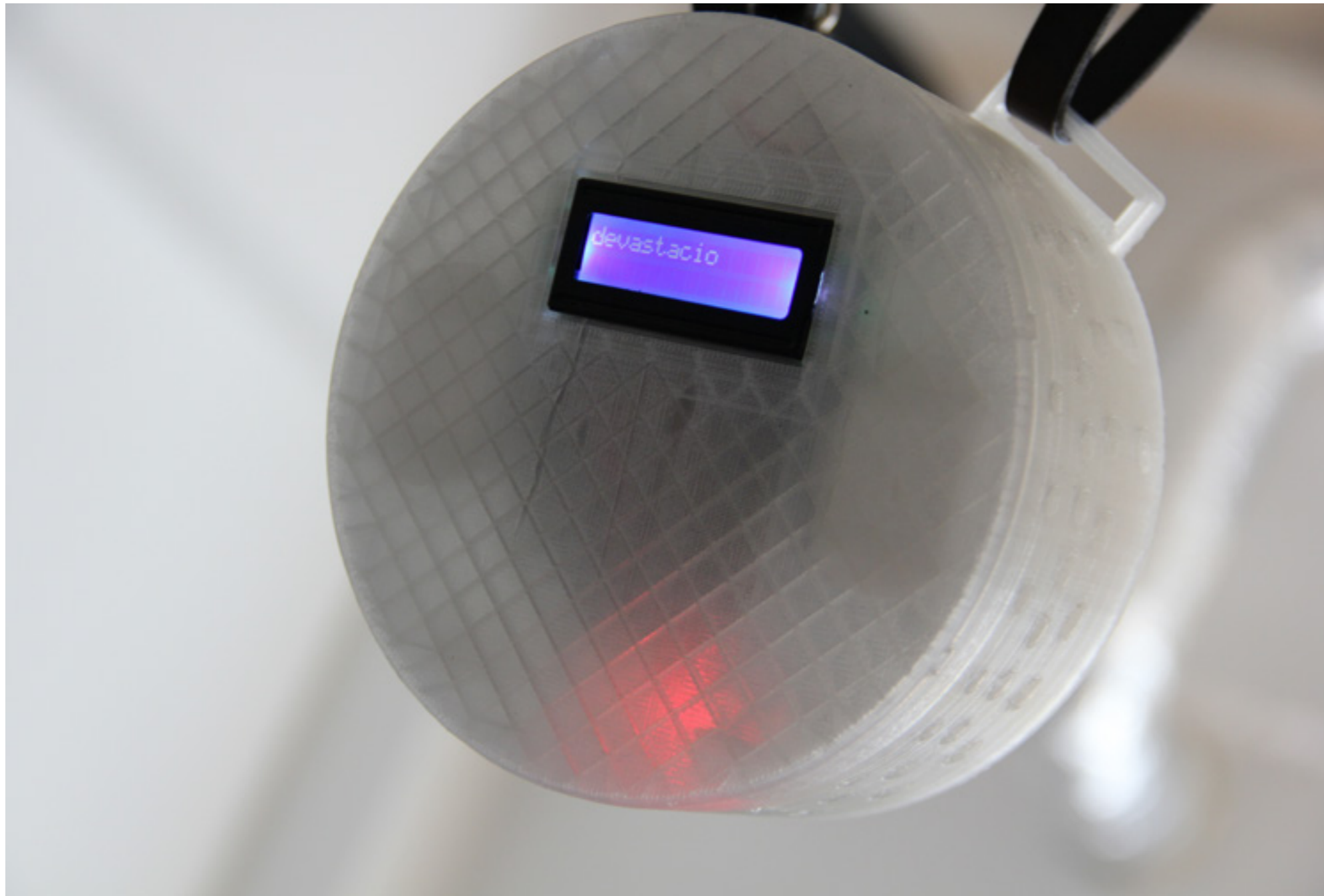
Exhibited:

- Solo show Digital Stitches, Narva Art Residency, Estonia (21th – 22th Sept'18)
- Solo show "Kootud eksperimentid" / "Knitted Experiments", Draakoni Gallery, Tallinn, Estonia (11th Oct – 24th Oct'17)
- Solo show Knitting Experiments, curated by Jerneja Rebnak, Maribor City Gallery, Slovenia (29th Aug – 28th Sept'14)
- Group exhibition Marginalia+Lab, Belo Horizonte, Brazil (29th Nov- 2nd Dec'12)

Kombi is a foot-powered knitted car for maximum of 3 people. Kombi has been knitted with Knitic – the open source knitting machine that the artists are developing. It was a residency project at Marginalia +Lab in Belo Horizonte, Brazil. The work was used for public intervention on the roads of Belo Horizonte and exhibited at the Marginalia+Lab 2012 residencies' exhibition.

Varvara & Mar have decided to make a knitted VW Kombi, since 2012 is the last production year of this car model in Brazil. Wikipedia: as of October 2012 it was announced that the production of the Brazilian Volkswagen Kombi will end in 2013. The phaseout of the T2c marks the end of an era which lasted since 1935 – it will be the final production rear-engined Volkswagen after 78 years.

VW played a crucial role in political decision of Brazil to invest in car roads' development instead of railway. Also Kombi is very present in the local life and culture of this country. Hence, these all were an inspiration for the artists to create this artwork. In addition to that, the artists aimed to make a statement of pedestrians' rights in the city, which are not enough respected by drivers. So, they had to get a car in order to get an equal treatment by the other vehicles.



**Wireless Poetry** / Varvara & Mar  
2012

Exhibited:

- Group show Systema curated by Aja Martin, Zhulong gallery, Dallas, USA (25th Oct-29th Nov'14)
- Group exhibition group show The Hypnotist Collector curated by Stacey Koosel, NauART, Barcelona, Spain (6-27th June'14)

By exploring digital landscapes and excess of wireless communication in urban space, we started to search for poetic expression by applying radio waves. The intention was to create totally invisible and intangible work that will exist in the air.

By exploring digital landscapes and excess of wireless communication in urban space, we started to search for poetic expression by applying radio waves. The intention was to create totally invisible and intangible work that will exist in the air. Hence we got an idea to display poems by Eduard Escoffet, who kindly agreed to collaborate with us. Each minute we are sending from dedicated WiFi router 4 32-character lines of a poem by changing the names of device. It means while choosing a network one will discover some lines of poetry instead of typical networks' names.

Moreover, the work introduces an unusual way for not only applying WiFi waves for artistic purpose but also for a novel form for performing poetry.

We have created a sculptural piece that displays reachable WiFi networks' names, and thus, also the poetry performed through the radio waves.



**Baltic Sea Radio** / Varvara & Mar  
2012

Exhibited:

– Group exhibition Baltic Goes Digital, Gdansk City gallery, Poland  
(14th Sep-4th Nov'12)

Baltic Sea Radio is an art project that makes use of the Baltic Sea traffic for artistic purposes and offers a novel sonic experience to the audience. The artwork reflects the local ships' movements in real-time and applies marine traffic as a score of a sound composition. The boats that can be reached by the AIS-receiver, which is installed in Sopot, right on the coast of Baltic Sea, are affecting and determining the score of the soundwork in real-time. Hence, the artists have given away the control over the sound composition to the marine data. In other words, the sound work is in a constant flux and reflects current activity of Gdansk Bay.

The artwork uses post-participation concept developed by the artists through their past works, which applies certain human or animal activity for artistic purposes without awareness of the subject in real-time. It means, the artwork is based on real life events at the moment. In the case of Baltic Sea Radio, the sound installation is affected by the ships' movement in Gdansk Bay in real-time.

Baltic Sea Radio consists of 3 parts: the AIS-receiving station that is installed near the beach of Sopot, Poland; the listening station at the exhibition Baltic Goes Digital in the Gdansk City Gallery in Gdansk, Poland; and online radio stream that is accessible

virtually to everyone during the exhibition period (14.09-04.11.12). The AIS-receiver forwards current marine traffic from Sopot to the exhibition space in Gdansk, where the listening station is installed. In the gallery space the audience is invited to take a seat in the half-boat and experience the real-time composition.

Concerning the technical realization, listening station is made out of old fishing boat that was cut into two pieces, equipped with a seat, computer and headphones. AIS-receiver is connected to a second computer, the received messages are decoded and sent to the computer in gallery space in Processing. The sound part has been realized in Pure Data.

*Baltic Sea Radio was awarded Baltic Goes Digital award in 2012*



**Budgie Waltz** / Varvara & Mar  
2012

The artwork produced in and part of Verbeke Foundation's collection.

Budgie Waltz is an art installation that enables budgerigars to play a piano. Each time entering and leaving their houses, the birds trigger a piano key. Each entrance (in total 32) to the bird's house has a light sensor that senses when a bird is entering or leaving its home and triggers a corresponding solenoid that pushes a piano key. Simply: 32 entrances (holes in the birds' houses) = 32 light sensors = 32 piano keys. The installation consists of bird cage (10x10x5m), about 40 budgies, piano, light sensors, and solenoids. The work is about giving away control over an artwork and unaware participation.

With this work the artists aim to go beyond human-based or human-generated data and activities, and use birds' behavior instead. Maybe after a while the budgies will discover that they have a control over a piano and begin an improvising play.



**Copyright is for Losers** / Varvara & Mar  
2012

The artwork produced in and part of Verbeke Foundation's collection.

Copyright is for Losers is an art project that aims to highlight the abuse of copyright law by certain companies, which make a fortune by copyrighting well-known songs, like Happy Birthday.

Hence, the art project consists of an Amazon parrot called Copy, who is learning copyrighted songs, and a web-page as an interface for audience, who want to participate in teaching the parrot. Since everyone knows "Happy Birthday" song by heart, we would like to give a chance to everyone to teach Copy the song by singing it through the web and sending it to the dedicated server for Copy. Thus, the idea is to facilitate collaborative teaching process.

According to the 1998 Guinness Book of World Records, "Happy Birthday to You" is the most recognized song in the English language. The melody of "Happy Birthday to You" comes from the song "Good Morning to All", which was written and composed by American siblings Patty Hill and Mildred J. Hill in 1893. The combination of melody and lyrics in "Happy Birthday to You" first appeared in print in 1912, and probably existed even earlier. The Summy Company registered for copyright in 1935, crediting authors Preston Ware Orem and Mrs. R.R. Forman. In 1990, Warner Chappell purchased the

company owning the copyright for \$15 million, with the value of "Happy Birthday" estimated at \$5 million. Based on the 1935 copyright registration, Warner claims that the United States copyright will not expire until 2030, and that unauthorized public performances of the song are technically illegal unless royalties are paid to it.[...] American law professor Robert Brauneis, who heavily researched the song, has expressed strong doubts that it is still under copyright.

Source: Wikipedia



**The Rhythm of City** / Varvara & Mar  
2011

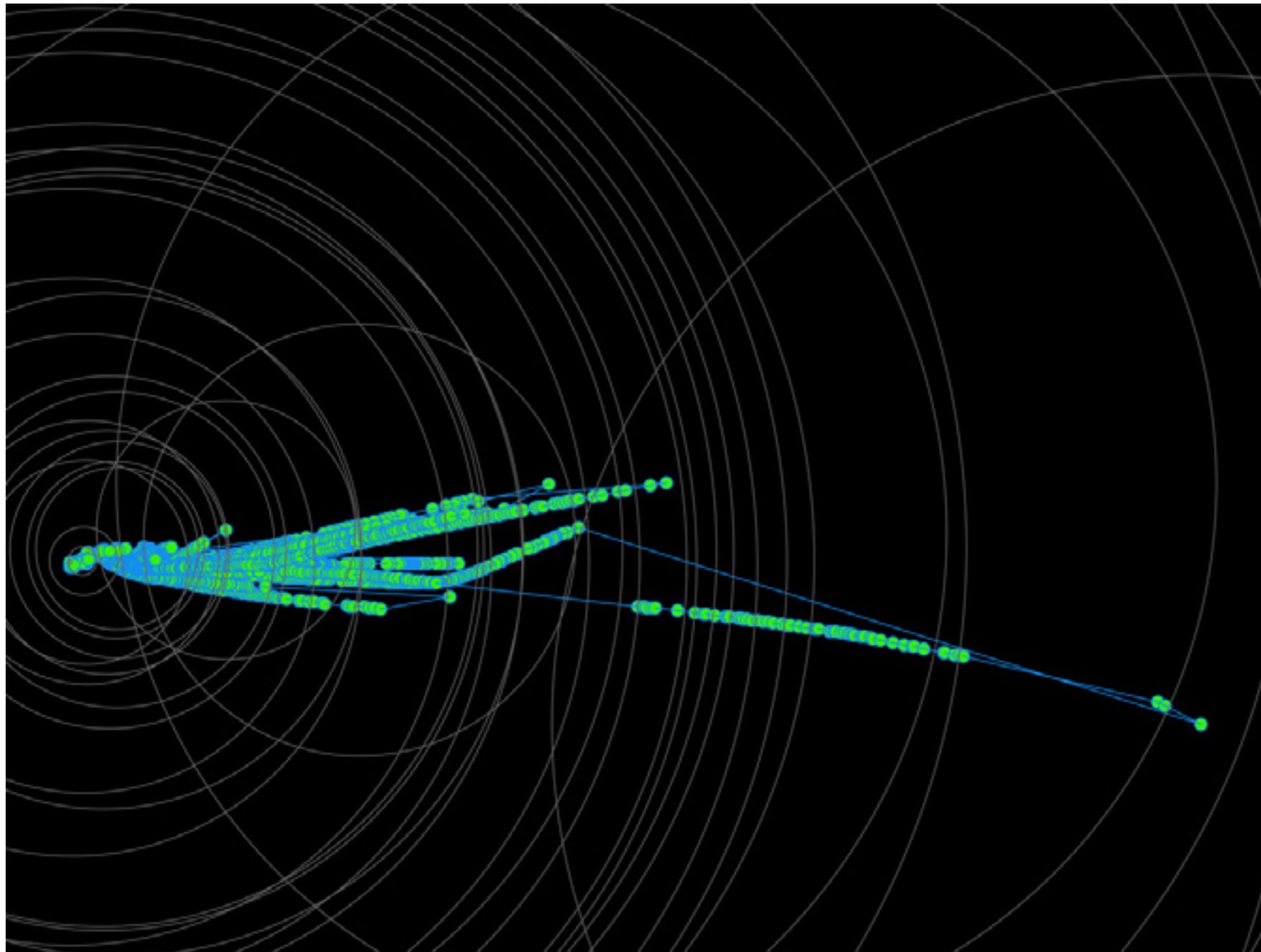
Exhibited:

- Group exhibition Real-Time curated by Pau Waelder in Arts Santa Monica, Barcelona, Spain (28th Jan-10th Apr'16)
- Group exhibition Digital City curated by Daniel Artamendi, Donostia Kultura, San Sebastian, Spain (17th Oct-16th Dec'14)
- Group exhibition, Festival CTI, Barcelona, Spain (14th - 29th June'14)
- Group exhibition Hybrid Art, Estonian Museum of Applied Design and Art, Tallinn, Estonia (29th May-24th August'14)
- Group show Transreal Topologies curated by Julian Stadon, Adelaide, Australia (2013)
- Group exhibition CCGSM, Buenos Aires, Argentina (2012)
- Abstraction Contraption (The Edge, State Library of Queensland, Australia)
- Group exhibition, Elektronika Festival, Belo Horizonte, Brazil (2011)
- Group exhibition, LAB30 Festival, Augsburg, Germany (2011)
- Group exhibition, VAD Festival, Girona, Spain (2011)
- Group exhibition, Enter5 biennale, Prague, Czech Republic (2011)

The Rhythm of City is an art piece that points out an innovative and artistic way for applying geo-located social data as a score. At the same time, the data represents a city's pace of life. The goal is to metaphorically describe locations by extracting geo-tagged content of Twitter, Flickr, Youtube, and translating it into the rhythm of a physical metronome in real time. In short, a metronome represents a city. The installation consists of 10 modified metronomes whose rhythms correspond to the selected cities' digital pace of life. The audience is given a chance to discover and experience an alternative way of perceiving different locations through a continuous performance of 10 metronomes. The concerns of the artists are about the malleability of the digital world to the physical one, and the interpretation of social data for artistic purposes.

The installation is a sonic and at the same time visual interface for perceiving the urban life and culture of different locations. Moreover, it gives an alternative meaning and purpose to the location-specific invisible online data.

The urban studies of Bornstein & Bornstein from early 1970s served as an inspiration for the artwork. They had discovered a positive correlation between the walking speed of pedestrians and the size of a city. Simply put: the bigger a city, faster move people. The artwork demonstrates their interpretation of city's tempo through its digital life. Hence, The artwork talks about pace of life in different cities at the same moment when the piece is viewed.



**The Flux of Sea** / Varvara & Mar  
2011

Exhibited:

- Group exhibition Natures. Hyper-life and Micro-relations, MOB, Barcelona, Spain (13th Mar-13th Apr'12)
- JUSTmadrid Art Fair, Madrid, Spain (14th-16th Feb'12)
- Performance, Es Baluard, Palma de Mallorca, Spain (9th Dec'11)

The Flux of Sea is an art project exploring the traffic of local sea. We are applying AIS radar for catching radio waves that ships are constantly sending. Hence, we are able to listen to the communication between the boats and the harbor. The truth is, sea contains lots of data that we are not aware of.

Therefore, we use these data for the real-time score composition purpose, and thus, offer a novel sonic experience to the audience. The sound piece is in a constant flux, unique, and unpredictable. Moreover, the work goes beyond chance-based composition by reflecting on the current traffic of the sea.

In addition to sound piece, the communication between boats has been converted into generative image and silk printed afterwards.



**Popcorn for Cycling** / Varvara & Mar  
2011

Exhibited:

– Group exhibition AND Festival 2011, Liverpool, UK.

Popcorn for Cycling is exactly what the name says: only if one cycles enough to a power popcorn machine, he/she will get popcorn!

The artwork is extremely participative and social! Because only active cycling will lead to reward and minimum of 2 bikes are able to power the machine. Hence, people have to team up!

On the other hand, it makes audience think and feel energy that is needed to produce popcorn.

Concerning realization, the artists have recycled used car alternators that are producing energy when cycling.



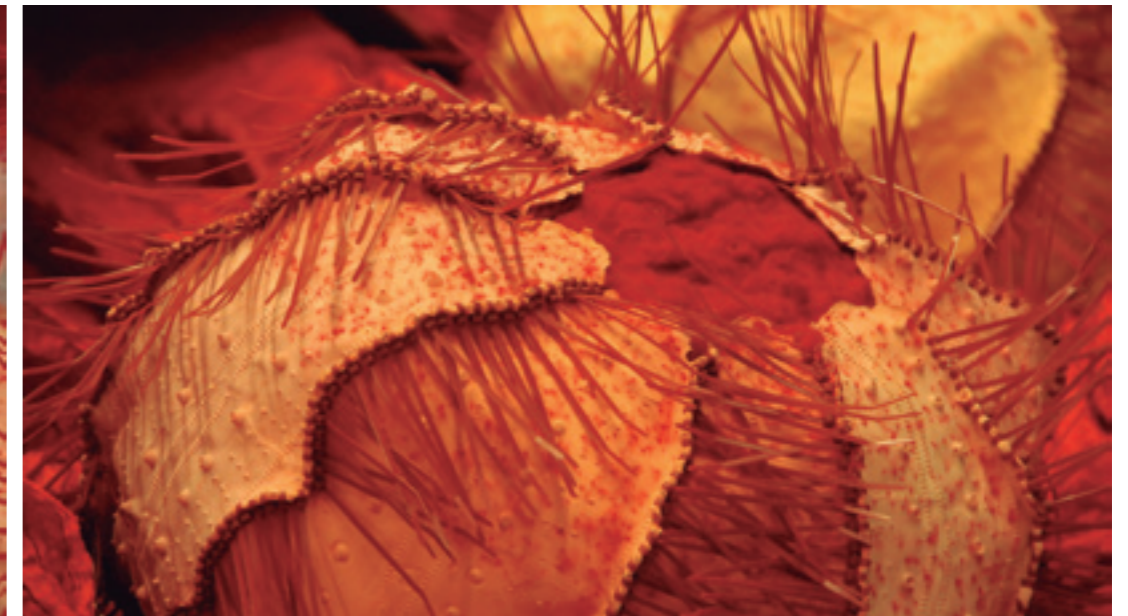
**Pixel Killers** / Varvara & Mar  
2011

Exhibited:

– Group exhibition AND Festival 2011 (Liverpool, UK).

Pixel Killers is a game-art installation on the digital facade of FACT. The artwork aims to convert the building and public space into a playground and offer audience a playful experience. Participants are using Xbox game pads for interacting with the building and each other. Pixel Killers is a team game: two teams of two. Team one are the greens and team two the reds. The ones, who gain the required score first or shoot both opponents, are the winners. As a result, the whole digital window turns into the color of winning team.

Pixel Killers has been produced during EMARE residency at FACT (Liverpool, UK). Shown during AND Festival 2011 (Liverpool, UK).



**Echinodermata** / Varvara & Mar  
2010

Exhibited:

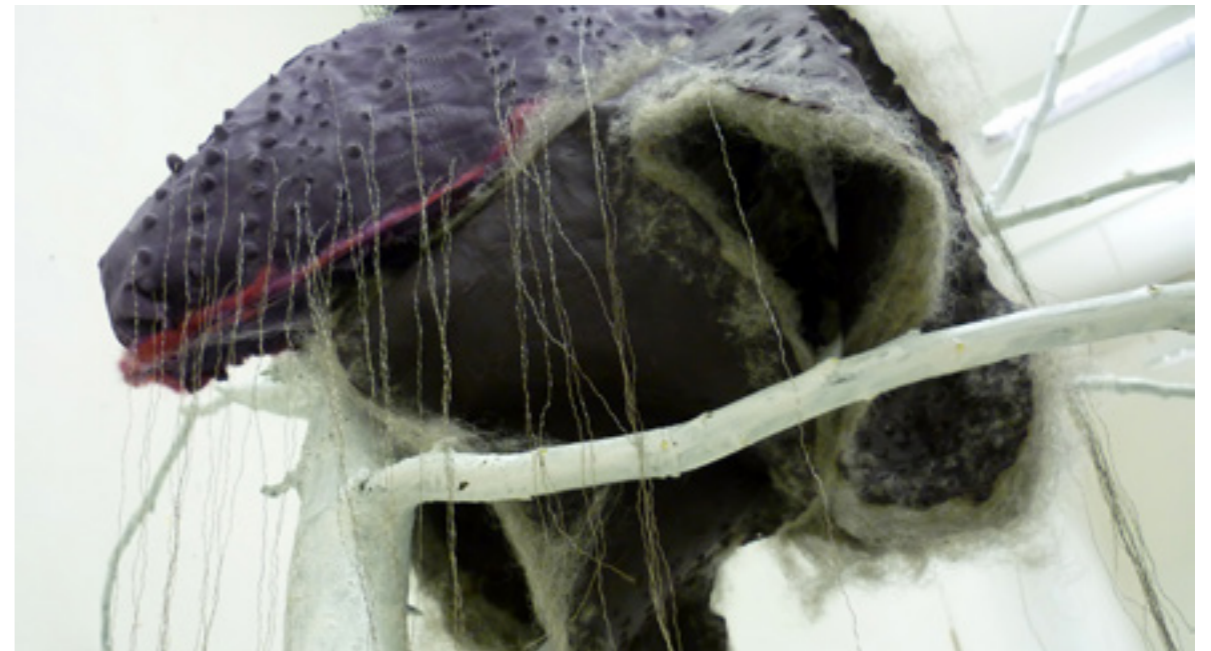
- Group exhibition Natures. Hyper-life and Micro-relations, MOB, Barcelona, Spain (13th Mar-13th Apr'12)
- JUSTmadrid Art Fair, Madrid, Spain (14th-16th Feb'12)
- Group exhibition LiveHerring biennale, Saarijärvi, Finland (2011)

Echinodermata is a series of behavior-based organic sculptures that are able to breathe. Through breathing, which is one of the main signs of life, the artists are relating Echinodermata to nature. However, they are not trying to hide the technology nor they are aiming to copy existing life. On the contrary, they amplify the characteristics of technology and translate into a peculiar behavior of Echinodermata. In short, the duo relates to biological form and systems in an original way, and thus, creating a new system of life. Varvara & Mar call this form of life hyper-artificial life.

Moreover, Echinodermata are audience sensitive: the breathing of sculptures is more irregular when lots of movement is around.

Materials: latex-emulsion, cable clips, wool, inflatable structures, compressors, solenoid valves, Arduino, relays, other electronics.

Dimension: ~50cm x 50cm x 40cmH



**Sonima** / Varvara & Mar  
2010

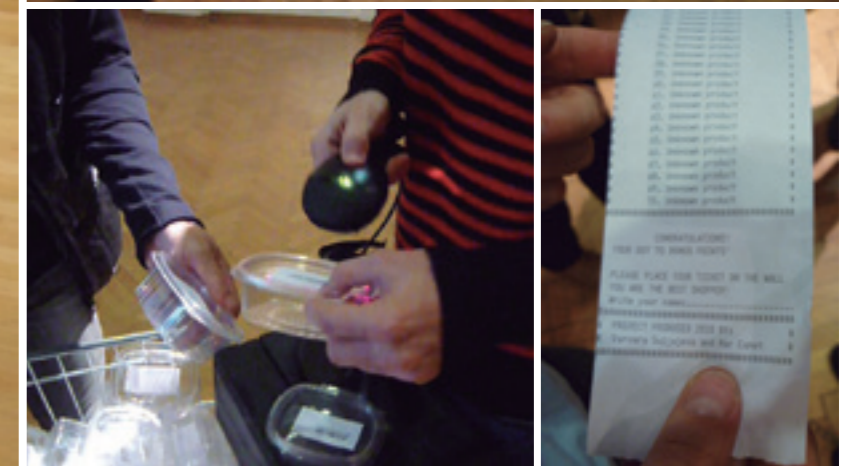
Exhibited:

- Group exhibition Natures. Hyper-life and Micro-relations, MOB, Barcelona, Spain (13th Mar-13th Apr'12)
- JUSTmadrid Art Fair, Madrid, Spain (14th-16th Feb'12)
- Group exhibition LiveHerring biennale, Saarijärvi, Finland (2011)

SONIMA is a sonic organic sculpture that lives in symbiosis with a tree. The sculpture produces sounds based on wind and/or human interaction with it. Although SONIMA looks like an animal, it produces human-like sounds, like sneezing and croaking.

The aim is to re-think nature and the urban environment around us. To be more precise, the artwork creates a new form of symbiosis. The inspiration comes from nature and its regulatory systems of coexistence and interaction that is known as symbiosis. The beauty of symbiosis within biology is processes where two organisms act as one yet still exist as separate species, such as a host and a graft. Thus, SONIMA acts as a graft and uses a tree as a host.

The main materials used: latex, wool, sound circuits, and conductive thread.



**Shopping in 1 Minute** / Varvara & Mar  
2010

Exhibited:

- Group exhibition *Suur Lasnamäe Urban Art Event*, Tallinn, Estonia (24th Sept – 9th Nov'14).
- Group exhibition *DIY, DASA*, Dortmund, Germany (2012/13)
- Group exhibition *Kiblix 2010*, Kibla Gallery, Maribor, Slovenia. (18th - 28th Nov'10)
- Group exhibition *Interface Cultures @ Ars Electronica Festival 2010*, Linz, Austria (2nd – 11th Sept'10)

Shopping in 1 Minute is an artgame that is playfully criticizing the increasing desire of society for consumption. The artists' inspiration for creating the artgame came from the craziness of people during the sales period: long lines in front of supermarkets, stone-age-style behavior, lots of useless products, etc.

Thus, the audience is invited to train for the next sales period. A player has to scan as many products as possible during a minute. As a reward each player will receive a ticket with bonus points according to his/her score.



**My Name is 192.168.159.16** / Varvara & Mar  
2009

Exhibited:

- Group exhibition White Night Skopje 2010, Skopje, Macedonia.
- Group exhibition 23rd Stuttgarter Filmwinter, Stuttgart, Germany (20th-30th Jan'10)
- Group exhibition Fantasmarama, Linz, Austria (Sept' 09)

My Name is 192.168.159.16 is a metaphorical visualization of a contemporary man. We are not bounded to one body anymore. We are extended through networks to infinity. The location does not matter, what matters is connection. Thus, at this point the quote by W. Mitchell served an inspiration purpose for the artists "disconnection would be amputation. I link therefore, I am." The society is becoming gradually fully equipped and totally dependent on technology cyberorgs.


The installation consists of 4 dolls in each a speaker inside, 4 relays, arduino, a computer, and a modem. The artists are using Processing, TTS (text to speech), and Arduino. The independent and at the same time isolated network is created. IP addresses are continuously renewed and sent to a random doll. Thus only one doll is speaking at a time (4 speakers are controlled by 4 relays through arduino).

*My Name is 192.168.159.16 received the Jury Prize for media art installation at the 23rd Stuttgarter Filmwinter in 2010.*

# Varvara & Mar

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