

**GYA working group on "Science + Art = Peace and Justice"****The Aesthetics of Biodiversity**

It is estimated that only 1% of the 2 to 50 million non-microbial species are being studied or utilized by humans. Rapidly accelerating rates of species extinction due to human activities lead to massive loss of biodiversity across the planet, and the lack of knowledge results in poor understanding of the scale of the contemporary biodiversity crisis. The diversity of species is dramatically affected by human alterations of ecosystems. But it is well understood that the biodiversity, in its turn, influences human well-being through its effects on the ecosystem processes such as, for example, soil formation, oxygen supply, nutrient cycling, water purification, climate regulation. It is basis for food, raw materials, potable water and medicines. Biodiversity has cultural value to humans as well providing nonmaterial benefits through recreation, aesthetic experiences, spiritual enrichment and fundamental scientific research. So, the loss of biodiversity is the most critical global environmental threat.

Besides the socio-economic values, biodiversity has its own intrinsic value which does not depend upon the existence of the anthropocentric values at all. Species result from a dynamic process of evolution throughout millions of years, shaped by their cooperation, allowing majority of fascinating animals and plants to inhabit our planet at the dawn of humankind. A lot of mammals, birds, amphibians, reptiles, insects, and other creatures from pre-Christian era would arguably still be with us, if we would learn the art of sustainable cooperation from other species, and instead of developing our superiority would develop our ethical and cultural standards in line with technical progress. There are intense intrinsic relations among the organisms in nature integral to the planetary health, as we know it. Natural world is properly organized and balanced by complex inter-relations of living and non-living forms. Every its part possesses a value which it inherits from the value of the whole. The recognition, research, and acceptance of the intrinsic value of biodiversity underlies sustainability on the planet, peace and appreciation of the diverse human ways of life, societies, and cultures. Finally, biodiversity holds an incredible aesthetic and artistic potential, ready to unfold, provided we are tuned in to appreciate, capture it, and integrate into the future heritage of arts, namely bio-inspired arts.

Within this compilation dedicated to the 2020 International Conference of Young Scientists organized online by the Global Young Academy, we'd like to present the artists who are engaged through their works with ecological issues such as biodiversity loss, climate change, destruction and pollution of natural environments. We believe that their unique approaches, where installations, video and sound works are used as the mediums for exploration and better understanding of the issues mentioned above, will complement the interdisciplinary and intergenerational dialogue on the conference topic "Heal the Earth: Sustainable Development Goals in a Changing World".

Sergey Kostyrko & Alexander Kagansky (SAPJ Working Group Co-leads 2019/20)

## Miriam Akkermann – Cloud Forest City (2020)

In February 2020, I was able to join the interdisciplinary [Expedition Anthropocene](#), organized as a project of the German Young Academy, which was dedicated to investigating the human impact on mountain regions in Ecuador, advancing climate change and its consequences for humans, glacial retreat and biodiversity, to acoustic ecological changes and the question of whether microplastics can be detected in the snow and ice. My focus was set on questions such as: Which human-induced sounds can be heard? How does the soundscape change with altitude and vegetation? Are there sounds, from animals for example, which are seldom heard or unexpected (location, activity time, expression etc.)?

For this project, I propose a sound scape composition based on the recordings from locations in the Ecuadorian cloud forest. Even though there are several organizations trying to buy and keep the forest in its natural shape ideally as primary forest, the cloud forest in Ecuador is not yet saved, still keeping a not yet discovered number of hidden and endangered beauties. Those may not even be heard on the recordings, but they are given voice by a vast number of different birds and insects.

Link to the work => <https://youtu.be/JSJjuiyPGIQ>



[Miriam Akkermann](#) is a musicologist, sound artist and musician. She studied flute, and music and new technologies at C. Monteverdi Conservatory, Bolzano, audio communication at TU Berlin, and composition and Sound Art at University of the Arts Berlin, where she also completed her PhD in musicology in 2014. From 2015-2019, she was responsible for the area "sound" in the media studies department at Bayreuth University. From 2015-2020, she was a member of the German Young Academy. Since 2019, she holds a junior professorship for empirical musicology at the TU Dresden, Germany.

Her main research interests are electroacoustic music, computer music and mixed music (history and analysis methodology), archiving musical works in the digital age, as well as (historically informed) performance practices and their emergence. In her artistic work, she focuses on conceptual sound art, experimental music, and improvisational formats in which she also collaborates with dancers, performers and visual artists.

<https://www.miriam-akkermann.de/>

## Franz John – Listening to the Hops Grow (2020)

Franz John engages in new and old media, which he uses to investigate the boundaries between human and machinic possibilities of perception and representation in relation to natural phenomena. In his works he combines intensive research and scientific analysis with vivid and often touchable and usable installations in public space. Often he deals with site-specific art projects that resonate with the historical, geological or climatic characteristics of a region.

During a scholarship in Friedrichshafen, Germany, last year, Franz John continued working on his project "Color as Resource". For this project, the artist produced pigment solar cells from plants that are typical for the region. He uses these so-called Graetzel Cells as energy sources for his sound and light installations. For this purpose, he has, for the first time, produced such pigment solar cells from hops, an old regional crop. In the meantime, he has expanded his artistic-scientific sensorium – not least inspired by the sudden silence of the last months in the COVID-19 pandemic – by adding a sound component that lent his research activity something of a meditative dimension. Since then he has been listening closely to the hops, one of the fastest growing plants besides bamboo (up to 30 cm per day in summer).  
[Clemens Kruemmel]

Link to the work => [https://youtu.be/\\_I5JkAyWgII](https://youtu.be/_I5JkAyWgII)



[Franz John](#) was born in 1960, and lives and works as a freelance artist in Berlin, Germany. In 1978-1984, he studied "Visual Communication" in Würzburg, Germany. His images, objects, sculptures and spacial installations usually emerge from a lengthy creative process and are complex representations of collective, often automated, modes of seeing or natural cycles.

Franz John has realised numerous art projects internationally and has been represented in many solo and group exhibitions, namely at the Exploratorium (San Francisco/USA), the Sao Paulo Biennial (Brazil), the Sculpture Biennial Muensterland (Germany), in "Ecomedia" at Media Lab Madrid (Spain), in "Über Lebenskunst" at House of World Cultures Berlin (Germany), in "Something other than Photography" at Edith-Russ-Haus in Oldenburg (Germany), in "Typemotion" at ZKM Karlsruhe (Germany) and at FACT Liverpool (UK).

He has been invited as an artist and teacher to universities like Ohio State University (2001/2003), Paderborn University (2003), at the University of Michigan (2006/2007) and Carl v. Ossietzky Universität Oldenburg, Germany (2013/14). He was awarded an 'Artist in Residence' grant from the Headlands Center for the Arts, San Francisco (1996), a one year artist grant by German Cultural Foundation (2010),

fellowships from the Kuenstlerdorf Schoeppingen (2012 and 2014). Most recently he was awarded a one-year 'Artist in Residence' grant from the ZF Art Foundation in Friedrichshafen, Germany.

<http://www.f-john.de/index.php?id=31>

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### **Gray Cake (Alexander Serechenko and Ekaterina Pryanichnikova) – Herbarium (2020)**

Can we imagine plants that do not exist in nature? Is there any technology that may help us imagine such things? The Herbarium is generative video art, answering these questions. Neural network StyleGAN2 was trained on a huge data set of plant images from the archive of New York Botanical Garden, and video is representing the imagination process. The audio track is a nightingale song processed by the neural network algorithm Magenta DDSP Timbre Transfer.

**Link to the work =>** <https://youtu.be/NUadmUPCYsE>



Alexander Serechenko graduated from the Moscow Engineering Physics Institute. Talented programmer, musician. Focuses on working with an interactive environment and generative practices. Combines programming, web development and data analysis skills in multidisciplinary work, which covers installation, sound, netart, web-art. Participant in many group exhibitions since 2006. The works were exhibited in the museums Garage, Electromuseum, New Tretyakov Gallery, CyberFest and others. A member of the Moscow free-jazz improvisation scene, albums were released by the labels Kotä Records, TOPOT, Noisy Forecast. A resident of OneBeat Russia, Pro Helvetia, participated in the projects of the Boiler Room, Red Bull Music.

Ekaterina Pryanichnikova graduated from The Rodchenko Art School, workshop of Igor Mukhin. She successfully defended her diploma under the leadership of Lyudmila Zinchenko. She focuses on experimental methods of manual printing, also works with video, photography, installation. Participated in multiple group exhibitions since 2009. The works are in the collection of MAMM, Mytishchi art gallery and in private collections. Also participated in the Bursa International Photography Festival and the international exhibition «Trained Machines» at the Electromuseum in 2019. In 2018 and 2019 she had curatorial experience in Moscow and Belgrade. Winner of the competition «TAKEOFF» in the direction

of «Contemporary Art». Member of the Union of Artists in the direction of «Contemporary Art». Currently living and working on Russky Island in Vladivostok, studying at the Digital Art Master's program at the Far Eastern Federal University.

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### **Sergey Filatov – Formica Rufa (2016)**

One summer season Sergey Filatov regularly conducted field recordings on various microphones in the vicinity of St Petersburg, Russia. Morning songs of birds, waterfalls, the noise of tree crowns in a light wind, also in the field of attention of the sound artist were also densely populated anthills. This work presents a soundscape of one of these anthills, gently recorded using the author's microphone. The device is a DIY contact microphone with a copper body of a complex design. The listener has the opportunity to immerse themselves in the soundscape, which is spontaneously generated by ants at the moment of moving on the surface of the microphone.

**Link to the work =>** <https://youtu.be/s5qFXSW4wQg>



[Sergey Filatov](#) is an artist, sculptor, sound-artist, musician, developer of electro-acoustic musical instruments and sound sculptures. Member of Union of Artists of Russia, member of International Association of arts — IAPA UNESCO. Russian sound art community member.

In Sergey Filatov's artworks there is an integral approach, including the principles of site specificity, science art, upcycle art, sound art and experimental music. Filatov's works have been exhibited at museums and galleries worldwide, including Central Arcenale (Venice, Italy), Inter Arts Center (Malmo, Sweden), State Hermitage (St Petersburg), National Center for contemporary art (Moscow), and at the international contemporary art festivals: Ars Electronica (Austria), På Den Anden Side (Denmark), Waterfront (Saint-Petersburg — Helsinki — Copenhagen), Russian Sound Art Showcase 2019 (New York and Berlin), Okayama Art Summit 2019 (Japan) etc.

Sergey Filatov regularly performs at international festivals of experimental music with solo programmes, as well as in collaborations. He is a participant of 58th Venice Biennale of contemporary art 2019 (Italy), Yorkshire Sculpture International 2019 (Great Britain), V Baltic Biennale of contemporary art

2016, International cultural forum 2017, etc. The winner of the VII international contemporary art Award "Premio COMEL" (Italy, 2018). The winner of Kuryokhin international contemporary art Award: category "The best media object" (Russia, 2017).

<https://www.sergeyfilatov.com/en>

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### **Konstantin Diachkov, Polina Aleshchenko – Hanami (2020)**

In Asian countries, cherry blossom has an important role in traditional culture. The symbolism of this phenomenon is mostly relevant in Japan, where the transience flow of life is associated with the Hanami tradition (contemplation of sakura blossoms). The "finiteness" of beauty, its inevitable death, on the one hand reminds us of the human life limits, and on the other hand, induces us to humbly reside our personal experience, focusing on opportunities to see the beauty.

The Russian Far East locates at the crossroads of cultures, where are flora and fauna reflect to many countries of the Asia-Pacific region. Therefore, the spread of biological forms carries out the transfer of cultural perception and the need to rethink its phenomena. Hanami project is an aesthetic interpretation of the sakura meditation, within the problems of temporality in ethnic cultures through digital methods. The project uses neural networks with dataset of sakura flowers from Russky Island, traditional Japanese hokku reproduced by the Google translator for subsequent translation of the neural network into a new sound maintaining the rhythm of intonations. The project focuses on the value of biodiversity in local cultures and their symbolic interpolation in other countries and regions.

**Link to the work =>** <https://youtu.be/RdJn1UenYck>



Konstantin Diachkov is a web designer and media artist. Currently, he is studying for a master's degree in "–Da. Digital Art" at Far Eastern Federal University (Vladivostok, Russia). As a media artist, he exhibited at "Technologies of complicity." His latest works explore bio-aesthetics through mathematical algorithms. Working with new media Konstantin takes data from flowers, plants and mold and using digital methods generates new senses.

Konstantin is striving for continuous education & professional growth: in 2015-2018 he studied at the British school of design (Moscow, Russia), had a course on typography (Perm, Russia) and a workshop on mobile applications designing at Yandex (Yekaterinburg, Russia). As a web designer, he prefers to work with startups & non-profit educational, science, cultural organizations, such as Perm State University, the PSU Endowment Fund. He also completed a number of commercial projects.



Polina Aleshchenko graduated from Moscow architecture university (MARCHI) as a Bachelor in 2016. Currently studying at the master's degree program -DA. Digital Art "at the Far Eastern Federal University in Vladivostok.

She works on projects in the field of technological, science and digital art, synthesizing modern technologies and a comprehensive interdisciplinary approach, including working with sound. As an additional education, she took an intensive course "Neural Networks and Sound Installations" (FEFU "Da Digital Art" Summer School of Digital Economics, 2019); IAAC global summer school "SPACE DYNAMICS" (summer school of the Institute of Catalonia, 2016).

She is a participant of the exhibition "Technologies of complicity" of FEFU 2020 with the interactive project "Responce", and the VR project "Zdravnitsa". Finalist of the innovation Contest "UMNIK - VR / AR" with AR project "Soundscape" 2020.

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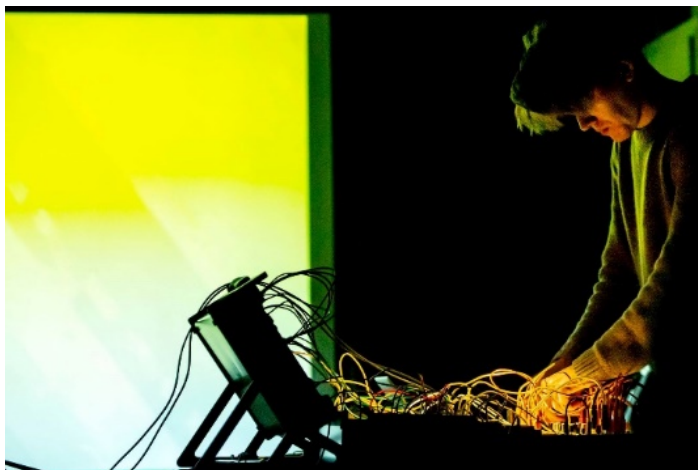
### **Sergey Kostyrko – Maggot Cheese (2019)**

Nowadays, a number of bio-inspired computational techniques such as artificial neural networks, genetic and evolutionary algorithms are applied in many engineering systems for information processing. One of the current trends in this field is swarm intelligence which is simulated by the behavior of insect colonies or group of animals to solve nonlinear design problems. In this model systems, the populations of ants, birds, fish, cats or wolves, for example, are interacting with one another resulting in use of their environment and resources. Each in the group is responsible for a specific task individually, and sometimes they work together to find an optimal solution of a given task. Common applications include navigation control, interferometry, motion sensing and image processing. There are numerous examples of using swarm algorithms in music composition. However, it must be understood that the computational models



of natural phenomena are only mathematical abstractions and lose in complexity presented in the original systems. In this work, another approach is suggested where the artificial agents are replaced by biological ones. Here, the behavior of maggot swarm is mapped on the parameters of sound synthesis algorithms through the video microscopy analyses in real-time. In addition to the synthesized sounds, the close-up recordings made with the different types of microphones are used.

**Link to the work => <https://youtu.be/3yEPmlibjow>**



[Sergey Kostyrko](#) received his PhD degree in Solid Mechanics from St Petersburg State University in 2008 and joined the Faculty of Applied Mathematics and Control Processes as an assistant professor, later in 2012 he was promoted to associate professor. Kostyrko has a background in the development of analytical and computational methods for solving boundary value problems of the elasticity theory. His research area covers the different aspects of mechanics and thermodynamics of thin film materials. In 2018, he was elected as a member of Global Young Academy, where he co-leads the working group on Science + Art = Peace and Justice.

In recent years, Kostyrko is also active as a sound artist with a focus on science and bio art projects as well as a musician working in the field of improvisational and noise music. He took part in a numerous of international festivals and exhibitions with a solo project and in collaborations with Gaudenz Badrutt, Ilia Belorukov, Alexei Borisov, Peter Bosch & Simone Simons, Jason Kahn, Kurt Liedwart, Dariusz Mazurowski, Andrey Popovskiy, Boris Shershenkov, Volna, Alexandr Zaitsev, Rutger Zuydervelt, Daichi Yoshikawa and many others. His recent performances and exhibitions include Inversia (Murmansk, 2020), RSAS - Vorspiel/CTM (Berlin, 2020), 33 Sounds: The Alphabet of St Petersburg Experiment (St Petersburg, 2019), Epicentroom (St Petersburg, 2019), Lofoten Art Festival (Svolvær, 2019), Gamma Festival (St. Petersburg, 2019), RSAS – New York Electronic Arts Festival (New-York, 2019), Art Fair Suomi (Helsinki, 2019), Finding Affinities – At the Nexus of Art and Science (Halle, 2019), Inversia (Murmansk, 2019), Present Perfect Festival (St. Petersburg, 2018), Protoart (St. Petersburg, 2018), Prepared Wednesdays (Moscow, 2018), Cyfest-11 (St. Petersburg, 2018).

<https://globalyoungacademy.net/skostyrko/>

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## **Vlad Kononkov – Imprint (2020)**

The project explores the imprint that living things leave in the world, creating a different way of perceiving audio information by encoding the communication audio signals of belugas into landscape elements.

Our auditory perception processes the signals that belugas send to the environment. The environment for belugas is water, spreading their sounds, screams and vibration from expelling stale air from their blowhole during breathing. These signals form an auditory landscape representing the presence of belugas in the world, opening up opportunities for communication with them. However, people cannot perceive this picture through auditory means. The landscape becomes a medium for transmitting audio signals (instead of air or water), a platform for their interpretation and dialogue of views.

Link to the file => <https://youtu.be/E3qDEVlc4VY>



[Vlad Kononkov](#) is a media-artist, based in Vladivostok, Russia. In his artistic practice, he works on group and individual projects in the field of technological art, media art and sound art. Currently, he is engaged in interdisciplinary research of interspecific communication within the framework of the master's program "Digital Art".

<http://vladkononkov.com>

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## **Boris Shershenkov – Birds of Ice (2020)**

"Birds of Ice" is the sound piece based on field recording of resonant surfaces and electromagnetic emissions in the bird colony nesting on the remains of Sharjah Biennial art installations at the abandoned ice factory in Kalba, UAE. In this place, ruins of art and industry replaced the nature and created a unique ecosystem which will be home for new biological species adapted to live in post-human environments.

Link to the file => <https://youtu.be/PcnjqirGM1Y>



[Boris Shershenkov](#) is a sound artist, PhD (candidate of technical sciences) and musical instrument designer. Focusing on projects that develop new methodologies in technological and sound art, he investigates the relationship between human and technology combining modern techniques with media archaeological research.

Boris is engaged in various activities in the field of experimental music and sound art as the author of numerous media installations and sound performances and curator of concert programs, exhibitions and educational projects. As a musician, he is actively working in the areas of live electronics and electroacoustic improvisation, both solo and in collaboration with Russian and foreign musicians.

His works were presented at the exhibitions in the NCCA, the Electromuseum, the Museum of Musical Culture (Moscow), the Sound Museum, the Elaginoostrovsky Palace Museum, Manege Central Exhibition Hall, A.S. Popov Central Museum of Communications (St Petersburg), the Sirius Center (Sochi), as well as in the framework of various festivals such as Dark Sounds in White Nights, Cyfest 11, Acousmonium, 101.Mediapoetry (St. Petersburg), Prepared Wednesdays, Geometry of the Now (Moscow), Ars Electronica 2015 (Linz, Austria), Hors Normes (Le Pont, Switzerland), Art Fair Suomi (Helsinki, Finland).

<http://www.shershenkov.com/>

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## VALab – Loci (2020)

«Loci» is a communicative project investigating the possibilities of connections between different spatio-temporal environments and contributing to the artistic-technical study of interspecific communication abilities. Is it possible to consider data on natural systems as a new field of symbolic exchange?

The project is based on three ideas:

1. Place (loci). In the oral tradition of Nordic peoples (for example, the Karelians - Baltic-Finnic ethnic group) there is an expression - «this place». «This place» can be anywhere, only accidentally is possible to find it, and in «this place», everything seems «different» - birds sound differently, animals behave strangely, visions arise. «This place» is a limited space and a moment in time. A meeting with «this place» can change the perception of reality and divide the life of those who were there into «before» and «after». The project is focused on new abilities to convert real spaces into mythological ones on the bases of clear data and any local biosystem.
2. Communication. Ecosystem is interconnected patterns of inhabitants behavior, an established system of connections, metabolism, and energy. The project can initiate the body connection to the spatial-temporal biological landscape in real-time.
3. Zoophobia. The obsessive fear and anxiety associated with the encounter of a certain type of animal can be turned into valuable communication with a living system through real-time bodily contact mediated by technology.

Levels of project implementation:

1. landscape media installation

2. wearable devices

3. machine learning (further development)

1 field device (= \* 50-100): 1 mod-wifi-esp8266; 2 li-ion mn12210; 1 led module; 1 motion sensor

+ 1 raspberry pi3 (for all field devices).

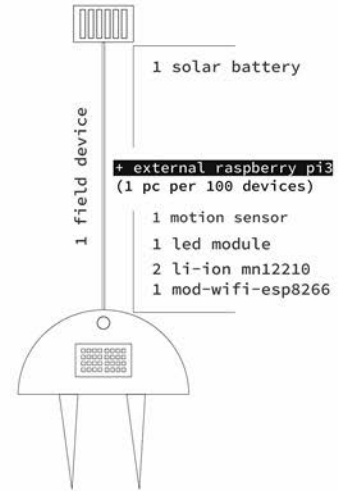
1 wearable device (= \*6-9): 1 strap; 3 vibrosensors; 1 BLE(bluetooth l.e.); 1 diy battery module.

+ any smartphone (for all wearable devices). As a wearable device can be used any fitness bracelets with vibrosensors.

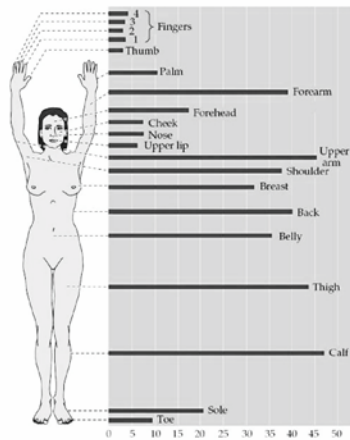
Soft: 1 program; 1 app



1. landscape media installation



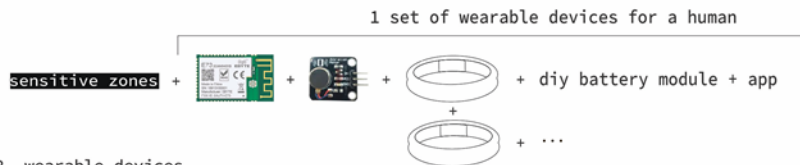
Loci / Mectro 2020



< low sensitivity high >  
< tactile sensory receptor response  
based on point-to-point  
discrimination test

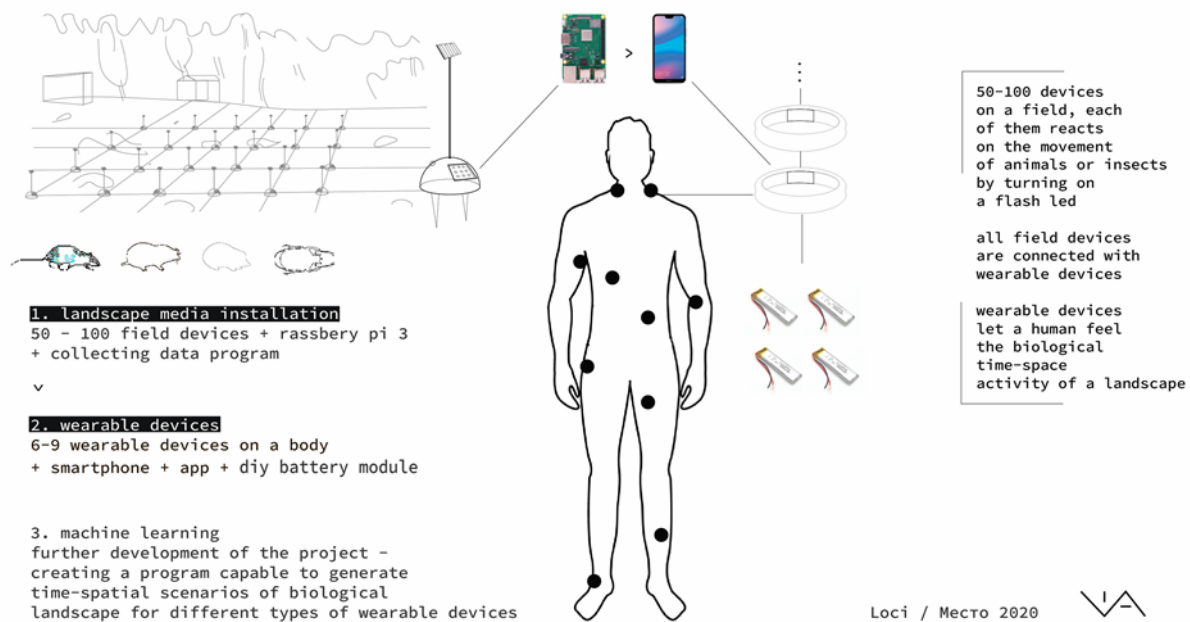
6-9 w.d. can be  
set at any sensory  
points on a human  
body. they respond  
(by vibration)  
to a signal  
received from  
the field devices

1 wearable device  
smartphone + app  
(1 pc per all w. devices)  
1 strap (vary forms)  
3 vibrosensors  
1 BLE(bluetooth l.e.)  
1 diy battery module



2. wearable devices

Loci / Mectro 2020



[Vladlena Gromova and Artem Paramonov](http://www.valab.info/art) are interdisciplinary Moscow-based artists, the founders of the Laboratory of Interactive Art and Design VALab, participants of art & science exhibitions and festivals including "The New Anthropology", Pavlov Institute of Physiology, Russian Academy of Sciences, Koltushi; ISEA 2019 in Kwangju; Science Art Fest in Perm (2019); the permanent exhibition of Science Art center "SIRIUS" in Sochi (since 2016); the permanent exhibition of Polytechnic Museum in Moscow (since 2014); Science Art Fest in Moscow (2011); the exhibition of History of Russian videoart, volume 3 in Moscow (2011); the 3th Moscow Biennale of contemporary art (2009); Vis Vienna Independent Short (2009); in 2020 were included in long-list of The Sergey Kuryokhin Award, science art nomination; also Vladlena Gromova is a Winner of Kandinsky prize - "The Young Artists of 2007".

<http://www.valab.info/art>

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### Anastasia Lukuta - 16.22.CO2 (2020)

With our project we want to show the world that in addition to man, the human significance and aesthetics of man, there are other organisms and their intellectual development. Their levels of organization and their generation into the world of vital products can take place for the adoption of certain decisions in the world of human design. It's no secret that humanity has been inspired by nature before and the products that they made were based on the evolutionary algorithms of living organisms. And now we continue to look into the future and no longer visually read any information from nature, but try to communicate with these actors in it. At the junction of the interaction, getting any feedback in this system, we can generate a new aesthetic. It will be controlled by us and managing this process, we can adjust and display a product that is interesting to us, with unpredictable solutions.

This system can be either synthetic or biological, and in my project I consider one of such intelligent systems, the realm of mushrooms, oyster mushroom mycelium, which demonstrates its ability to form materiality. This materiality can be controlled due to environmental factors affecting the production of this materiality. As part of our project, we can observe when we breathe, we introduce into our work area a component that allows stimulating the growth of matter and the overproduction of carbon dioxide into a product of biological origin, which we can use as a way to store information. Due to the different models, we can layer and encode our information in these layers, we can allow the transformation of this information inside this biological matter, and in the end we will get a new synthesized product, a product of creativity, a design product. And most importantly, we are entering a new stage in the development of mankind when we move away from the system where man dominates nature. A person is already becoming a kind of distributed subject of a biological system, which enters into interaction with other subjects of this system, simultaneously solves his problems, his tasks, not only in the field of design, but also in various other issues.

In a project where we consider a communication system between various systems and agents, oyster mushroom mycelium is used as an information transfer system: information is represented by bursts of sound activity that are carried out in the mycelium network. The agent saturates the flask until the carbon dioxide level is sufficient for comfortable growth of the mycelium. 16-22 is the percentage of CO<sub>2</sub> that is optimal for the growth of mycelium, which is the reason for the name of the project, because it is carbon dioxide that is the link between the communication of the anthropological agent and the biological actor.





#### Practical work

#### Mycelium cultivation

#### Oyster mushrooms

(*Pleurotus ostreatus*)

#### Cultivation of mycelium on the medium from agar and decoction of oats

The first step in growing mycelium of the fungus is to obtain a sterile culture of the fungus. An agarized oat decoction (1.5 g of agar per 100 g of oat decoction) was used as a nutrient medium. The resulting mixture was poured into Petri dishes (30-40 ml). A piece of substrate mycelium of Oyster mushrooms was introduced into an agar medium. Further, Petri dishes are closed and stored at a temperature of +22 ... + 25 ° C, optimal for the growth of mycelium.



I.O. Piven, V.N. Ermolaeva "Growing champignons and oyster mushrooms"

E. N. Alekseenko, T. M. Polishko, A. I. Vinnikov "Features of the cultivation of fungal mycelium *Pleurotus ostreatus*"





**Mycelium cultivation  
from the substrate Oyster mushrooms  
(*Pleurotus ostreatus*) and oats**

Oyster mushroom mycelium  
with a difference of growth of 30  
days, under closed surface



MI  
5.03.2020



MII  
5.04.2020

Oyster mushroom growth  
in a half open surface



11.03.2020



5.04.2020



7.04.2020



9.04.2020



22.03.2020



5.04.2020



7.04.2020



9.04.2020

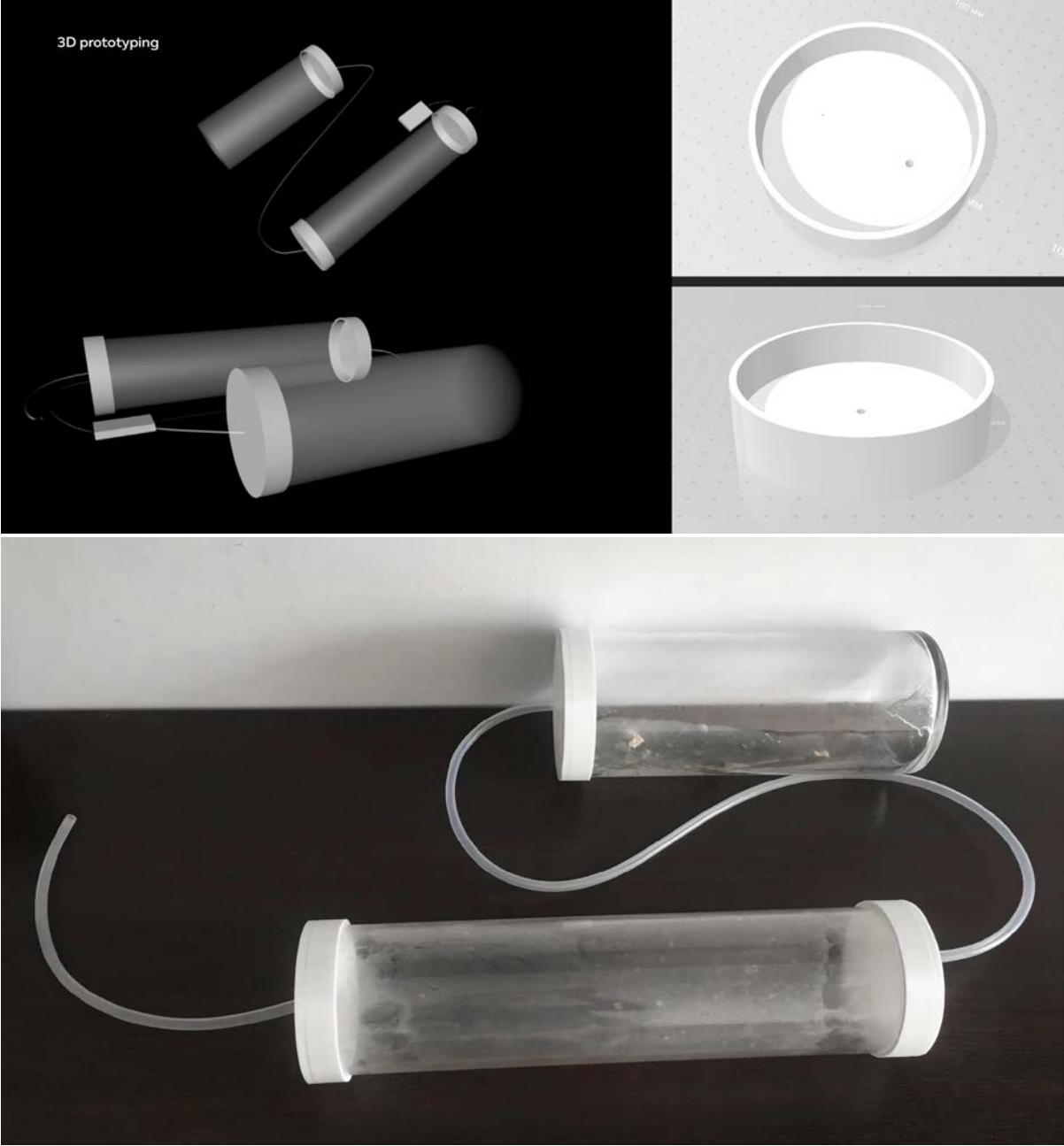
#### Project technical implementation

- develop a system of interaction
- build an object model
- order components
- make components by 3D printing
- place a decoction of oats and agar in a cylindrical flask
- plant mycelium in agar medium in two places
- use human breathing through silicone tubes as an act of interaction and the "supply" of O and CO<sub>2</sub>
- measure the sound of piezoelectric elements at all stages of growth mycelium



#### Components

- Glass flask
- Glass flask with through bottom
- Petri dishes
- Silicone tubes
- Oyster mushroom mycelium
- Agar
- Oats







[Anastasia Lukuta](#) is an artist working in the field of digital media. In her artistic practice, she explores the topics of memory, data, personality and time. She studies the following types of communications: individual-individual, individual-environment, individual-technology. Her artistic focus also includes the study of the possibilities of language in the process of communication, as well as analysis of the possibilities of non-verbal communication.

Anastasia is a member of the research project of the 5th Ural Industrial Biennale of Contemporary Art. In 2019, she took part in a master class with Joe Davis "Creation of an Immortal Library". She also participated in various exhibitions and festivals in Yekaterinburg, Vladivostok, St Petersburg, Irkutsk, Khabarovsk, Omsk. In collaboration with Evgeny Lukuta, Anastasia created a series of video installations for the performances: "The Guide to Hell", Theatre Mesto, Yekaterinburg and "Planet D", Theatre of Youth, Vladivostok.

Anastasia was born in 1993 in the Omsk region. In 2014, she received a BA degree in "Graphic design" at Higher School of Folk Art (Academy), St Petersburg. She also holds a BA in Interior Design from Russian State Vocational Pedagogical University, Yekaterinburg, 2018. In 2018, Anastasia moved to Vladivostok where she received a MA degree in Digital Art from Far Eastern Federal University.

<https://www.lukuta.art/>