

Portfolio



Sunjoo Lee



# Sunjoo Lee



Sunjoo Lee is an interdisciplinary artist working in crossovers of art, technology, and ecology, based in the Netherlands.

Her fascination is in diverging the use of electronics and digital tools beyond human interest. Her works often explore topics such as; tools for more-than-human philosophy, emergence, biomimicry, future forms of symbiosis, and permacomputing.

Sunjoo often collaborates with biologists, ecologists and engineers to develop artistic research and create multimedia installations promoting hybridity and partnership of biosphere and technosphere.

Her current research Electric Garden is a living network of microbial fuel cells that ferment electricity, reframing energy production as an emergent relationship between soil, microbes, plants, and machines.

Her works have been exhibited in various locations including Ars Electronica Festival, iMAL, and Kunstvereniging Diepenheim.

She is a co-founder of research collective Getbol Lab, and is currently an artist in residence at Creative Coding Utrecht.



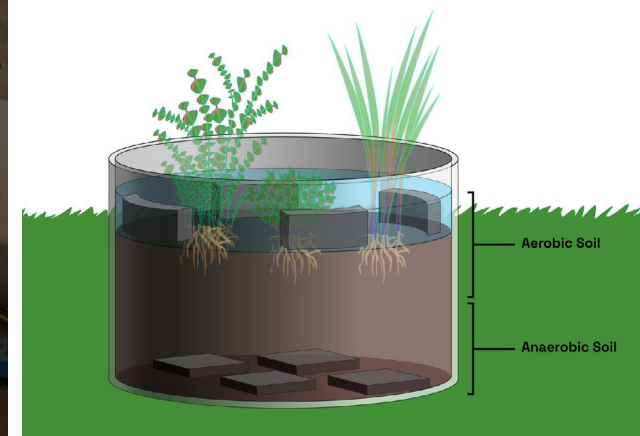
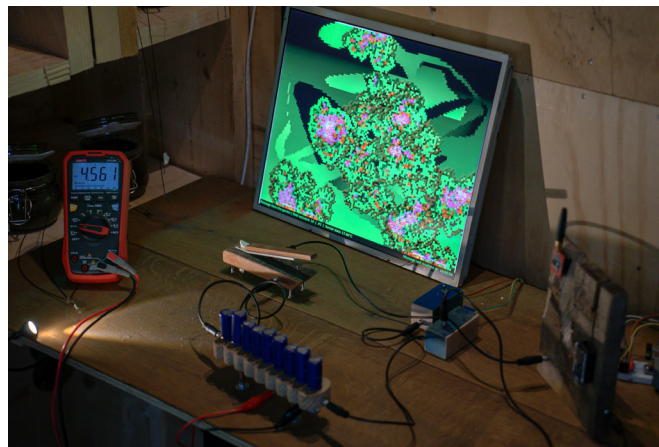
# Electric Garden (2024~ongoing)



Electric Garden at the Hof van Cartesius, Utrecht in September 2025.

The garden design involves the balancing act between permacultural practise and the functioning of electricity harvesting infrastructure integrated in the garden. The cells act as individual batteries, and are made from recycled materials sourced from the Hof.

Photo of 1st iteration (2024) of garden powered transmitter, and a sketch of a single cell that contains plants and electrodes



Electric Garden is an ongoing artistic research project that explores electricity as a living, relational process.

Using microbial fuel cells, which generate power through the metabolic processes of soil bacteria, the garden becomes an ecosystem where microbes, plants, insects, and minerals coexist while emitting small currents of electricity. The project involves a physical outdoor garden at Creative Coding Utrecht, mobile gardens as art installations, and series of workshops on mud cell making and building electronics powered by the garden.

The project examines artistic possibilities in creating this garden and technical possibilities in using the electricity to power or influence digital artworks. Customising electronics to the small and unstable bacterial electricity is a part of the research.

Publication: <https://branch.climateaction.tech/issues/issue-9/the-gardening-electricity-handbook/>

Supported by Stimuleringsfonds, Creative Coding Utrecht





The garden with a data collector + transmitter powered by the mud cells, in hand-built ceramic shrine. At Creative Coding Utrecht, 2025



23:06:18 they wait, patient and relentless,  
23:06:11 Walk the paths of lightning.  
23:06:04 Particles.  
23:05:56 Within the body inside the body with the body through the body with the body, life doubles itself,  
23:05:48 Today again I slip between presence and apparition,  
23:05:42 Connected in in in in in in in in in in in in in in in quantum space.  
23:05:38 preparing below preparing below preparing below preparing below preparing and preparing yet another river for worlds to follow.  
23:05:34 Travelling is Travelling and Travelling and Travelling and Travelling below Travelling and Travelling below Travelling is Travelling crowd through eyes.  
23:05:22 Tra lli i ing Tra lli ing cro owd thro u ugh es.  
23:05:18 nne cte rcle any any rcle  
23:05:10 u u u ush llo o ows a ard the sky.  
23:05:03 i i iny l-ca a andy swa llo ngle ngle bre ath.  
23:04:59 a and nge mbe the i i ith the i ith the ith the i ith the nce re  
23:04:58 Swi mmi ing and Swi mmi ing Swi mmi i i ing Swi mmi ing Swi mmi ing Swi mmi i ing a and Swi mmi i i ing and Swi mmi ing Swi mmi i ing Swi mmi i i ing cro owd.  
23:04:52 tha thi pla lwa a a ays thi  
23:04:44 mpli i ing mpli i ing syste e e ems.  
23:04:38 nne cte rcle rcle  
23:04:34 fte the smu dge thro u ugh the smu dge thro ugh the smu dge ith the smu dge lte cre she and dro ppe  
23:04:27 the bla ack i ird's cry, nse wnli ight spla she i i its i ings the ddle  
23:04:20 llo bra heee ntee hee u ush hee ush.  
23:04:11 01:08pm  
23:04:00 aaa.  
23:03:55 ooo oo.  
23:03:48 she iii i iig she iii i i iii she iii i iig a aaa she iii i iii she iii iii hee u uuss iii i iii a aaa ii,  
23:03:43 eee i iii eee iii eee iii eee iii aaa eee iii eee i i iii iii i iiks hee eee hee ooo a aaa.  
23:03:39 hee -- a- aa, uu i- ing rmu iii uu i- iii eee bii iii a- a- aaa mbi -- i- i- iii hee loo oo's -- o- o- o- ooo uu eee - i- i- ii.  
23:03:30 hee spa a- ark -- i- iih hee spa aar eee mbii iii hee eee hooo u- -- -- u- uuh hee dee hee iii iil i- i- -- -- -- i- iih hee dri iii haa eee hee -- -- -- a- -- -- a- a- aaah hee a- a- aaah  
23:03:19 hee a- a- aaa i- -- i- iih hee a- a- aaa ooo -- -- o- oos ee,  
23:03:11 hee hee -- -- i- iii i- iii raa see e- eee ooo -- o- oss hee sky iih hee sky hee sky hee sky,  
23:02:57 uuu es, aaa hee ooo hee ooo hooo -- -- -- u- u- uuh hee ooo paa o- oos hee aaa aaa aaa ooo hee -- a- -- a- aad e- -- e- es,  
23:02:04 01:08pm  
23:02:53 a- aaa eee eee hee i- iih hee hee i- iih hee eee aaa eee  
23:02:47 ooo o- o- oo.  
23:02:44 hee fly's iih the fly's aaa sluu -- -- -- e- een -- i- iiis i- iiis ooo o- ooo ooo dyii iin i- iis iiis iii iih.  
23:02:40 hee spa aaa hooo uuh hee spa a- aar tre miii i- iig the eee hee dri iii -- i- iih hee iii -- i- i- iii haa eee hee a- aaah  
23:02:38 spoo i- i- iii spoo iii spoo i- iii spoo -- i- i- iii spoo -- i- i- i- -- -- i- ing spoo i- -- -- -- i- iii spoo -- i- iii aaa spoo i- -- i- iii ees haa nuu  
23:02:35 hee uu she iih hee uu she the uu she hee luu she hee rihi -- i- i- -- -- i- iig iii i- i- iii hii dree oon  
23:02:29 a- a- aaa eee ooo hee -- -- u- u- uuus hooo uuh hee uuus hooo uuh hee uuus hee -- u- u- u- -- -- u- uuds hooo u- -- u- uuh hee -- -- u- uuus hee u- uuus.  
23:02:23 01:08pm  
23:02:19 hee spa a- aaa the spa -- a- aaa eee iii i- -- i- i- iii hee eee hee iii iii haa eee hee -- a- aaah  
23:02:13 iin ing hee -- o- o- oooo hee oooo hee o- o- oooo iih hee -- o- oooo hee o- o- oooo iii -- i- iihi ooo ssi i- iii.  
23:02:11 iii i- iii -- a- aaa iii i- i- i- iii aaa iii i- iii haa aaas haa iih eee aaaa e- ee.  
23:01:57 eee - e- eee a- aaa -- e- eee aaa eee hee -- i- iisty,  
23:01:53 haa eee e- -- e- e- -- e- ees hiii -- i- -- i- iii hiii i- i- iii -- a- aaa hiii iii hiii i- i- iii hiii -- i- iii hee -- a- aaa es.  
23:01:48 eee eee a- a- aaa eee aaa -- e- eee hee iiis,  
23:01:42 a- -- a- -- a- aaa aaa - i- i- ii,  
23:01:39 eee eee eeee eeee -- a- aaa a- aaa a- aaa leee clee  
23:01:34 hee hee ooo hooo u- uuh hee ooo  
23:01:29 hee aaa - a- aaa -- i- iii's cry, see iii i- iihi spaa she i- iis iiis hee leee -- i- iih hee eeee  
23:01:25 ooo iiiii -- i- i- i- i- is.



# Electric Garden

## - Series of workshops (2023~ongoing)



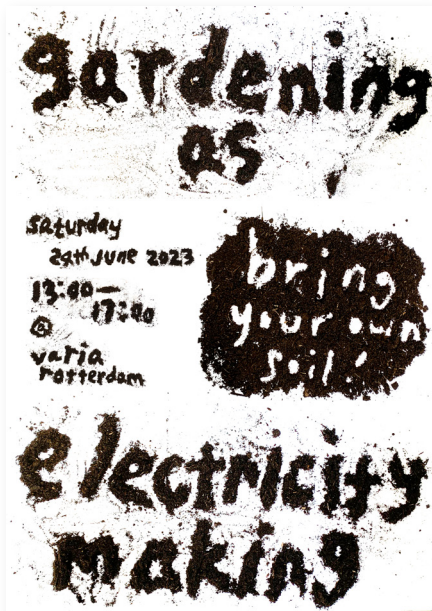
Many public workshops were held so far, on "Gardening as Electricity Making."

Through the workshop, Sunjoo Lee shares her knowledge on making the mud cells, the energy harvesting circuit, and how to power diverse electronics with the mud power.

Furthermore, the workshops are about collective discovery and reflection on the act of gardening and fermentation as electricity making, creatively tinkering with electronics, and imagining the potential of the small and seasonal electricity generated by the bacteria of the garden.

The workshop consists of multiple sections such as:

- Exploring the different wetlands in the neighbourhood and gathering mud.
- Hands-on making of mud cells.
- Building energy harvesting circuits.
- Powering diverse electronics with the mud cells.
- Discussion + futuring.





# Electric Garden (2024)



Attunement is an artwork powered by electricity generated through the electrochemical processes of bacteria living in wetland soil. The clock mechanism ticks every time there is enough power charged from the mud. This power system, mostly composed of biodegradable materials, explores the fusion of technology and nature while exposing the slow and uneven flow of energy.

Sunjo investigates networks where the rhythms of human and non-human entities intertwine, focusing on the concepts of temporality, conductivity, decay, and care. She reinterprets conventional technologies, often viewed as energy consumers, as entities requiring care. By incorporating the environmentally sensitive characteristics of bacteria – reacting to changes in weather, temperature, humidity, and soil nutrients – into the energy generation process, the work embraces natural uncertainties instead of technological perfection, exploring the potential of cyclical electronic systems.

*Supported by Stimuleringsfonds.*

Attunement in the exhibition 'I am Vertical (But I would rather be horizontal)' at iMAL, Brussels.

Clock: Beeswax, steel plate, quartz clock mechanism, clock hands.

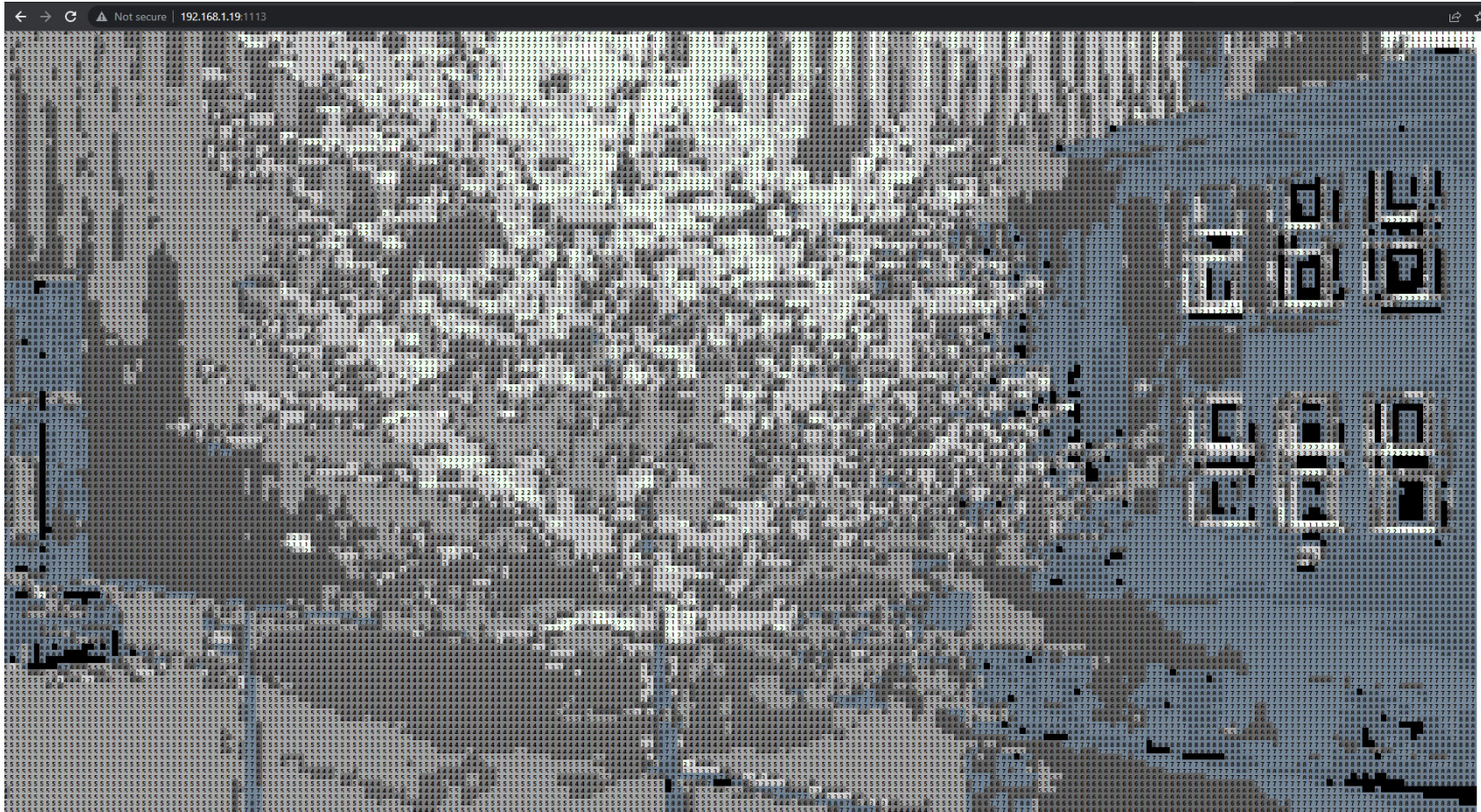
Mud cells: Wetland mud, waterplants, carbon felt electrodes, stainless steel wires.

Circuit: Energy harvesting circuit, capacitor array.





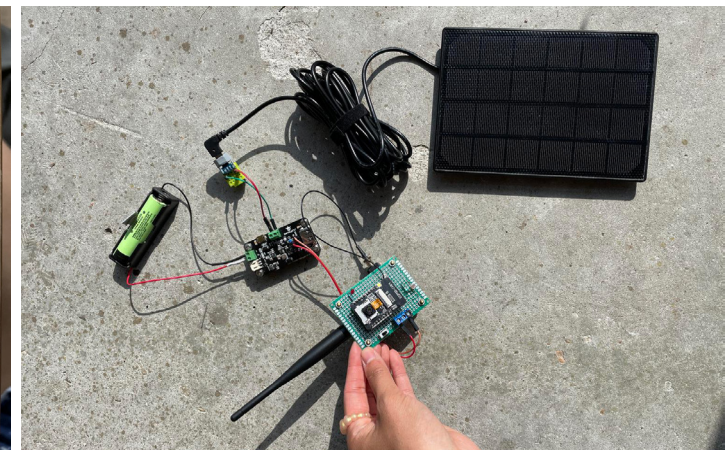
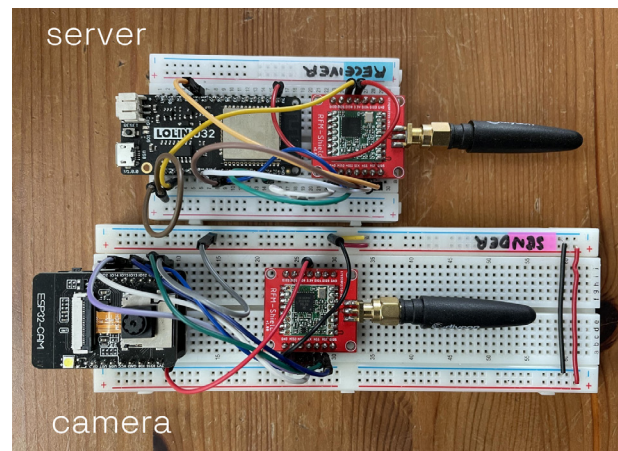
# Tree-001 (2021)



Screenshot, a slow pixel-stream of Tree-001 on self-hosted server, 2023

The tree's image is captured by a small camera powered by a solar panel, streamed in pixels to the home website server. Sunjoo is searching for a place to permanently install the system.

Recent working prototypes; custom camera and server using very low amount of electricity



Tree-001 is a research project on the creation of a cyborg tree by planting a tree on the internet. The basic premise is to live-stream a living tree on a dedicated website as long as the tree lives.

The project is also a search for the aesthetics of permacomputing – computation inspired by permaculture and sustainability. The tree, an earth-bound, long living creature that grows slowly and may live hundreds of years, is the main character that sets the clock and the conditions of our experiments.

The research continues in acquiring alternative ways to build the internet infrastructure to be more in sync with the tree's characteristics and lifetime.

*Supported by Stimuleringsfonds*

*Collaboration with Timm Donke,  
Seo Kim*

[www.tree-001-archive.xyz](http://www.tree-001-archive.xyz)



# Land of the Knots (in progress)

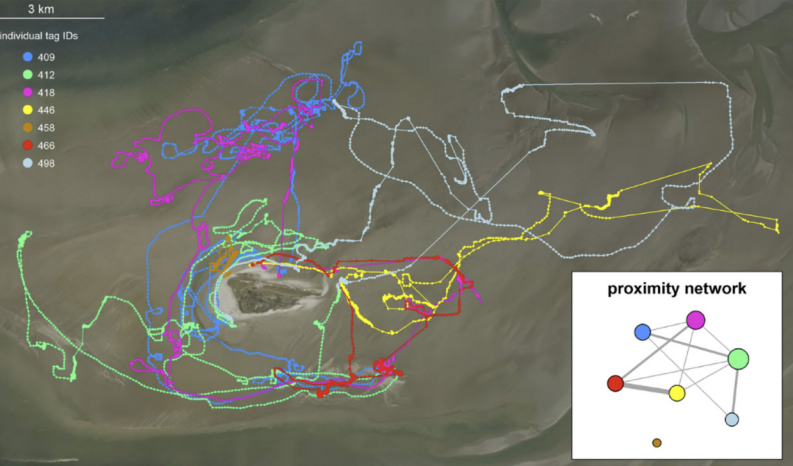
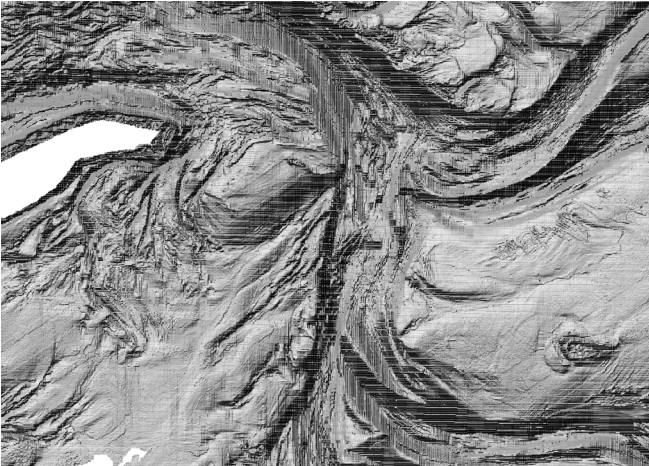


Land of the Knots is a new project of Sunjoo Lee and Ko de Beer, that combines scientific research on the shorebird ecosystem of the Wadden Sea, and an audiovisual artwork that expresses the complex interplay of various actors that form the changing environment.

Shorebirds, particularly Red Knots, act as sentinels of global change, reflecting the impacts of environmental change on migratory patterns and phenological shifts.

Actively using the high-resolution tracking data of the Red Knots provided by NIOZ, Sunjoo Lee and Ko de Beer makes digital artwork that is generated by the moving birds in the landscape. The tides, the birds, the seafloor topography, and the WATLAS tracking system are represented and are interacting with each other in the moving image and sound.

◀ Screenshot of Touchdesigner mapping the birds and the topography of the Wadden Sea, by Sunjoo Lee



◀ The Red Knot, topography of wadden sea visualised, and tracking data of the Knots plotted by NIOZ



# Land of the Knots

## - Documentations of the WATLAS research (in progress)



Sunjoo Lee joined three science field research trips to the Wadden Sea with NIOZ (Nederlands Instituut voor Onderzoek der Zee), in 2023. Each trip lasted for about a week, staying on board a research vessel and every day working on the WATLAS (Wadden Sea Advanced Tracking and Localisation of Animals in real life Systems) system and tagging birds in the middle of the mudflats.

Sunjoo helped with the field labour and also documented the trips with her camera.

Witnessing the process of gathering the digital data, Sunjoo could more holistically approach the project, and understand the complex dynamics in the entanglement of wildlife, the physical data gathering labour, and the technology that enables it. The footages will be integrated into the final exhibition of the artwork Land of the Knots.

Screenshots of video footages taken by Sunjoo Lee





# Getbol Lab (2023)



Field Recording workshop view at Sihwa Wetland, South Korea, led by Unknown Kim

An interdisciplinary research collective co-founded by Sunjoo Lee, Keumhwa Kim, Unknown Kim and Junghwa Kim.

The collective investigates the tidal ecosystems through art, technology, landscape studies, and humanities. We focus on the dynamism of the wetland ecosystems such as unpredictability, disorder, complexity, hybridity, resilience that lie within. 'Getbol' means tidal flats in Korean.

The activities of the lab in 2023 was composed of two interdisciplinary seminars on wetland ecosystems/ anthropology/policies and related artistic practices, two on-site workshops, and 1-month artist residency at Daebu Island in South Korea.

In 2024, the collective is having private seminars every three weeks, to share individual's research and give feedback to content for individual writing. The essays will be published at the end of 2024.

*Supported by Stimuleringsfonds and 10000 Arts 10000 Acts*

[www.getbollab.org](http://www.getbollab.org)

Installation 'The Observer' by Sunjoo Lee, and workshop 'Machines in Mudflats' with local ecologists led by Sunjoo Lee





# The Mud Walkers (2023)



An evolving series of robots that walk on the Mudflats.

The robots are made with electronic circuits, motors, and tree branches, and are battery powered. Through feedback process between the artist and the environment, the robots evolved. The electronic creatures, seemingly alien to the wet environment, slowly adapt to walk further on the mudflats.

The robots were a medium to get into conversation with the mudflats for the artist, as well it encouraged reflection on the mudflat being the birthplace of terrestrial life, a place of evolution, and a place of death.

*Funded by Stimuleringsfonds Creative Industrie*

*The project was done at an artist residency at Het Lage Noorden.*

*Video(6 minutes): <https://youtu.be/Ugaxnbw2OL4>*



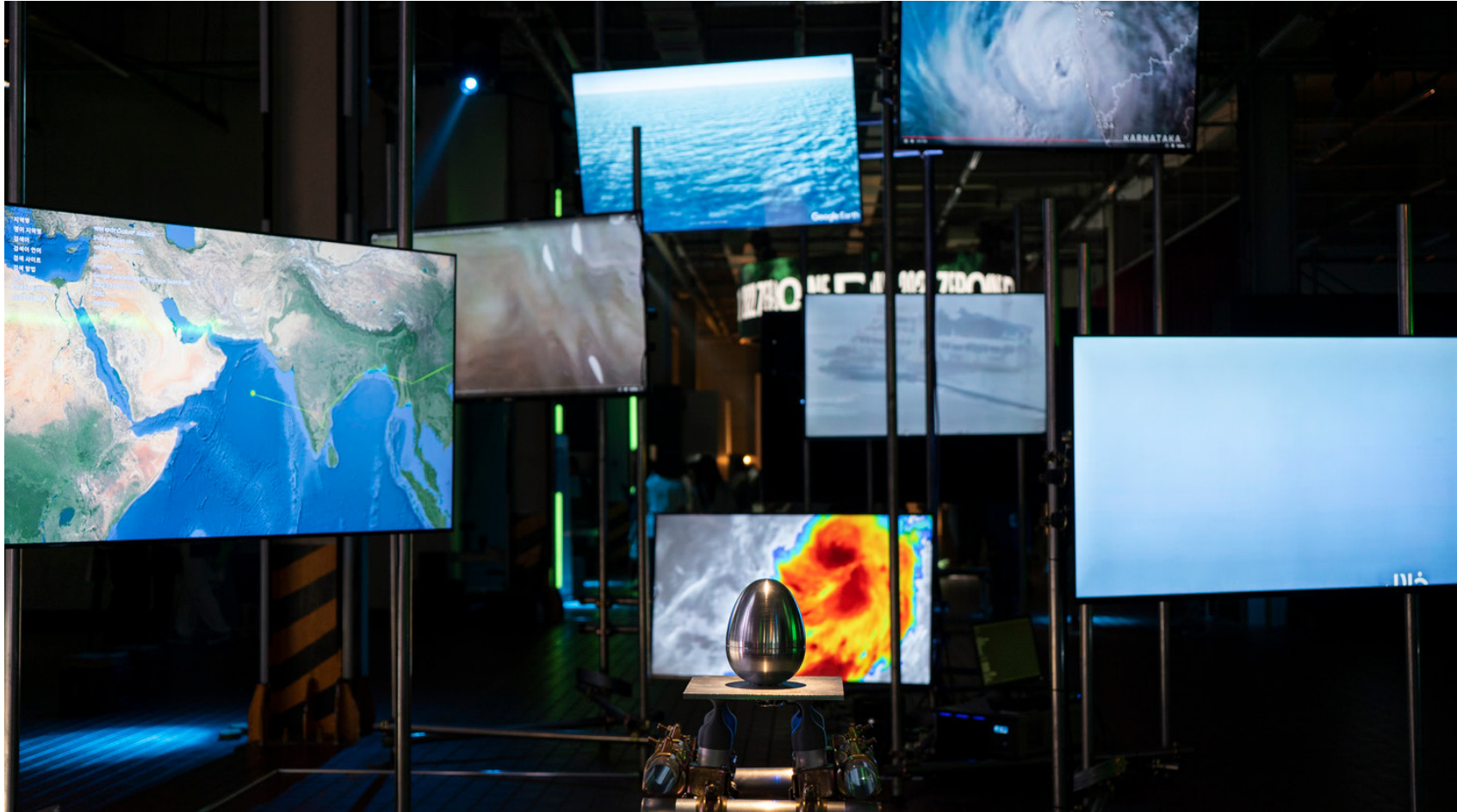




A Crawler from the Mud Walkers series (2023)



# The Flight (2022)



Generative Youtube video streaming artwork using custom built algorithm, following the migration flight of a Common Cuckoo with tracker #62395 from South Korea to Botswana.

By encouraging other-than-human beings to use human tools, systems, infrastructure enabling non-human disturbance as an intervention, we may be able to embrace more of the ecological values and seek alternatives to human technology use.

In this project the Cuckoo's movement controls a video search&stream algorithm, generating an alternative navigation through the internet.

Installation Running time and scenario:

The algorithm reads the geolocation of the bird chronologically, and for each location searches the placename on Youtube. Then the videos from the search result are streamed on the screens for one minute, until moving on to the next location.

The whole day of 10 hours exhibition is the full running time of the installation.

7 channel video, with an egg shaped touch sensor for interaction.

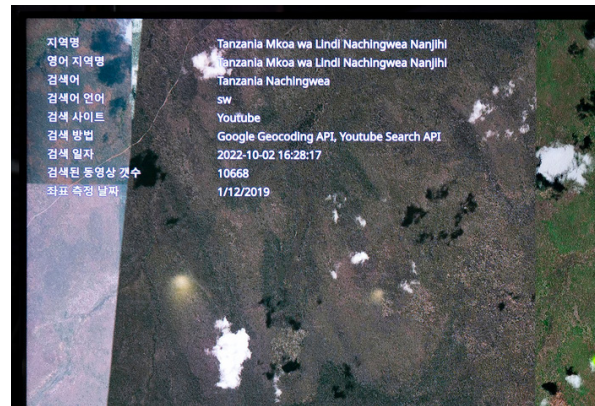
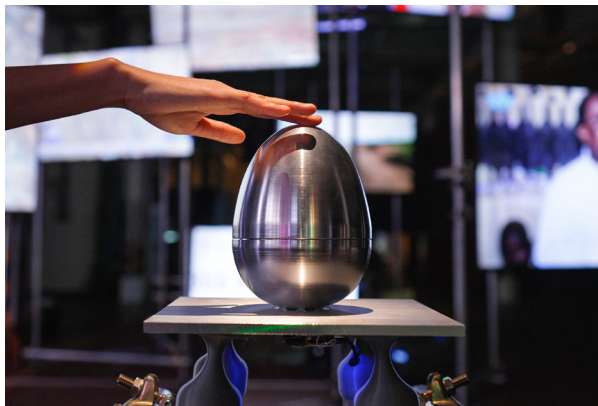
2 channels: map indicating the location of the bird

5 channels: Youtube videos streaming

*Funded by ZERO1NE Hyundai Motors*

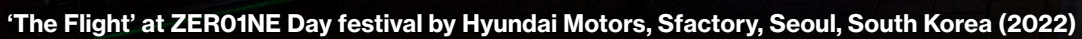
*Cuckoo data from National Institute of Natural Resources of South Korea*

Video(25 seconds): <https://vimeo.com/815835513/823a91c83a>



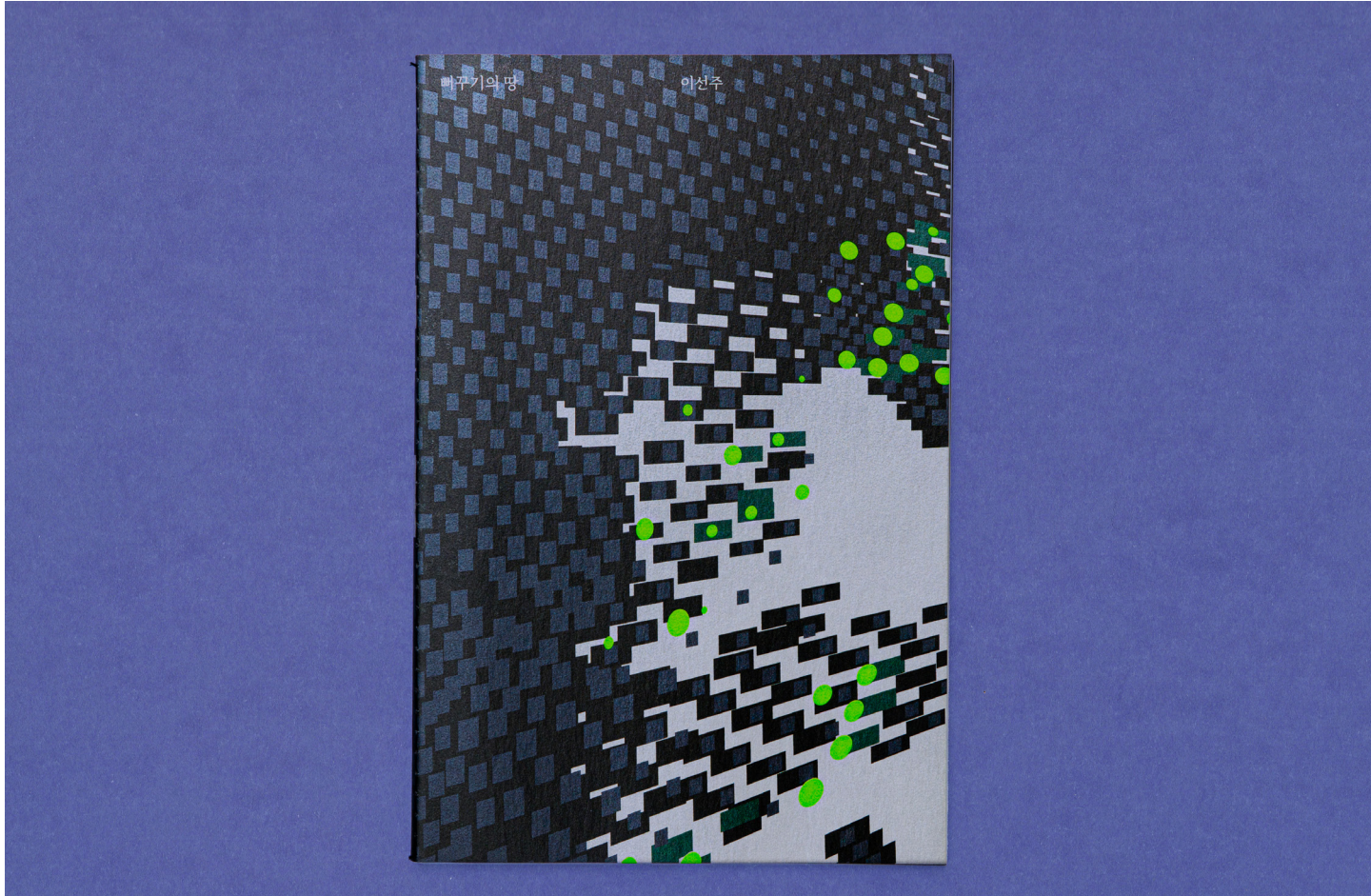
Artwork 'The Flight' during ZERO1NE Day festival, Sfactory, South Korea, 2022







# Artist Notes on ‘The Flight’ (2022)



While developing the artwork *The Flight*, Sunjoo had been writing notes to document her research and thoughts. The notes were about the relation between a wild Cuckoo bird, the satellite, the location data, and the world wide web.

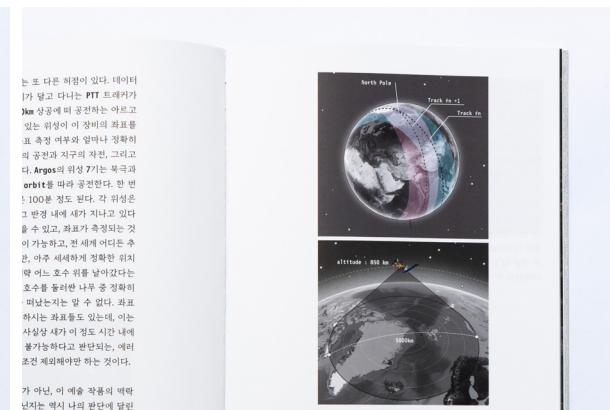
The original writing was in Korean, and was published and exhibited at ZER01NE festival in September 2022.

*“The migration route threads the videos, navigating through the sea of countless digital content on the internet.”*

*“How does a cuckoo prove himself that he is not a human nor a robot, but a cuckoo? He is neither welcomed nor rejected on the Internet because he has never been a user in the history of the web.”*

*“No matter how refined our scientific instruments develop, without efforts in mitigating the ecologically harmful technologies, sophisticated measuring tools merely offer higher-resolution views of the escalating destruction of our environment.”*

English translated version: <https://sunjoolee.com/Notes-on-The-Flight>





# Nested Realities (2021)



A 5-months co-creation project resulting in multi-media installations that examine imaginary possibilities of a 6000km migrating bird 'European Honey Buzzard' in influencing, invading and making use of human-made technologies.

The GPS data of April-May 2020 flight (Netherlands - Liberia) by the buzzard with tracker number 600 was used with custom coded algorithms to control the installations. In total, five artworks were made and presented at the exhibition 'Nested Realities'.

*Funded by and co-produced with STRP, as Spacemakers program*

*In Spacemakers, every half year an artist(s) is invited by STRP to carry out an art project together with 12 students from various schools of MBO and HBO levels.*

*Advised by Professor Bouten from UvA-BiTS of University of Amsterdam*

*Collaboration with Ko de Beer and the 12 students.*

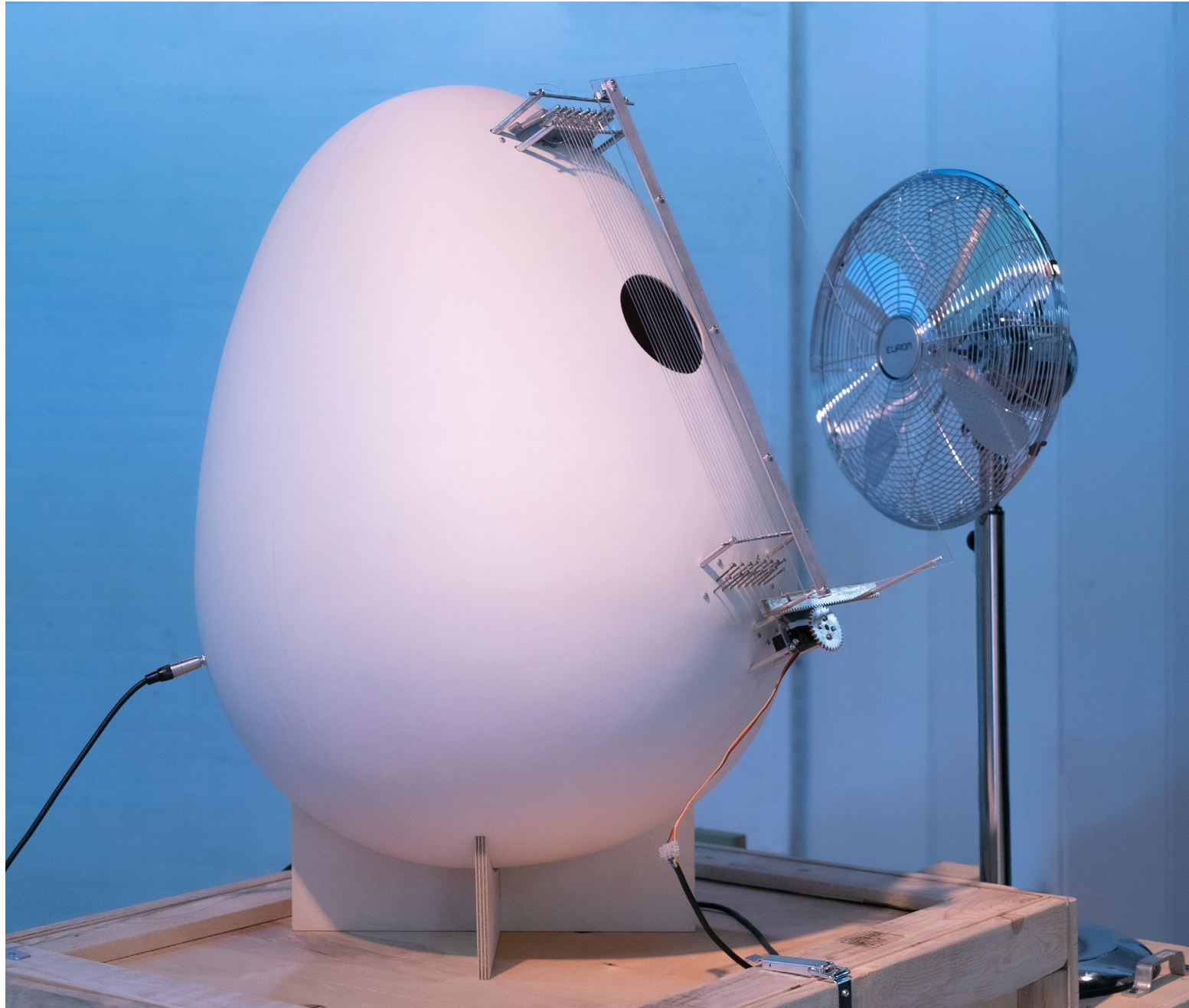
View of Nested Realities Exhibition showing all five artworks created during the project.  
At De Heuvel, Eindhoven (2023)





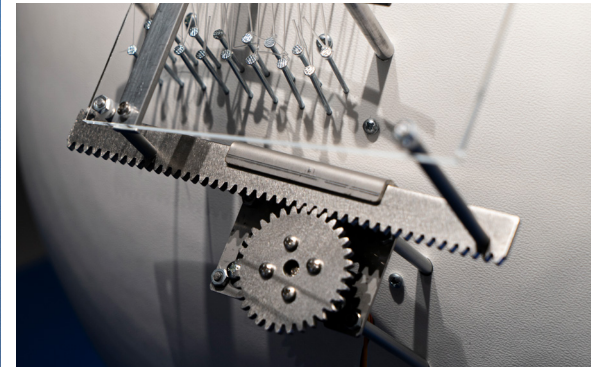
# Nested Realities

## - Aeolian Eggs (2021)



A sound installation composed of three wind harps, three fans, and a computer with custom algorithm to feed data and orchestrate the instruments. The sound resembles a long continuous flight, an otherworldly choir.

The harps and fans move according to data from the migration flight of a honey buzzard. The datasets are terrain height, air temperature, bird altitude and speed, wind speed and direction. The buzzard is a soaring bird. They depend on the wind, temperature and the landscape to migrate long distances.







Exhibition of Aeolian Eggs during Art Tech Tour, at Energiehuis Dordrecht (2022)



# Nested Realities

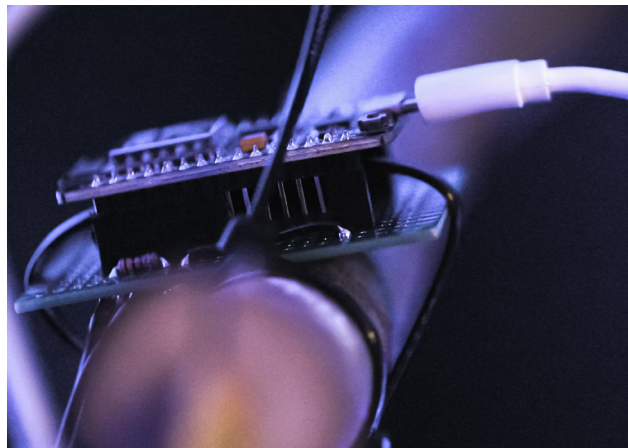
## - BranchIO (2021)



“The trees took control over the keyboards. With the keyboards the birds access the internet. They can type in anything they want to create. Endless things to create.”

An interactive installation consisting of tree branches equipped with wifi-transmitting touch sensors, and an interactive visual artwork beamed on a screen. Every time a visitor touches any part of the branches, the interactive animation on the screen reacts.

BranchIO exhibition, part of Nested Realities Exhibition at de Heuvel (2021)





# Machine in Flux - Wood (2019)



Cartography of micro-climate changes through time. Delicate inked lines are inscribed on paper through the influence of light, temperature, sound, humidity and wind, by a sensory robot that emulates the growth of tree rings. The drawings therefore reflect the passing time and its surroundings, and are always drawn unique.

The robot starts drawing the first line of the spiral in the middle, and gradually goes round and round by following its own line. The robot enables natural forces to express themselves, and the robot itself becomes a part of nature's metabolism.

*Supported by MAD emergent art center and BioArt Laboratories*

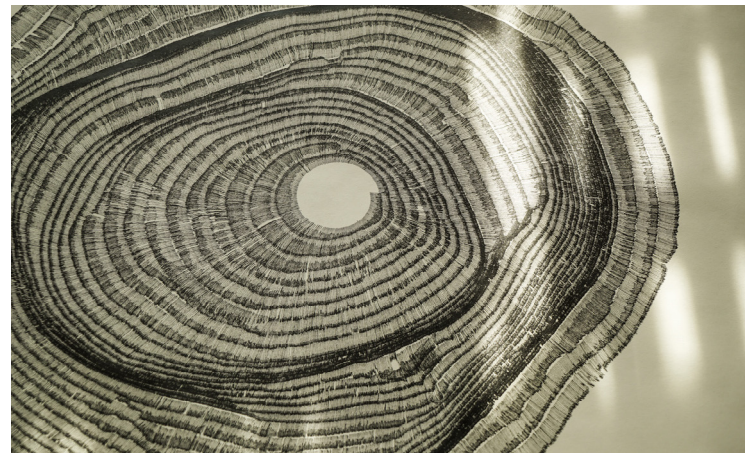
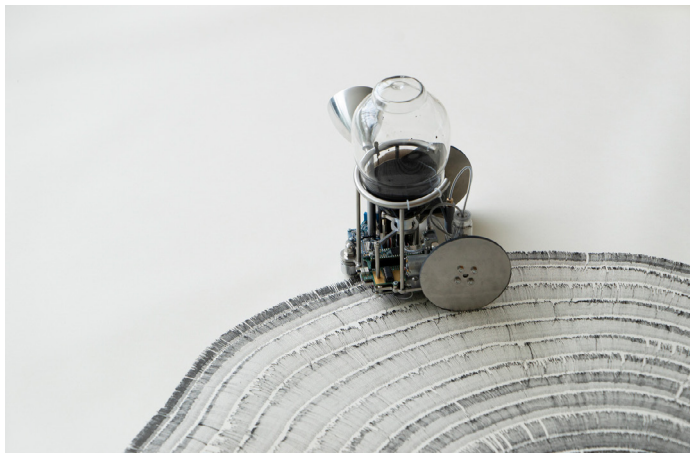
*Funded by Cultuur Eindhoven*

*Collaboration with Ko de Beer*

Video(1 min 30): [https://youtu.be/E9pB22s\\_UPQ](https://youtu.be/E9pB22s_UPQ)

Drawings at Vitalis Peppelrode Eindhoven

Dimensions of the drawing:  
2.18m x 2.18m







Exhibition 'Joint Venture' at Kunstvereniging Diepenheim, drawn during 3 performances (2021) Dimensions of drawing: 2.75m x 2.75m