

Vivian XU | 徐维静

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Vivian Xu (b.1985) is a media artist and researcher from Beijing, currently based in Shanghai. Her work explores the boundaries between bio and electronic media in creating new forms of machine logic, life and sensory systems, and often take the form of object, installation and/or wearable. She has shown, lectured, and performed at various institutions in China, the US, Germany, and Australia, including the National Art Museum of China (Beijing), the Central Academy of Fine Art (Beijing), the China Academy of Art (Hangzhou), the Chronus Art Center (Shanghai), the Rockbund Museum (Shanghai), the Shanghai Symphony Orchestra (Shanghai), the New York Science Museum (New York), Gallery Ho (New York), Art Laboratory Berlin (Berlin), SymbioticA at University of Western Australia (Perth), and soon at the Max Planck Institute (Berlin) and Kapelica Gallery (Ljubljana) in 2019. Vivian co-founded Dogma Lab, a trans-disciplinary design lab in Shanghai that is dedicated to creating experimental research at the intersection of design, technology, art and science. Between 2013 - 2015, she was Research Fellow at New York University Shanghai. Since then, she has lectured at various universities and programs, including Shanghai Tech University, Chinese University of Hong Kong Shenzhen Campus, Roy Ascott Technoetic Arts program (Shanghai), etc. Her work has been featured in media and press, including VICE China, Elle US, and the China Global TV English Channel, etc. Xu received her MFA in Design and Technology at Parsons the New School for Design in 2013.

EDUCATION

2011 - 2013 Parsons the New School for Design, New York
Masters of Fine Art, Design + Technology

2005 - 2009 Communication University of China (中国传媒大学), Beijing
Bachelor of Art, Computer Animation

INDEPENDENT ARTIST

2011 - Present

EXHIBITIONS

- 2019 *The Gentle Stranger*, UNArt Center Inaugural Exhibition, Shanghai, China, curated by Yan Xiaodong.
- 2018 *Radiation: Age of Machine*, W Residency conclusive exhibition, Xinchang Old Town, Shanghai, China.
- 2018 *Trees of Life: Workshop - Shopwork, Knowledge in Materials Part I*, NTU Centre for Contemporary Art Singapore, Singapore.
- 2018 Performance with Shanghai Philharmonic, Shanghai Symphony Orchestra, Shanghai, China.
- 2018 *Out of Control*, Songjiang Art Museum, Shanghai, China.
- 2017 *Loom*, Jin Ji Hu Museum, Suzhou, China.
- 2016 New Media Art Festival, Shenzhen, China.
- 2016 *Brew & Blend Festival*, M50 Art District, Shanghai, China.
- 2016 *Praising Science and Prizing Art*, Fu Dan University Medical Library, Shanghai, China.
- 2015 *Future Exhibition: Observer/Creator*, Central Academy of Fine Art Museum, Beijing, China.
- 2014 *BYOB* (Bring Your Own Beamer), 1933, Shanghai, China.

HONORS

- 2015 Jan - May Interactive Media Arts Global Predoctorate Fellow, NYU, Shanghai
- 2013 - 2014 Interactive Media Research Fellow, NYU Shanghai
- 2012 Teaching Fellow, Parsons the New School for Design, New York
- 2011 - 2013 Dean's Scholarship, Parsons the New School for Design, New York

- 2014 *KICK*, Gallery Ho, New York, USA.
- 2014 *Hyper-Seeing*, Project Space, CAFA Museum, Beijing, China.
- 2013 *Fantastical Machines* (solo exhibition), Between Art Lab, Shanghai, China.
- 2013 Beijing Design Week, Dashilar, Beijing, China.
- 2013 Parsons Design & Technology MFA Thesis Exhibition, Parsons Festival, New York, USA.
- 2012 *ReGeneration*, New York Hall of Science, New York, USA.
- 2011 "Weather Tunnel", *Translife: International Triennial of New Media Art*, National Art Museum of China, Beijing, China.

CONFERENCES, TALKS, RESIDENCIES

- 2019 Max Planck Research / Artist Residency, Berlin, Germany.
- 2018 Future Materials & Bio Design, artist talk and discussion, Chronous Art Center, Shanghai, China.
- 2018 W Artist Residency, Xinchang, Shanghai, China.
- 2018 "The Silkworm Project" artist talk and silk panel discussion with Liang Shaoji and Lisa Onaga, NTU Centre for Contemporary Art Singapore, Singapore.
- 2017 - 2018 Research Residency, SymbioticA, Perth, Australia.
- 2017 Nonhuman Subjectivities Conference, Art Laboratory Berlin, Berlin, Germany.
- 2016 Artist talk "The Silkworm Project", Chronous Art Center, Shanghai, China.

- 2015 NeoLife - Inaugural Rest of the World SLSA (Society of Literature, Science and the Arts) Conference, SymbioticA, Perth, Australia.
- 2014 Artist talk at Tongji Fab Lab, Shanghai, China.
- 2014 Panelist "Bio, Art and Media Dialogue", Rockbund Musuem, Shanghai, China.
- 2013 Lecturer, International Design, Technology and Art Lecture Series, China Academy of Art, Hang Zhou, China.
- 2013 Artist talk "Into the Bios", K11 Art Museum, Shanghai, China.
- 2013 Guest speaker and panelist, "Hacked Matter: DIY Bio Showcase" at the Shanghai Maker Carnival, Shanghai, China.
- 2013 Guest speaker, IM Interaction x Information Innovation Forum, Central Academy of Fine Art, Beijing, China.
- 2013 Parsons Festival Symposium, Parsons the New School for Design, New York, USA.
- 2013 Researcher at Genspace, New York, USA.

DOGMA LAB, Co-Founder

2015 - Present

Dogma is a cross-disciplinary design lab based in Shanghai, China. Founded by Benjamin Bacon and Vivian Xu, we believe in the cross-pollination of Design, Technology, Art and Science in the creation of products and experimental work alike. We are strong supporters of research and education.

Featured by Ideat Magazine, Sola Media, Er Geng Media, Smart Shanghai, That's Shanghai, VICE China, Anamouly Unreasonable Media, etc.

SELECTED PRESS

2015 - Present

- 2018 China Global Television, English Channel (CGTV) Interview

- 2017 Cover Story: Women in Tech, Shanghai Family Magazine
- 2017 VICE China mini documentary series, featuring The Electric Skin
- 2017 Maximum Exposure, Elle US, featuring emerging female Chinese artists
- 2017 Unreasonable mini documentary, featuring The Electric Skin

TEACHING

2011 - Present

Adjunct Faculty, Roy Ascott Technoetic Arts Studio, Shanghai

2018. 9 - 2019. 5

Courses: Thesis, Moist Media: Material Lab, Moist Media Machine Life, Moist Media: Design Fiction

2017. 3 - 2017. 7

Courses:

Moist Media: Material Lab, Moist Media: Machine Life, Cybernetics

Adjunct Faculty, Chinese University of Hong Kong, Shenzhen

2016. 1 - 6

Course:

Wearable Futures

Faculty, School of Entrepreneur and Management,

Shanghai Tech University

2015. 6 - 2016. 6

Courses:

Design Thinking, Product Design

Research Fellow, Interactive Media Arts, New York University, Shanghai

2013. 10 - 2015. 6

Courses:

Interaction Lab, Communication Lab, Talking Fabric, Rapid Prototyping

Teaching Fellow, Parsons the New School for Design

2012. 4 - 9

Course:

Creative Coding

WORKSHOPS

2018. 5-6 Bioart: Microbial
Hyundai Motor Studio
- Baterial Leather Workshop
- Invisible Encounters Workshop
- 2015 Wearable Technology Workshop
NYU Shanghai
- Bioplastic and Molding Workshop
- Soft Circuits Workshop

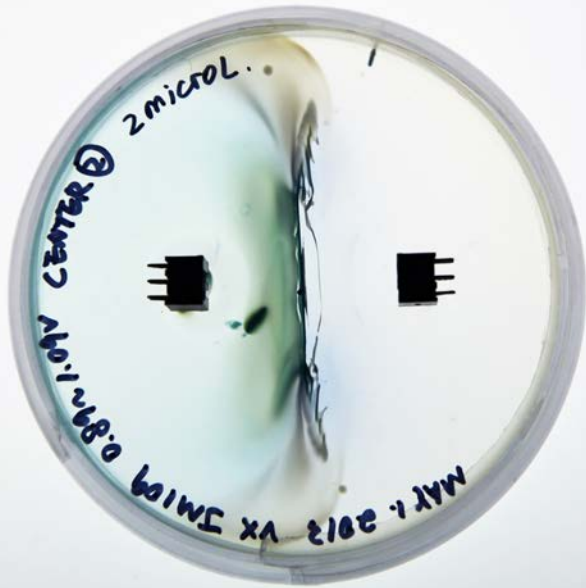
ART & DOCUMENTARY PRODUCTION 2009 - 2011

- 11.2010 - 05.2011 Cameraman and rough cut editor for documentary of artist Zhan Wang's piece My Personal Universe, screened at the My Personal Universe Exhibition. Production in Shan Dong.
- 08.2010 Editor of Irish artist Varvara Shavrova's art video The Opera, screened in Dublin and Beijing. Production in Beijing.
- 05.2010 Editor of documentary directed by American filmmaker Rick Widmer, The Passion of Joe. Production in Beijing.
- 07.2009 - 07. 2010 Artist Assistant, Xu Bing Studio Beijing
Primary responsibilities include translation, video editing and graphic layouts, worked mostly on computer-based projects.
- Book From the Ground, Interactive Installation, Software Art

- Forest Project, Internet Art
- Phoenix Project Aerial Exhibition and Archive Exhibition, Today Art Museum (Beijing) (Debut exhibition of the Phoenix Project).
- Co-translator of Xu Bing Print, published in Mar. 2010 by Culture and Arts Publishing House.

INDEPENDENT WRITER / TRANSLATOR 2009 - 2014

- 2014 - Shanghai correspondent and art reviewer, ArtSlant
- Art Bank Magazine (Beijing), contribute "When Biology meets Art" section in featured article Synthetic Times, and interview with Australian Bio Artist Oron Catts. 2014 March Issue.
- 2010 - Translator for Tsinghua Art and Science Media Laboratory (TASML) Inauguration Ceremony and International Symposium on Media Art and Design Laboratories at Tsinghua University, curoated by Zhang Ga. (Beijing)
- Translator for 2010 Digital Art Weeks Xi'an (DAW), curated by Art Clay and Steve Gibson.
- 2009 - Tranlator for Swiss/China TimeLapse exhibition, the Natural Art Museum of China (NAMOC), curated by Zhang Ga. (Beijing)
- Co-translator and copy editor of book Xu Bing Print, by Xu Bing, published in Mar. 2010 by Culture and Arts Publishing House. (Beijing)



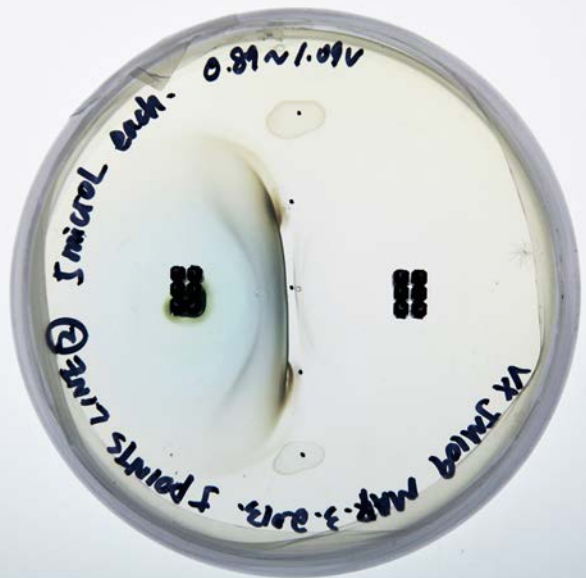
Living Devices

Materials: bacteria (*E. coli* JM109), electronics, petri plates
2012 - 2013

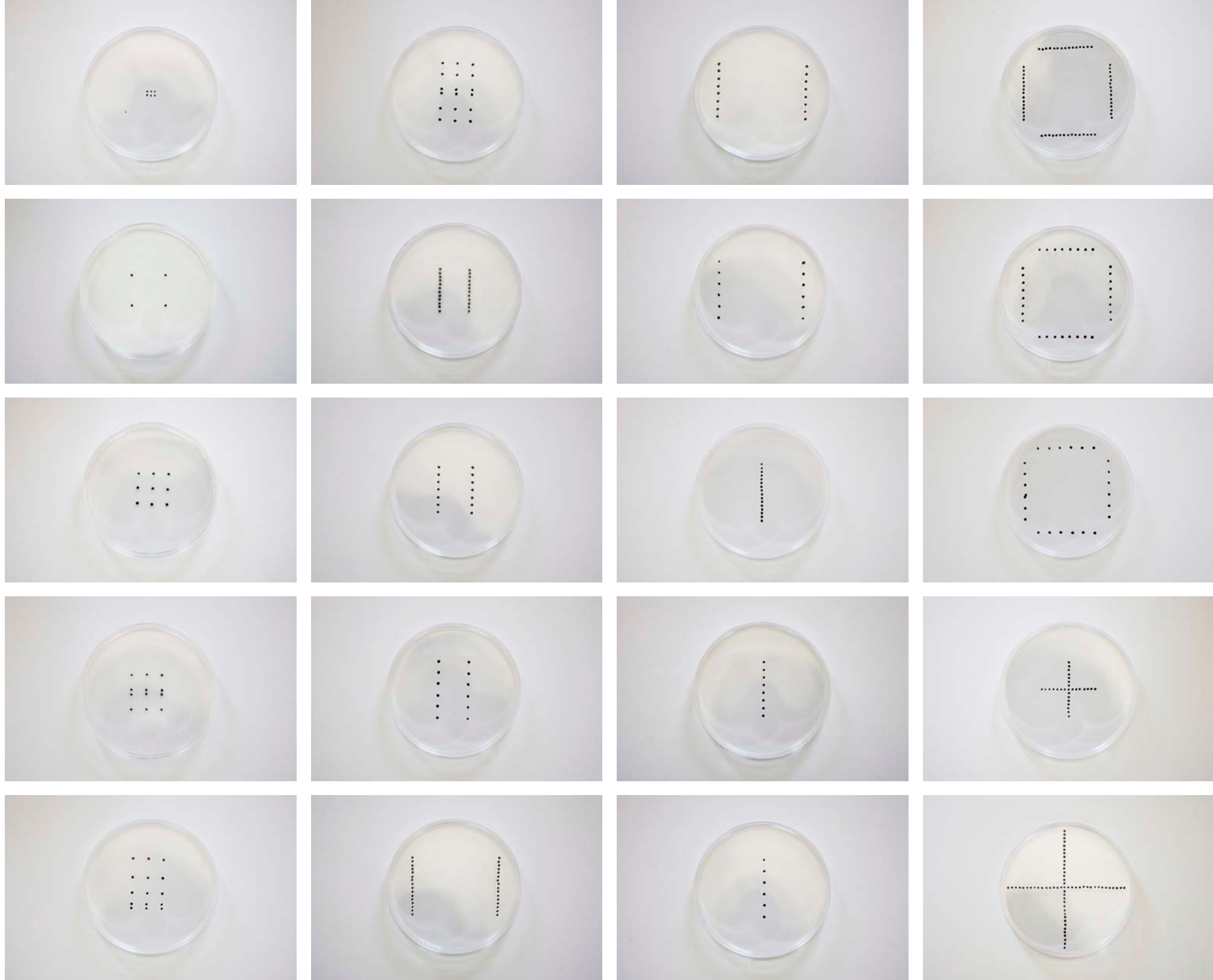
Living Devices is a series of research methods, lab protocols, hardware devices and experiment specimens that seek to break down the barrier between machine and organism by transforming electric signals into emergent bacteria growth patterns within a single device. The device allows access into the living system of bacteria through electric stimulation and manipulate their growth outcome to form visual patterns.

A set of protocols were developed to easily interface petri dish cultures with electrical stimulation. The interfacing system allows control of individual electrodes within a multi-node configuration to generate non-unified, diverse and dynamic electric voltage environments for testing.

The case study of 2013 utilizes the JM109 strain of *E. coli* to obtain knowledge of preliminary bacterial responses. Stimulation experiments have resulted in finding electric ranges that create new growth results. Future research seeks to expand into other species of single cell organisms.



Electrode Configuration Design Blueprints





Three main protocols developed were necessary for creating the modified petri plates and electronics, and for executing the experiments. **The first** to create electric plates, **the second** to seed the bacteria solution onto the agar, and **the third** to provide sustained direct current electro-stimulation.

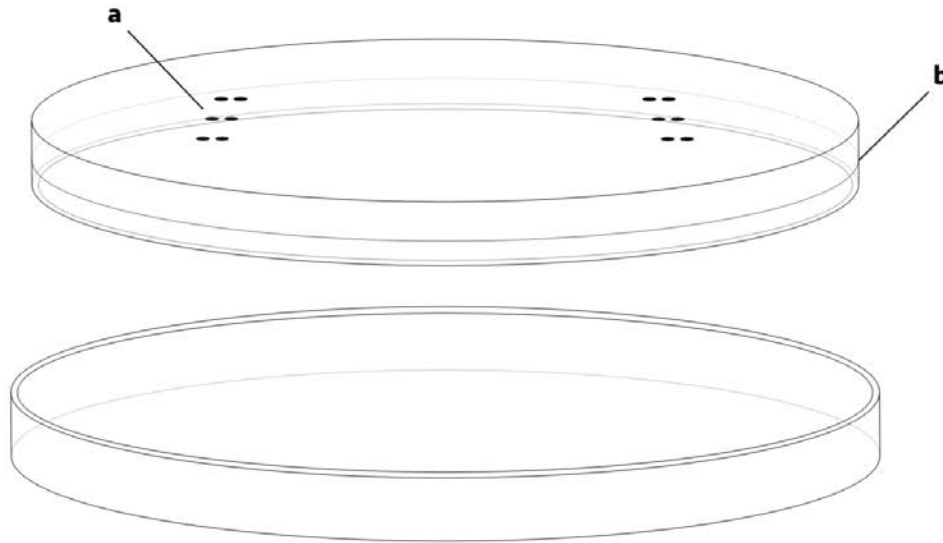
The images above were extracted from the performance video demonstrating the process.



1 电压控制板
Voltage Control Circuit

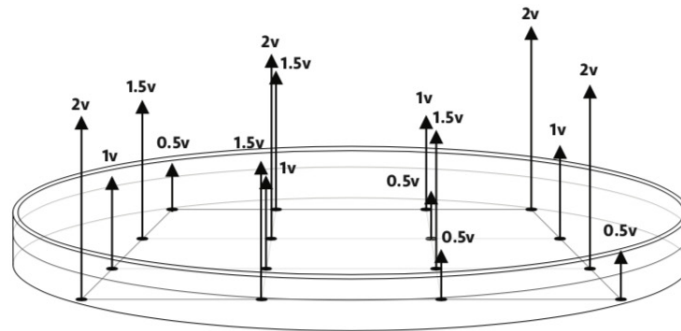
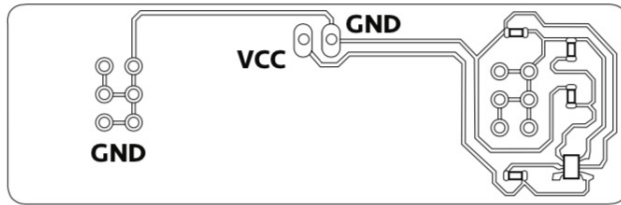


2 电极
Electrode for Stimulation



3 细菌培养皿容器，含琼脂营养物质
Petri Dish with Agar

4 细菌培养皿盖子
Petri Dish Lid





Electronic Plates
Modified petri plates that provides electro-stimulation to culture.



The Silkworm Project

2014 - Ongoing

The Silkworm Project explores the possibilities of designing a series of hybrid bio machines that are capable of generating self-organized silk structures. The silk machines utilize a closed feedback loop system between the organic and the artificial, where the biological - in this case the silkworms, and the computational - the electronic and digital systems that house the worms, form one ecosystem that demonstrates automated production that is autonomous in its nature.

Research in the history of computation and its entanglement with the technological development of the loom, the artist is interested in finding a critical and artistic intersection between the organization of silk and the organization of information. This comparison between old and new technologies, between one of the world's oldest materials - silk, and the its newest medium - data, brings up new questions of production in the present day where our tools, food, clothing, and even houses can potentially be printed with the click of a button. The artist tackles this question through a series of machines that addresses 2D, 3D printing and printing on the body.

The Silkworm Project I : Printing in Flat Space

Materials: silkworms, electronics, wood

The Silkworm Project I : Printing in Flat Space machine design was based on the simple fact that put into a wide enough flat plane, silkworms are unable to create 3 dimensional structures and can only spinn flat silk surfaces. Under normal circumstances, the sheets of silk spun by one or more worms is unified and fairly even in its silk distribution.

The machine environment essentially creates a cartesian grid for the silkworm where each position within the grid is addressable by the machine via electrodes. The worm is placed on a piece of silk screen sitting over the matrix of electrodes. Through an overhead camera, the silkworm's position is captured and this information is sent to the computer which begins to activate the electrodes underneath the worm, building up a mild stimulation. The worm is herded across the matrix, and the interaction is documented through silk.

In spring of 2014 and 2015, I began experimenting with natural spun colored silk. I wanted to be able to produce multiple colored silk for two reasons: 1) to use as a research tool in tracking how two silkworms negotiated space while spinning their cocoons, and 2) to incorporate in the final artistic presentation of a 3D spinning machine.

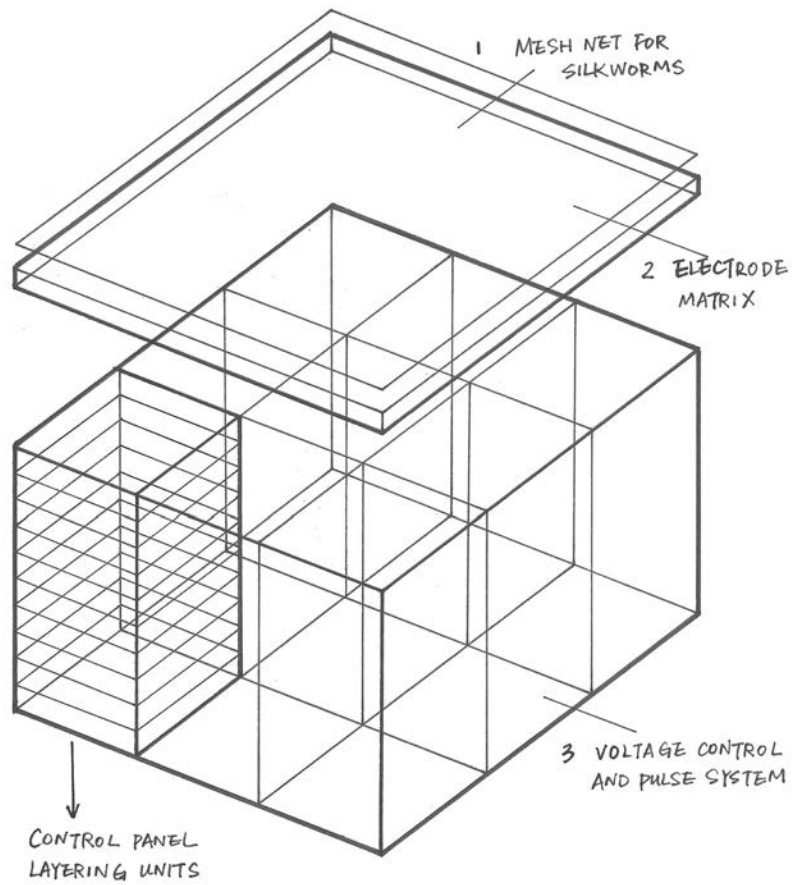
Researchers in Singapore developed a method of naturally dyeing silk within the silkworm's body by feeding it dyed foods during its larvae stage. When the time came for silkworms to spin their cocoons, the silk came out in the color of the foods. I experimented in raising violet silkworms in the spring of 2014 using this method, the results were not ideal: silkworms often died before they could spin and the silk produced were very pale in color. Spring of 2015, I came across new research conducted by Japanese scientists who genetically engineered silkworms capable of spinning colored silk that was much more vibrant, and under UV light could glow in the dark. Japanese designers were even able to create glow-in-the-dark silk kimonos from this material. I was able to raise a batch of these genetic worms this spring with satisfying results.



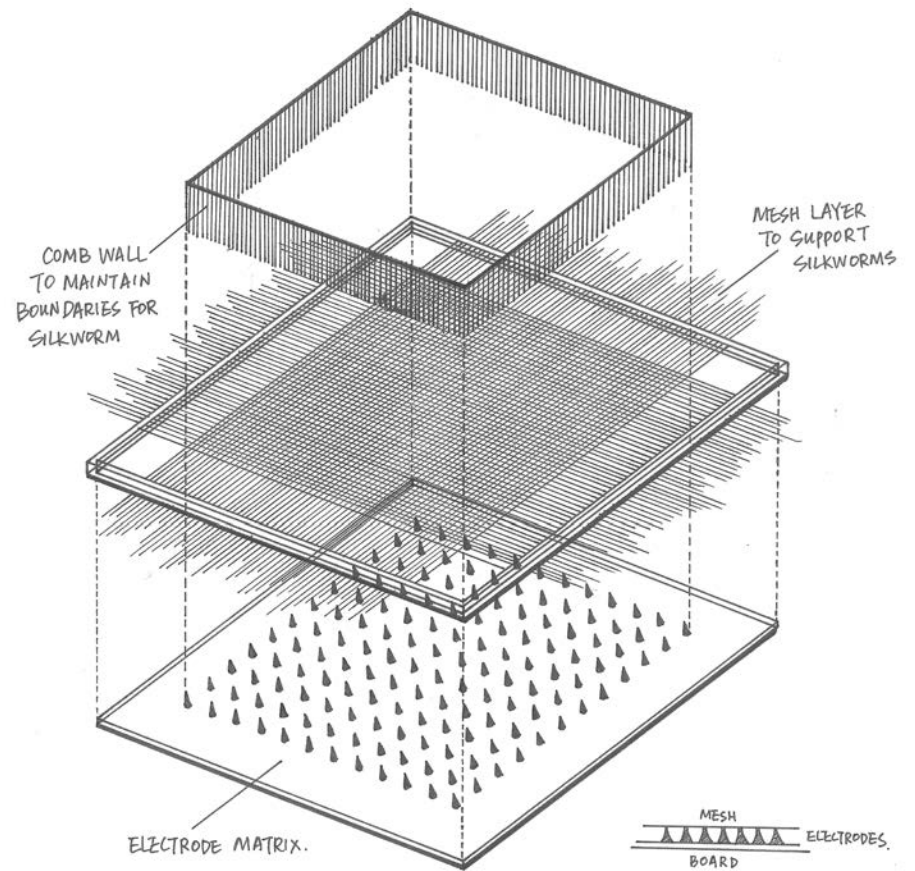
Purple silkworm raised using the Singapore method.
Raised Spring 2014



Genetically colored silkworm developed by Japanese scientists.
Raised Spring 2015

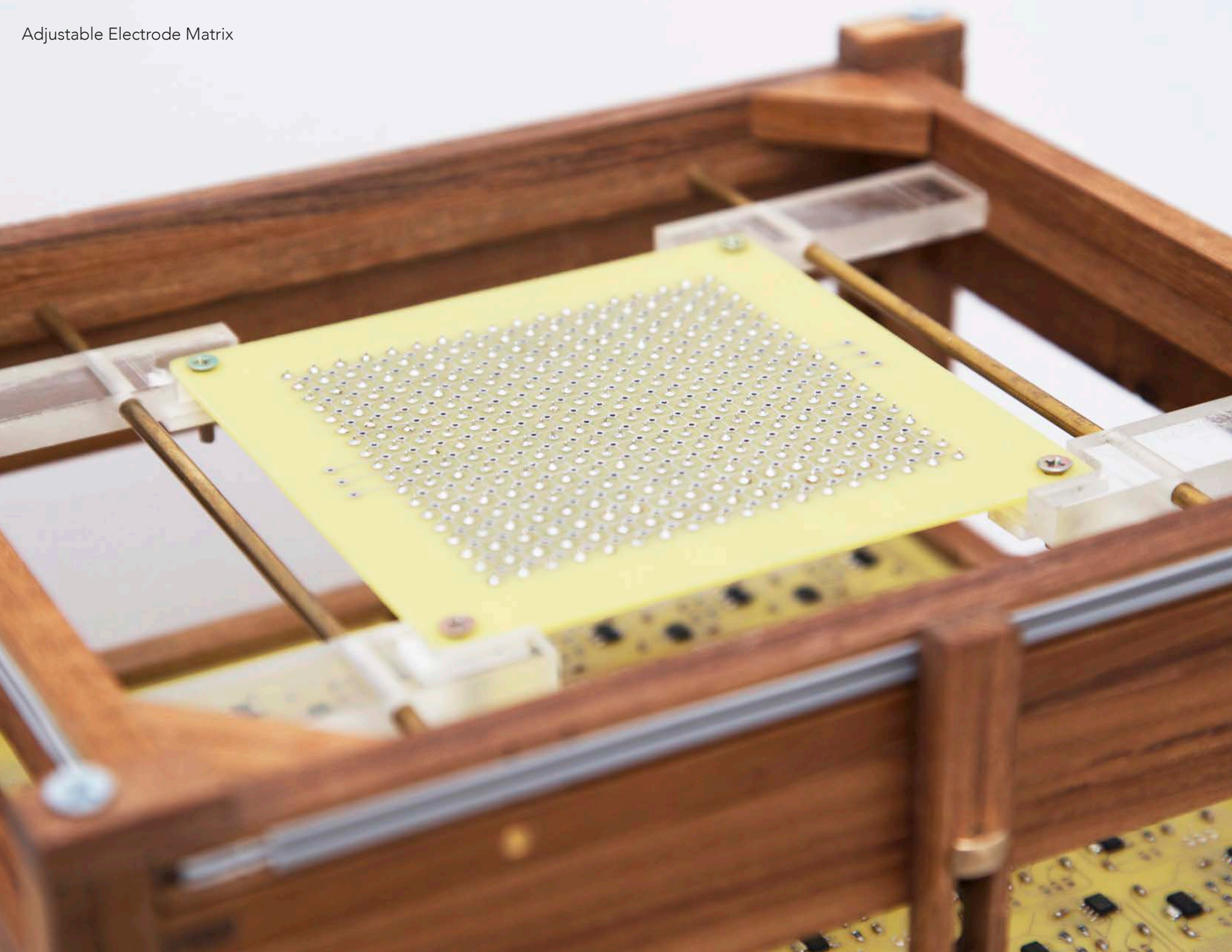


Stimulation Output System



Electrode Matrix & Mesh Design

Adjustable Electrode Matrix





The Silkworm Project II : Printing in Space

Materials: silkworms, electronics, glass, wood

The Silkworm Project: Printing in Space is mainly based on the silkworm's spinning behavior in a wide enough circular environment without any angles and with little edges. When placed in such an environment (for instance, a cup with a diameter of 8-9cm), the insect spins spiral-like structures with occasional cell-like concaves of silk while trying to form a cocoon. The final design of the machine will be a series of spinning contraptions that house the silkworms in tube-shaped vitrines or jars.

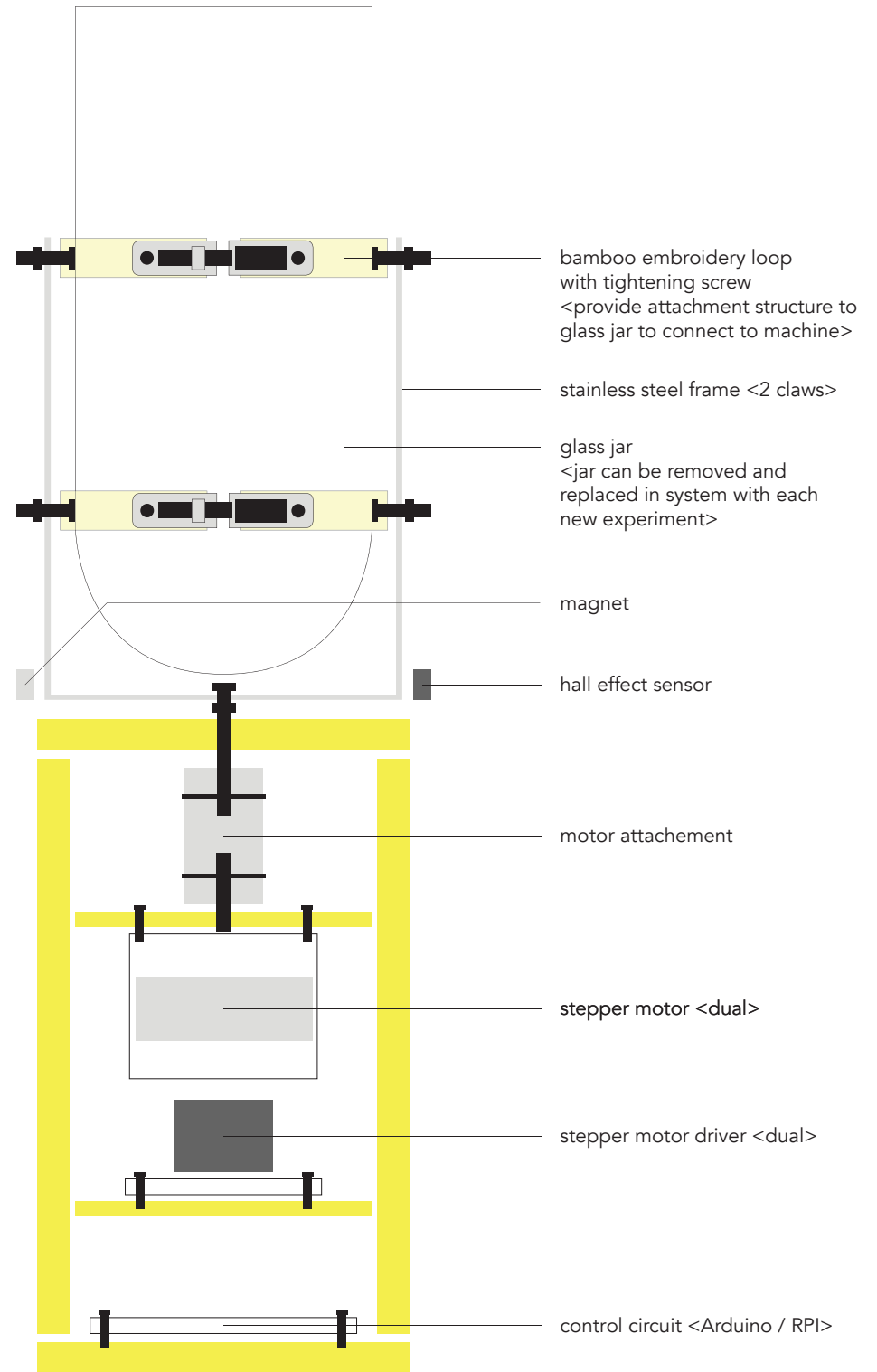
The Silkworm Project III: Printing on the Body

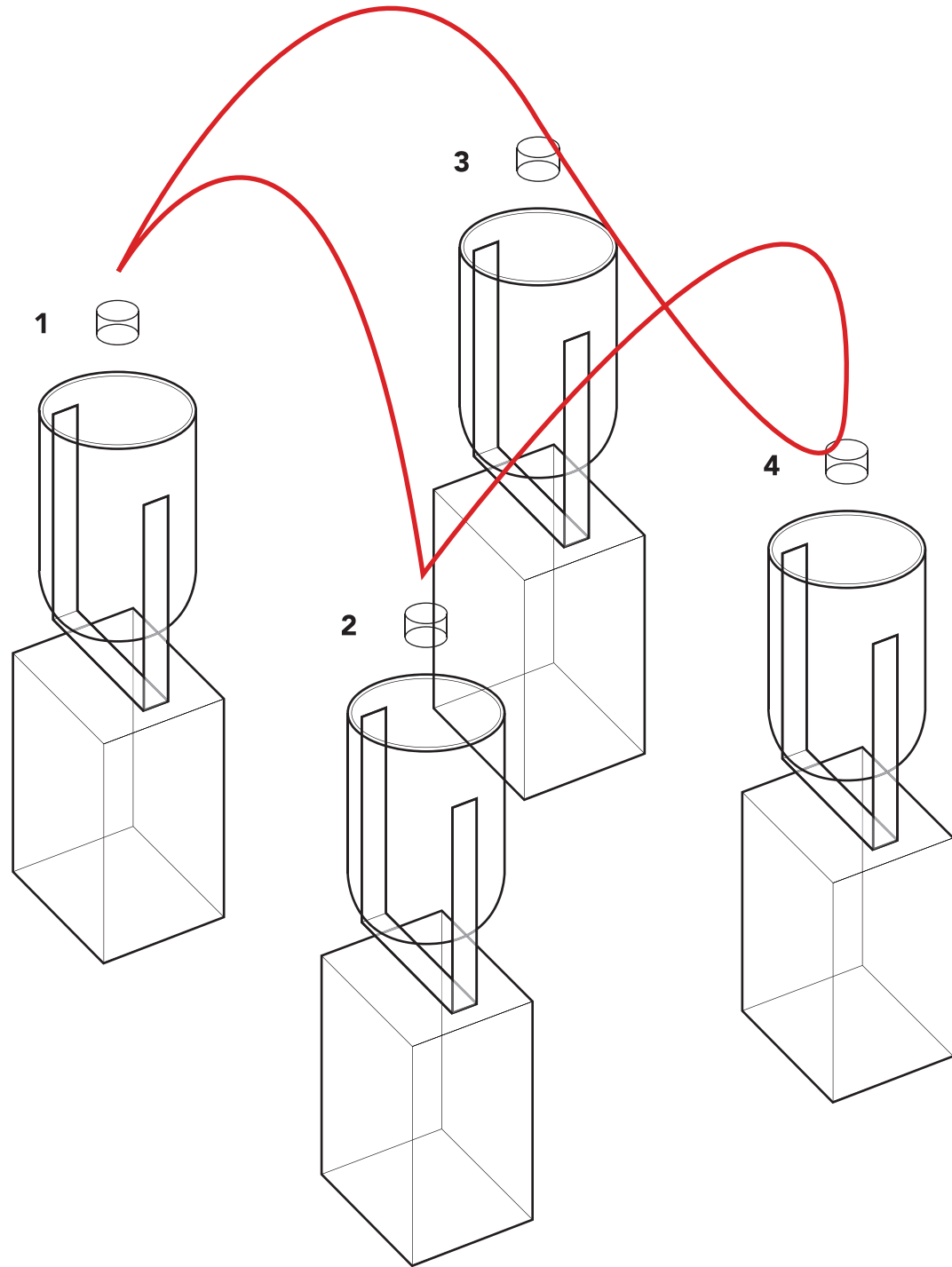
The Silkworm Project: Printing on the Body looks at the realm of wearable technology and speculates on how printing technology and biology can inform, change and revolutionize the production of garments. I am interested in creating wearable machines that harness silkworm behavior in creating silk structures of different textures and spatial configurations from the worm's mouth directly on the body. By looking at the rich history of weaving technology and techniques, and today's industry of printed garments and inventive machines, *Printing on the Body* explores new concepts of fabric, weaving and wearables. The research and design for this third installment will be conducted in 2017.

In *Printing in Space* machines are driven by the silkworms via a small camera that captures the silkworm's movement and sends that data to the control circuit that drives the spinning machine. Multiple spinning machines can be put into a matrix to create a network of machines that can communicate and effect each other through the hall effect sensors and magnets. In *The Silkworm Project II*, I am mainly interested in creating a insect-driven machine system that consists of smaller simple machines, that through the larger network, can generate chaotic and complex behavior.

- teak wood
- screws, connectors

**SILKWORM PROJECT II
MACHINE STRUCTURE DIAGRAM**



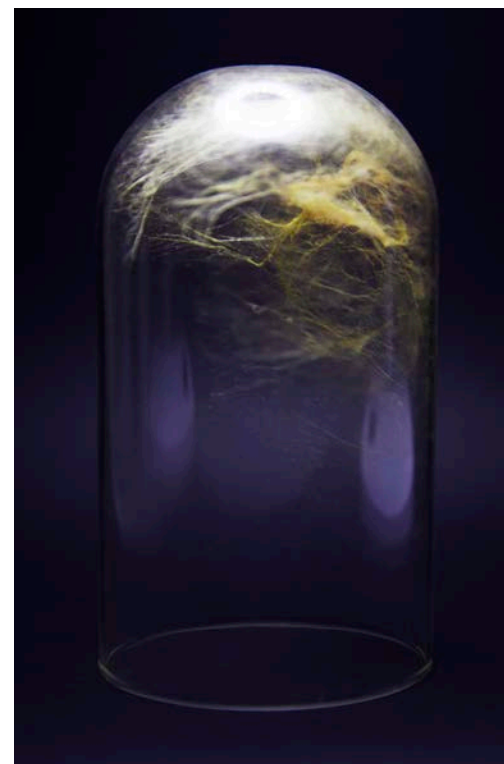




Silkworm Spinning in Spinning Machine Contraption



Simple Spinning Mechanism Design
The Silkworm Project Machine II - 2, Printing in Space, Vertical
2017



Silkworm Project Experiment Results 2016-2017



Vivian Xu, *Silkworm Project*, 2013–ongoing, multimedia installation. *Trees of Life – Knowledge in Material* (2018), NTU Centre for Contemporary Art Singapore. Courtesy NTU CCA Singapore.



Trees of Life – Knowledge in Material, 21 July – 30 September 2018, NTU Centre for Contemporary Art Singapore, installation view. Courtesy NTU CCA Singapore.

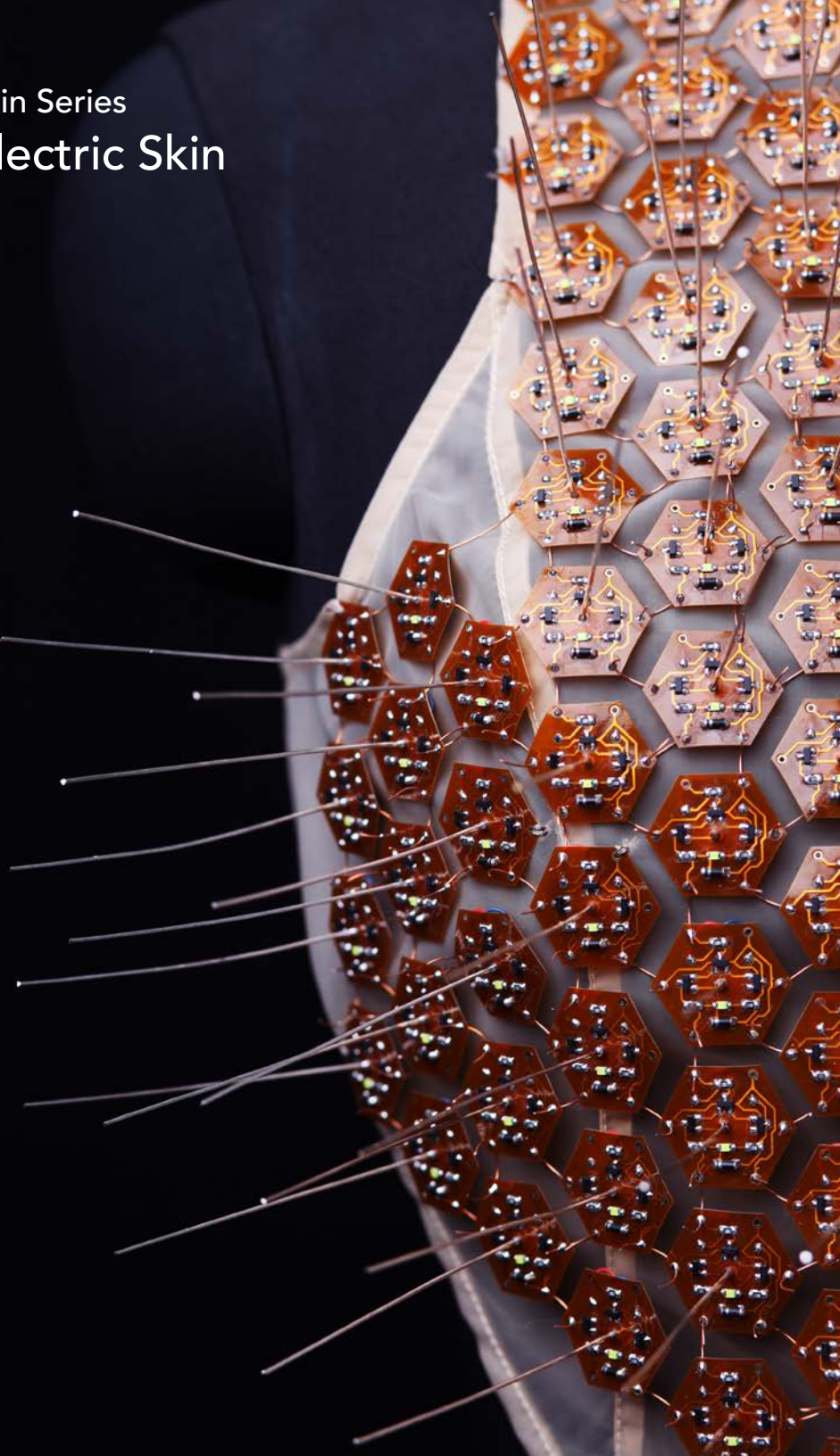


Silkworm Project Machine III, 2019, early prototype of a magnetically-driven spinning machine, 2019
Production supported by Art Laboratory Berlin.



The original design of this machine was a levitating spinning machine with its own gravitational environment for the silkworm that is dynamic and changing. This early prototype was not able to achieve full levitation and spinning, but only magnetically driven spinning motion with the support of axes.

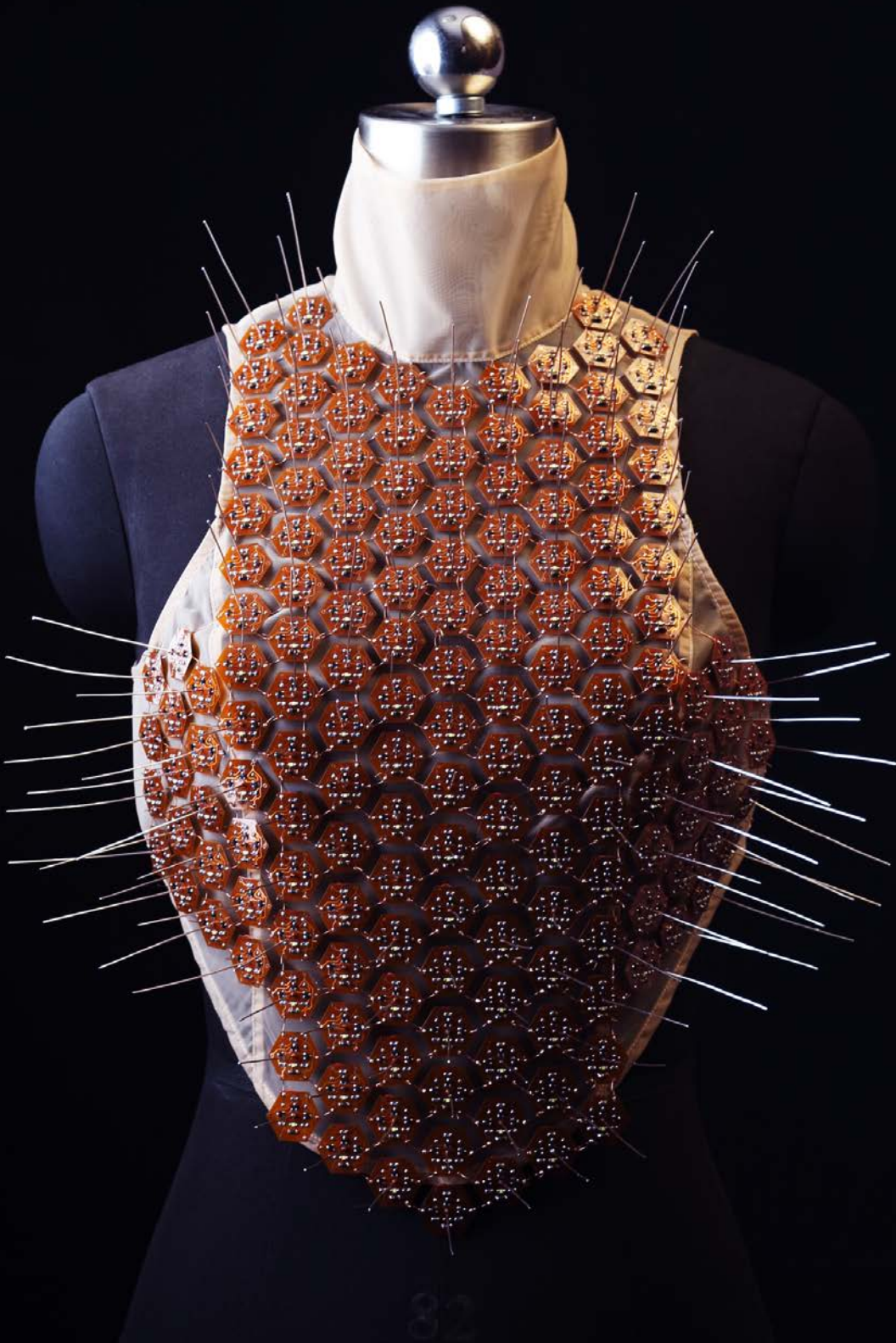
Skin Series
Electric Skin



Skin Series
Sonic Skin



Skin Series is a collection of wearables that explores the skin as interface, and speculates on the technological evolution of human sensory ecology. The artist's interest lies in the epidermis, the largest organ on the human body - the boundary between the internal and external, self and other - and how new technologies can blur, manipulate and reinvent that boundary, and with it, human perception and behavior. The series currently consists of two wearables, the Electric Skin and the Sonic Skin. The final collection will include four biomimicry pieces that each investigate an animal sensory system that is alien to the human experience.



The Electric Skin

Materials: electronics

2016

The invisible landscape of electromagnetic signals has changed with the development and proliferation of electronic technology. It is more omnipresent in our surrounding environment than ever before, and is a major part of the fabric of our contemporary lives. But for better or worse, as our habitat changes with technology, are we prone to change with it as well? This is the question that lies at the center of *The Electric Skin Project*.

The Electric Skin Project explores the possibility of creating a wearable that extends the functionality of the skin to sense electromagnetic fields (mostly within the radio spectrum) and translate that information into touch sensation. The wearable consists of two main functional parts: 1) A matrix of omnidirectional antennas that act as sensors and probes and 2) corresponding electrodes that stimulate the skin of the wearer. Through this artificial "skin" or "exoskeleton", the wearable changes our experience, perception, and understanding of space and movement, and in doing so, our interactions. The project speculates on the possible co-evolution of man and technology and draws attention to the role of environmental influence on our own bodily development and behavior.

Photographed by Harauld Sextus.

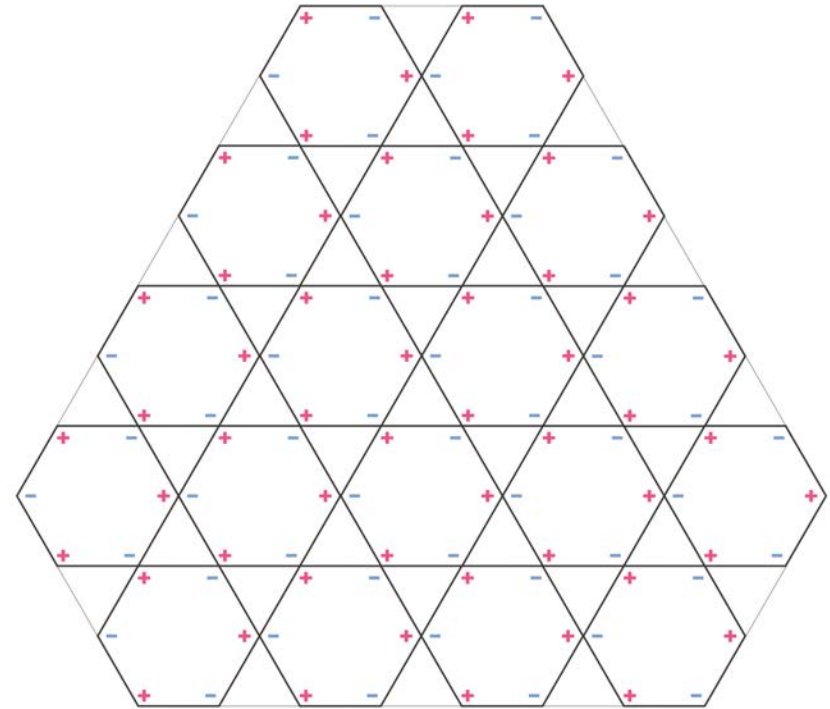
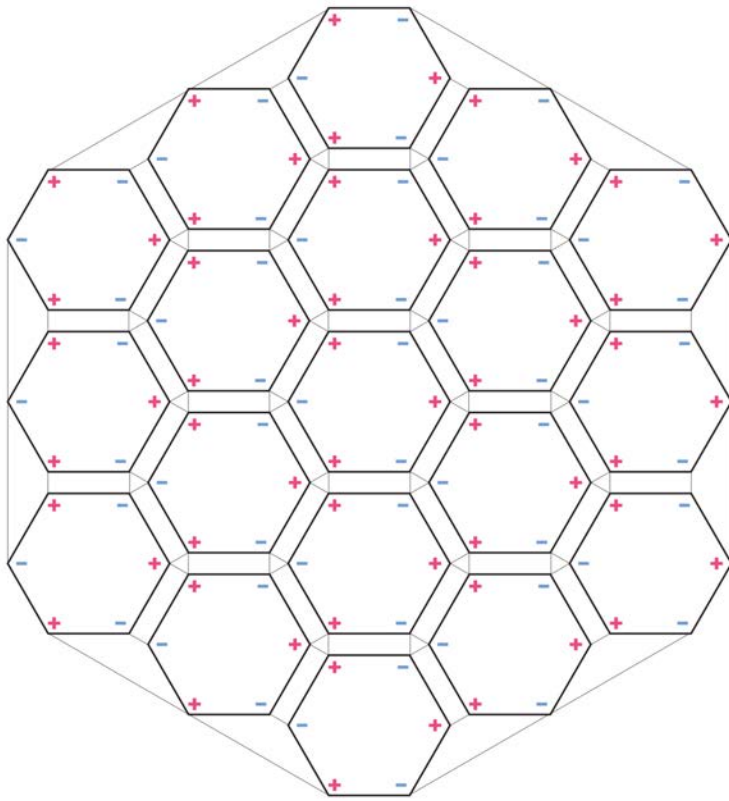
Antenna detects slight fluxuations in the static-electro field

Circuit amplifies the signal and uses it as a trigger

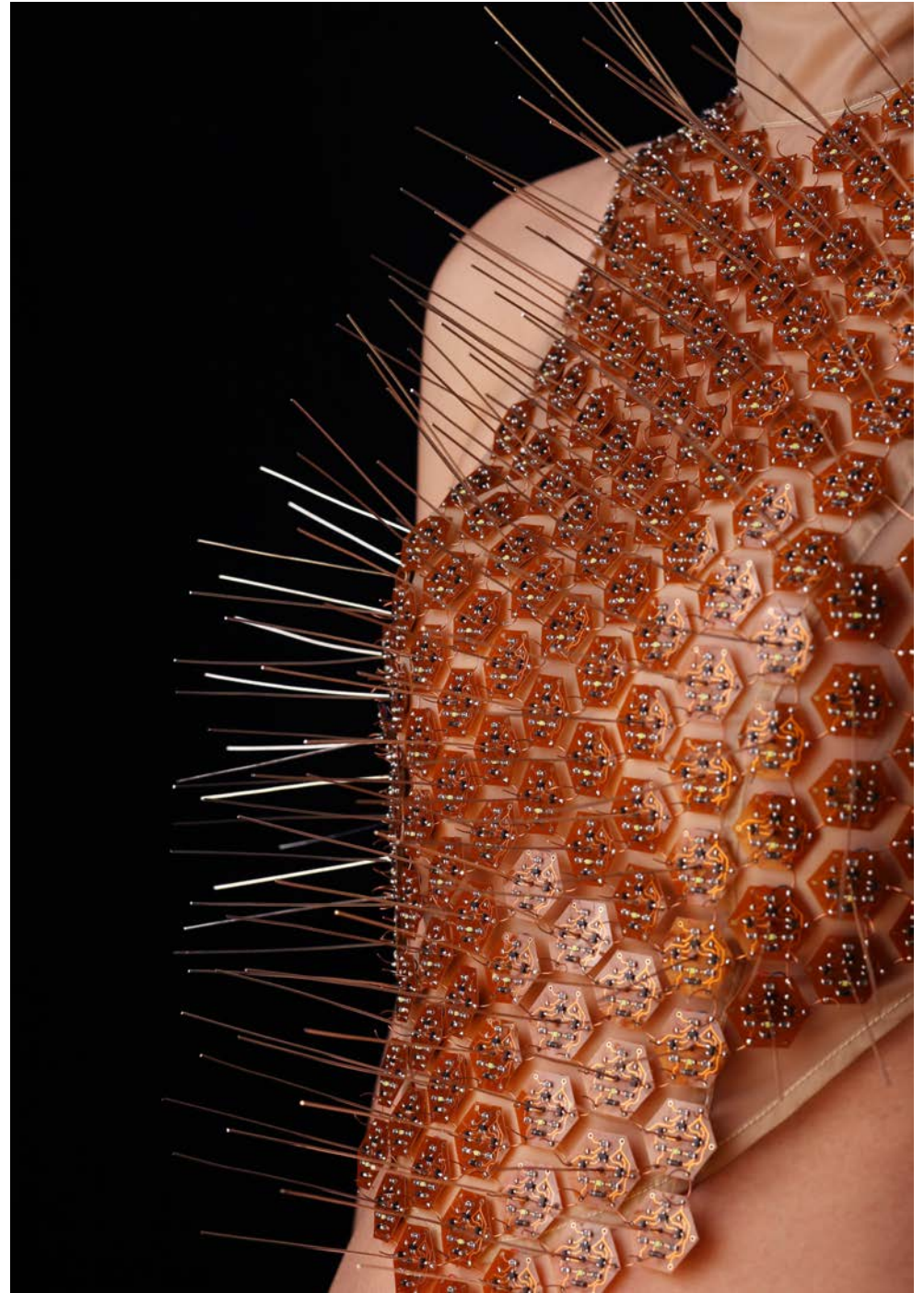
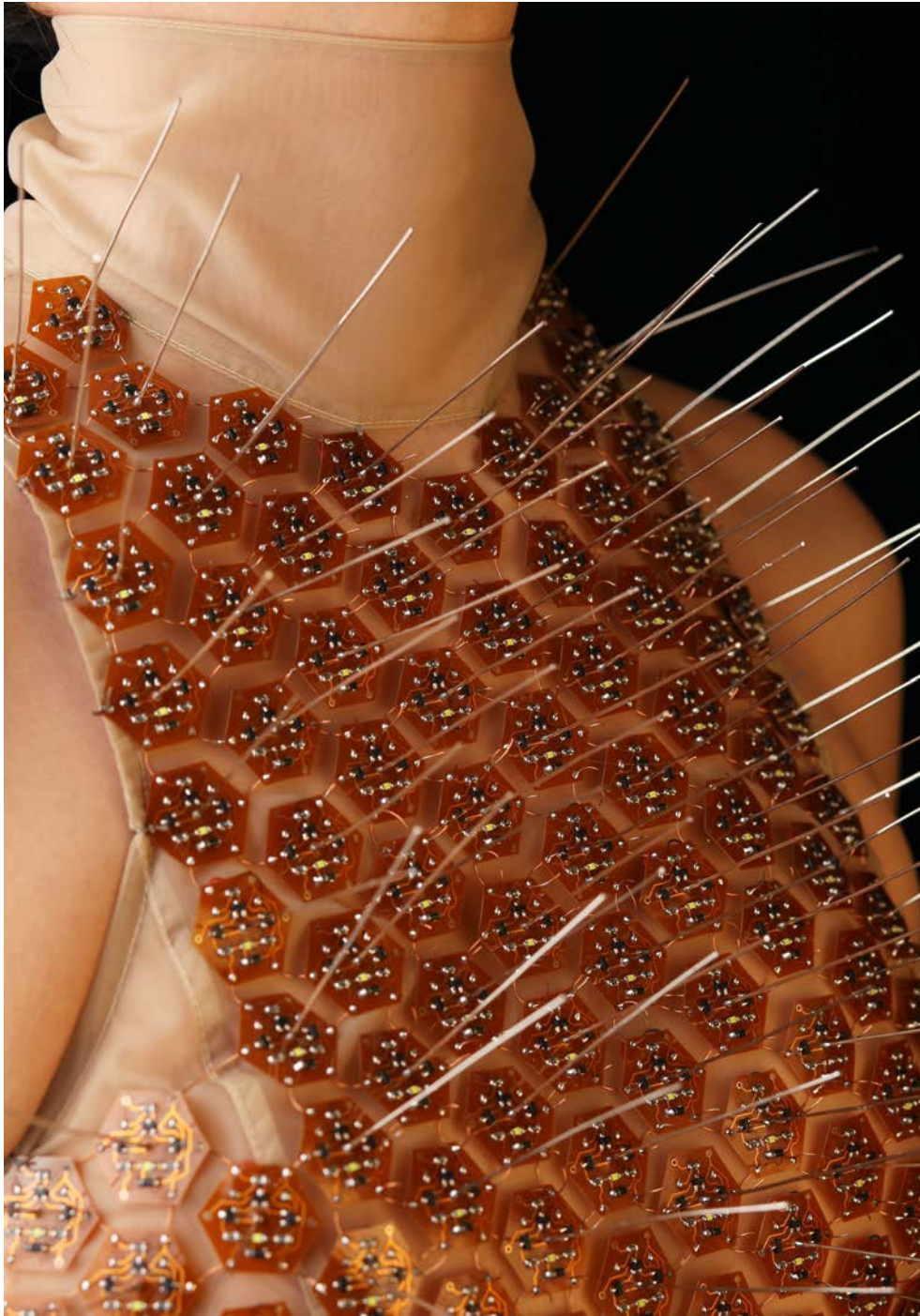


The vibration motor under the circuit is activated to stimulate the wearer's skin





Electric Skin Project
Matrixing sensory circuits to create electric skin fabric.



Electric Skin
Worn by artist, photographed by Harauld Sextus.

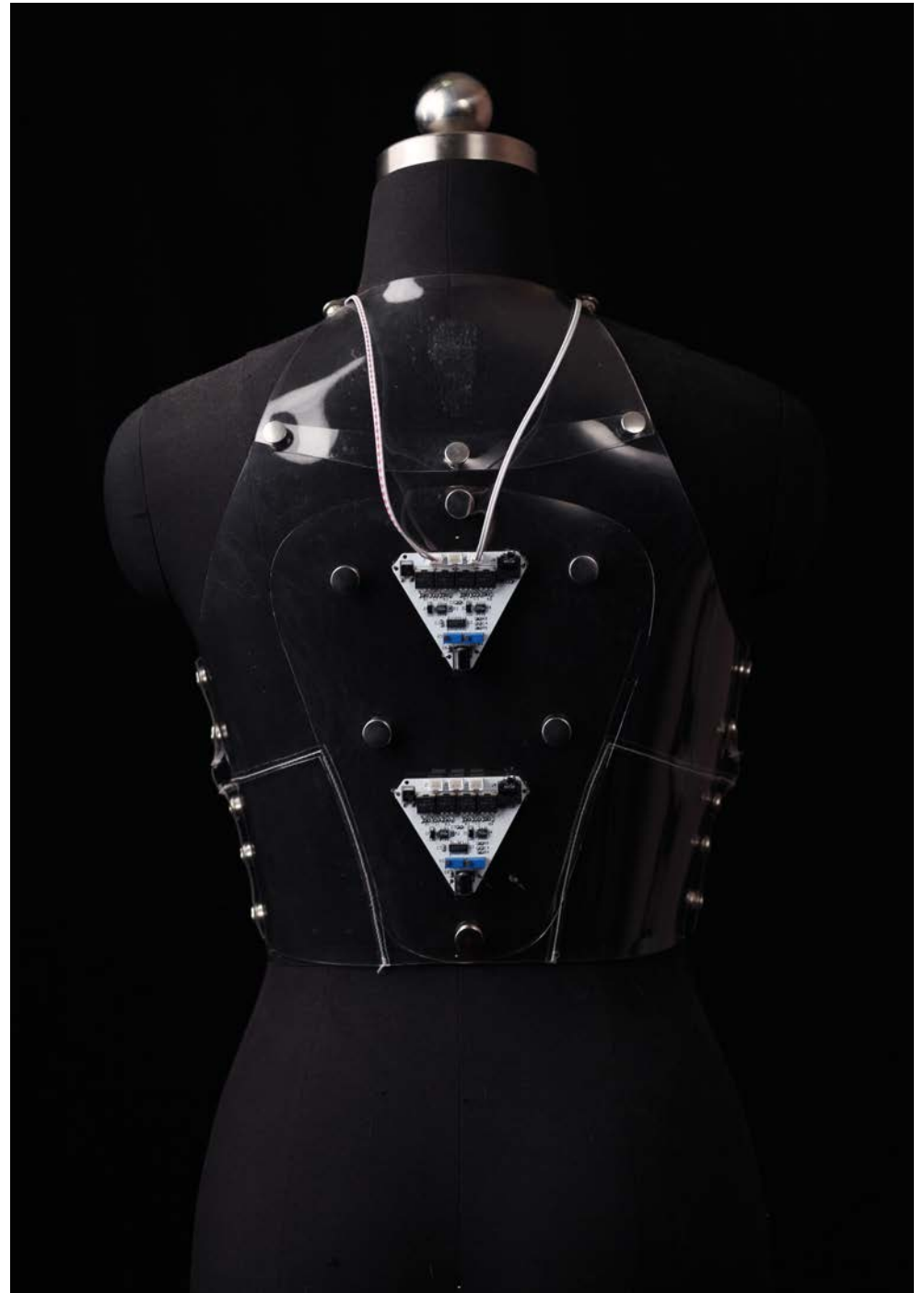


The Sonic Skin

Materials: electronics, PVC
2018

The Sonic Skin is a sound and wearable art piece that explores the concept of human-machine co-evolution. It is the second wearable piece of the artist's Skin Series, consisting of the Electric Skin and the Sonic Skin. The Sonic Skin is artificial second skin designed by the artist to project directional sound, much like a bat's sonar system, where the reaction and journey of the sound illustrates the relationship between wearer and environment. Following the trajectory of the Electric Skin, the Sonic Skin explores the relationship between body, movement and space, and questions whether there could be a heightened future human sensibility and sensory systems with the help of wearable technology.

Worn by artist, photographed by Harauld Sextus.



Sonic Skin
Worn by artist, photographed by Harauld Sextus.

THE 身体四重奏

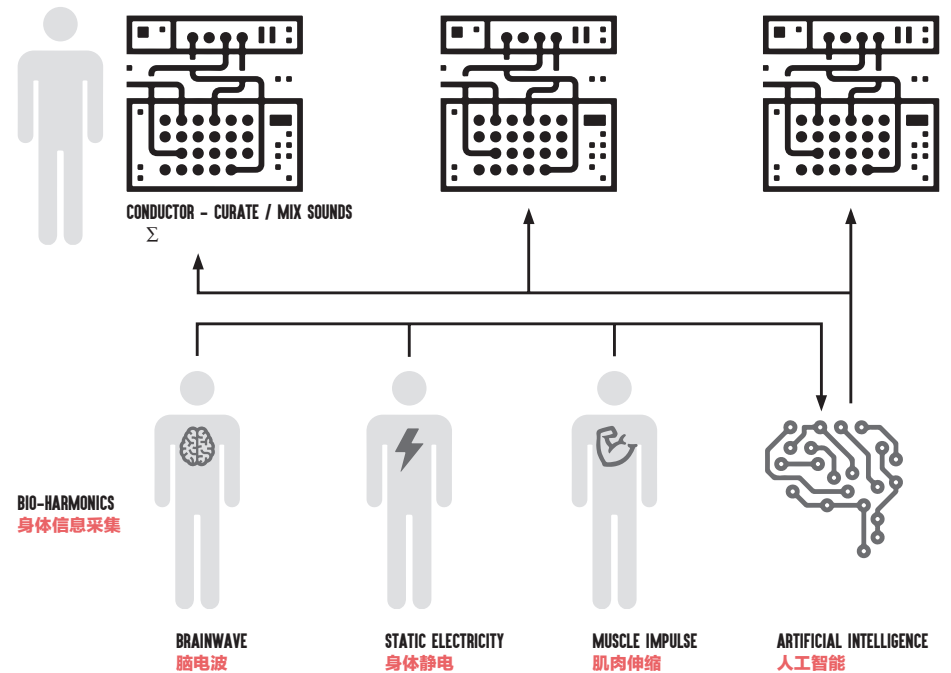
BIO-HARMONICS


QUARTET

DESIGNED
AND BUILT BY
BENJAMIN BACON
AND **VIVIAN XU**

The Bio-harmonic Quartet links together a number of musicians and artists via a biofeedback network. This network acts as a musical interface and uses the collective data of participants' bodily activities to generate music and soundscapes in collaboration with an AI.

The goal is to put music production into the context of the increasingly important debates happening between man and machine. It also strives to explore new concepts of musical performance and production utilizing developing technologies.



A photograph of an empty concert hall with a wooden slat ceiling and walls. Three people are sitting in the seats: a man in a dark suit on the left, a man in a dark suit in the center, and a woman in a dark dress on the right. The seats are dark brown with wooden armrests. The ceiling and walls are made of vertical wooden slats. The lighting is warm and focused on the people.

This performance debuted at the Shanghai Symphony Orchestra,
in collaboration with musician B6 (Lou Nanli) July 2018.

