

Research on BioArts and DIYBio across Japan

By Henry Tan

Hosted by metaPhorest (Hideo Iwasaki) & Bio Club Tokyo (Georg Tremmel)
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INTRODUCTION

Artists are known to investigate the possibilities of the cutting edge technology of the era. In the 21st century, Bio-Technology expands the imagination of humans in the creation and modification of living organisms. Programmable bacteria to detect pathogens, gene therapy for personal medication, a new form of energy and food, even a new form of life or human.



Snowman created on the offseason snowing in Tokyo

This research is trying to understand the infrastructure, enablers, and community that nurture and culture the growth of BioArt in Japan. What are the topics that artists dive into? How does society react to BioArt? What are the ethical and practical concerns of the usage of biological materials in artistic expression? How do artists make a living? How does a different community sustain itself and what DIYBio community contributes to society?

Background

Henry Tan is an artist, co-founder of Tentacles Art Space in Bangkok, and a member of Freaklab Thailand.

In 2014, I visited Open Contemporary Art Space in Taipei, I met Lin Pei Ying who was an artist in residence at that time. She had racks full of glass bottles and containers, inside there are many small unfamiliar water creatures. I did not understand her practice at that time. I later discovered that she works with Biological materials and co-founder of Bio club Taiwan, her project "Tame is to Tame" questioned how humans can live together with viruses.

I joined [BioCamp](#) hosted by BioClub Tokyo in 2018, became a member of Freaklab, Thailand the same year, and joined Global Bio Summit #2 at MIT's Media Lab. I slowly connect to people in the DIYBio community and pour myself with BioArts and Biotechnology.

I started to articulate my ideas together with inspiration I got from other artists, and Biotechnology. Since my knowledge in science is a novice, It will take years until it becomes mature as I slowly learn about science and life.

[Young Eel 2019](#), the project discusses aging society by exploring our sensory and memory of lab-grown meat through sound, smell, visual, food stimulation during our hypnagogia state. What can we pass to our replacement?

[Anonymassage](#) projects revolve around the idea of healing and repairing. We try to understand how the brain and bodywork. Exploring the subconsciousness of mind and body. We use massage, electric pulse, vibration, herbs, sound inspired by rituals from different cultures, and experiment with resting bodies. Can we project pain, fear, love, memory to people? Can we retain, restore, or extract from them? Can we program their dream, hallucination, or feeling? Can we understand our unconscious self?

[Pearl of Lunar](#) project is the first project to collaborate with scientists and researchers in Thailand. We sent Pearl to ISS, I have been researching Pearl as a motif for political ideology and wealth accumulation, furthering learning the process of sending payload to space, application of synchrotron, and creating synthetic pearl. Encountering cutting edge technologies is really exciting and inspirational to think through science and society for artistic creation. Collaboration with experts also brings issues such as mutual understanding and incentive. How art and science can inspire each other?

metaPhorest

Hideo Iwasaki - TWINS Waseda



Founded in 2007, metaPhorest is an art + science research lab under Hideo Iwasaki (Molecular Biology - Cyanobacteria) at Waseda University. Hideo explores the possibilities to generate knowledge in the artistic realm further from his thorough scientific research. Hideo is a founding member of the Japanese Synthetic Biology Society.

[oPrayer](#) is Hideo's project that left me perplexed. The uniqueness sensibility in Japanese culture and questioning on cutting edge biotechnology brought us back to the basic question "What is Life", The borderline between Biological condition and Intersubjectivity of matter. Through the dialogues with frontline scientists on synthetic biology. Hideo created monuments for artificial life and use the Japanese memorial ceremony to contemplate the notion of "Life".



Bioclub Tokyo

Georg Tremmel
Chiaki Ishizuka



Bioclub is an extension from FABLAB Tokyo located in Shibuya under Loft work (creative company) run by Georg Tremmel and Chiaki Ishizuka. Bioclub opens its facilities for the public to hands-on biological materials. Bioclub organizes series of workshop, talk and education projects.

Georg Tremmel is co-founder of BCL research framework on the complexity of Biological plethora in society through artistic intervention.

Georg raised a question in the grey area from the effects of biological technology, [Common Flower](#) is the first project that I learned in 2018, questioning the authority of the Suntory's commercial GMO Blue "Moondust" carnation, and GM laws in Japan.

[Biopresence](#) is the older project from Georg that I personally admire the attempt to deposit human remnant with nature (Tree) through Biotechnology. Human memory (DNA) can be left in the living tree. It's a close idea to [Capsula Mundi](#) project where the biodegradable coffin will turn us into a tree/urn for our loved one.

YCAM

Takayuki Ito
Fumie Takahara
Kazutoshi Tsuda



I first learned about YCAM from Lim Kok Yoong, Malaysian artist I met during Biocamp 2018 he was invited to a residency at YCAM. Later I met Takayuki Ito at Biosummit, Boston 2018, he invited me to join YCAM inter-lab volume 3 in 2019 but I couldn't make it.

Leonhard Bertolomeus, a friend from Ruangrupa, Indonesia joined YCAM curatorial team in 2019 after I arrived at a large field in front of the museum. Barto brings me in and kindly gives a tour of all facilities.

Takayuki Ito as director of R&D together with Fumie Takahara and Kazutoshi Tsuda. The Biolab team is the driving force behind experiments with the latest technology and leads the direction of YCAM activities.

YCAM is located in Yamaguchi City with only 200,000 in population, famous for Yuda Onsen found by White Fox according to local legend. Sika deer is a symbol of Yamaguchi as there are more than 2,600 deers in the prefecture.

Supported by the Yamaguchi City, YCAM showcases works from renowned artists from Japan, Ryuichi Sakamoto, Ryoji Ikeda, and many more. I think YCAM is the ideal place for artistic creation with full technological support to push the boundaries of artistic creation. If they choose you.

Kazuhiro Jo helped YCAM to publish scientific papers and acquired research institution status which allow accessing scientific research funding.

Ito san said the goal is to create literacy through technological inspired artistic activities. Extending further from fabrication facilities, research team able to convince a funder to invest in BioLab, I believe YCAM one of the first contemporary art museums in Japan that has a Biological laboratory.

Contact Gonzo is the first project that input artists with Biotechnology knowledge and tools such as DNA synthesis, Epigenetic and etc, the

multi-layers project presented a series of performance, public program, publication, and installation. With such complexity in the concept of works produced it sure gain attention from art and science professionals around the world.

The project outreach to local people is questionable. Barto joins the team to bring his social practices to broaden public programs and working with local audiences.

Ito san told me he currently read books on politic, Fumie san also want to do more field research with biotechnology and Tsuda san want to develop more project related to sustainability. Let's follow their projects

KID NEXT



(Kyushu Innovation Design Next)

[Kazuhiro Jo](#) is a professor at the Sound Design department at Kyushu Design University.

Jo introduces me to Masuda, newly join researcher and together we walk to the lab.

Kyushu design university in Hakata launched the Biolab in 2019, The goal is to open lab for design students, faculty members, and researchers to Bio-Technology equipment for their research and experiment.

We enter KID NEXT through the kitchen, Biolab space is a renovated kitchen area that is still connected to a full-function kitchen.

The facilities are super new and wait for people to make them alive.



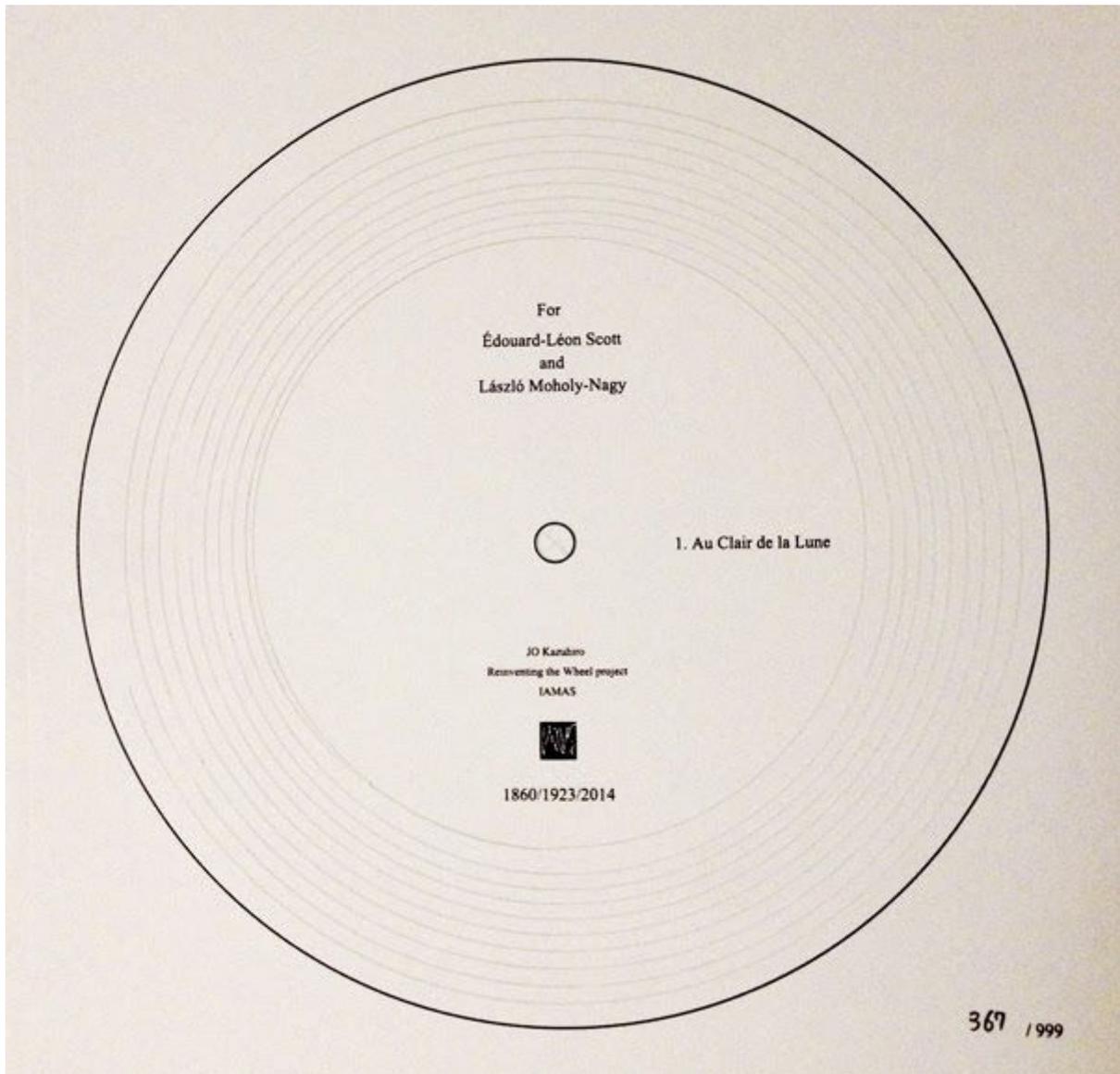
KID NEXT is a brainchild of Jo, I would call him an institution hacker. Jo is a sound artist who graduated from Kyushu Design University years ago. Jo was the first group of people who joined MAX workshop in the 1990s, his project [sine wave orchestra](#) is a collaboration together with long time friends met at MAX workshop.

Jo gave me a tour of different facilities, stone, wood, metal, ceramic workshop, fabrication lab, sound design lab, and anechoic chamber. Jo made it possible for interdisciplinary collaboration and open access for artists to experiment with these facilities.

Chromatophony project from his student Juppo Yokogawa, using electric stimulate squid skin triggering chromatophore to change the pigment of the skin.

Jo teaches a subject that reverse practices from digital to analog, starting from digital design for fabrication, students try to realize their design by hand.

Later Jo let me visit his studio and show me his recent project Jo creates a ceramic sound piece that can be played with a vinyl player. The song that engraved into the ceramic is the ["Au clair de la lune"](#)



though he's an expert in digital music but tracing back and rethink old inventions reflect in his working philosophy.

Fablab Hamamatsu

TAKE Space



Founded in 2011 by Masato Takemura at his family house in the suburb of Hamamatsu, known for the automobile and music instrument industry. Takemura is an engineer who fascinates in DIY creation. Takemura created Fablab and connected with the Fablab network worldwide. He expanded Fablab with Biolab facilities with the goal to explore Biotechnology but so far members still not enthusiastic to play with Biotechnology equipment. Fablab Hamamatsu limited to 25 members who pay membership fees to support the maintenance cost for the tools and machinery.



The monthly gathering is the amazing experience that I had participated in once in March 2020. Members who love to create DIY projects come together to share their creations in a very warm atmosphere. Somehow it's only men who join Fablab's membership. I hope to learn more about this community and how Takemura handles the intertwined member's interests and difficulties in maintaining and sustaining the place.

I first met Takemura in 2019 we are in the same group of fellowship at Biosummit. He hosted "How to eat almost everything" workshop which is fun but not for the fainted heart. Our group created the "Free Radicals" project aimed to be a platform for protocols sharing, breaking knowledge boundaries. After the BioSummit our group dispersed and the project discontinued. With the challenge of time and location which paused us from continuation.

Takemura is interested in exotic culinary, my interest in food is at the level of an enthusiast, I can give him a tour of Thailand exotic foods, though my stomach roars with an alarm. We both want to explore Bio-Technology in our life and in the near future we will make it happen.

Akihiro Kubota

Artist/Professor at Tama Art University



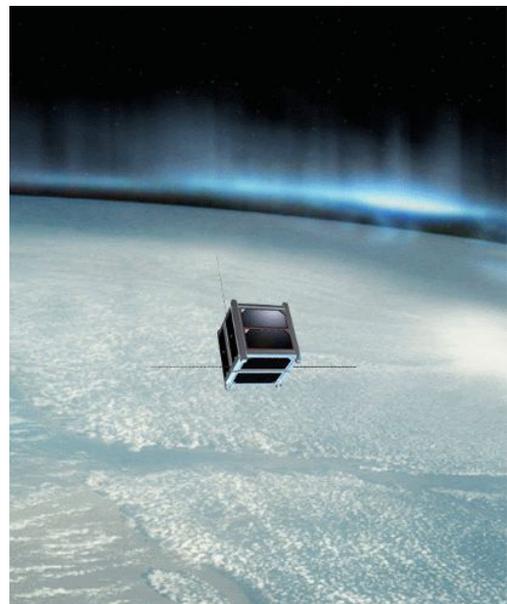
Kubota san is fascinated with cutting edge technologies and experiments. He got Ph.D. in Hyspeed Fluid dynamic, eavesdropping acoustic of submarine propeller leading him to the realm of sound creation, Kubota san also known from his live coding sound performance and ARTSAT project.

In 1992 after receiving his Ph.D. he joined as design/scientist at RACE (Research into Artifact Center Engineer) at Tokyo University led him hands-on cutting edge digital fabrication at that time. He started teaching programming in 1998 and [archive on his sound project](#) and artistic project created from laptop began around the year 2000.

In 2007 Kubota san met with Iwasaki san and they found Bioart.jp which is a platform for discussing BioArts, at the same time Kubota san is a professor at Tama Art University, He opened a Biological Laboratory for Art students to experiment.

In 2014 His project [ARTSAT](#), the first art satellite project that launched on earth orbit the work as the satellite will collect data and feed it live back to earth where everyone can access the data. DESPATCH, a sculpture that traveled deep into space. Kubota san told me this project is the artwork for non-human in deep space.

Kubota san talked about the "AGENCY" which has generative quality such as an open-source project which everyone can build further, an agency that stimulate intelligence, a data that can be self generate,



His goal is to democratize the technologies by creating open-source projects and reducing costs for individual accessibility.

Kubota san told me since now everyone can have affordable decent quality 3d printers and biotech tools such as PCR at home. In the near future, we will have personal satellites and even personal aliens.

Community and Sustainability

I want to talk about “community” in a sense that people who like/love similar things, joining and doing activities together whether it’s learning, discussing ideas, showing their works, and discovery.

Community space often link with their founder and people who use their own resources to culturing her/his

When Hideo founded metaPhorest and together with Akihiro they initiated Bioart.jp I suspect that it was their joint enthusiasm in creating a platform for DIYBio conversation.

metaPhorest is hosted at Hideo lab at university, members are artists interested in Natural Science. The core of metaPhorest undeniably is Hideo who enables artists to learn and experiment with technology under his proper guidance.

Playing and experimenting with Biological materials require ethical and safety knowledge. This is the baseline for the DIYBio and Community Lab. metaPhorest is an example of the safety net before things go wrong.

While Bioclub is connected to Georg and Chiaki, Georg is also a member of metaPhorest. Bioclub links different layers of DIYBio people locally and internationally. Georg actively participated in different activities not only as an artist but also jury for Japan Media Art Awards, and many international projects related to DIYBio (Biocamp, Biosummit, Hackteria, Biodesign Challenge, JOGL, etc.)

In March 2020 Bioclub is facing administrative difficulties, due to mutual agreement from stakeholder hasn’t come into conclusion, Loftwork the owner of the space would like Bioclub to work with corporate to secure substantial income. While Georg and Chiaki direction of Bioclub unable to communicate further, therefore Bioclub through Georg and Chiaki continues with their individual activities.

Sustaining the space without financial burden is a blessing, Sustaining friendship integrity also question of time. Fablab Hamamatsu founded by Takemura own resources for his love of DIY movement. Though the cost of equipment is cheaper every year, investing in the latest equipment is still difficult from a private entity, Biotechnology equipment and materials can be very expensive. Fablab Hamamatsu members contribute membership fees and voluntarily help maintain equipment. Fablab Hamamatsu keep their own autonomous by its members.

metaPhorest, Tama Art University, and KIDNEXT make those technologies accessible for artists and designers to fulfill education purposes. YCAM as a public institution acquired research institution status and qualified itself for scientific research grants, helping themselves from financial constraints therefore as a public institution, the contribution of their activities to the people in the Yamaguchi city is an obligation to fulfill.

Book

[NONHUMAN AGENTS IN ART
SPECULATIONS](#)

Exhibition

[Future and the Arts: AI, Robotics, Cities, Life - How Humanity Will Live
Tomorrow](#)

[What Is True Affluence, What Is It to Be Human, What Is Life?](#) - Mori Art Museum

[This research is an ongoing online open access here](#)

Thank you

Japan Foundation Asia Center

Japan Foundation Bangkok

metaPhorest

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