Change of perspectives: DIY Biology, and the Idea of Umwelt

- the biological theory of Umwelt,
- the practices of DIY biology,
- and the broader framework of democratizing art that we discussed in the previous session

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DIY-BioLab at BUW

The DIY Biolab is a working environment equipped with professional laboratory equipment to perform (micro)biological experiments. For example, plants, algae and fungi as well as harmless microbes can be cultivated and researched here. The laboratory has a solid basic equipment (glassware, scales, centrifuges, microwave, heating stirrer, incubator, etc.) as well as a sterile workbench and two powerful microscopes.

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Rainwater Garden at BUW

The creation of a rainwater pond made space for the emergence of a small ecosystem and provided additional motivation to study that ecosystem.

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PostCompost – Forest Reset / Course

European forests are increasingly revealing the consequences of large-scale monocultures. Bark beetles thrive under these conditions, reproducing largely unchecked, while rising soil dryness weakens trees' defense and self-healing capacities. At collectively coordinated intervals, large-scale posters are layered onto the surface of a freestanding billboard, extending and materializing the project's ongoing research process.

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Demokratization of Art. Tools

Most of the tools Gaudi Labs uses are do it your self (DIY) and open source and are built from widely available and recycled parts found in consumer products such as DVD drives, hard disks and pc fans. Building the specific devices further helps to understand the basic principles behind and learn more about the technologies and methods used.

https://www.gaudi.ch/GaudiLabs/?page_id=328

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Umwelt

Can we ever access another organism’s Umwelt?
Is DIY biology reproducing institutional paradigms?
How about the Umwelt of Machines?

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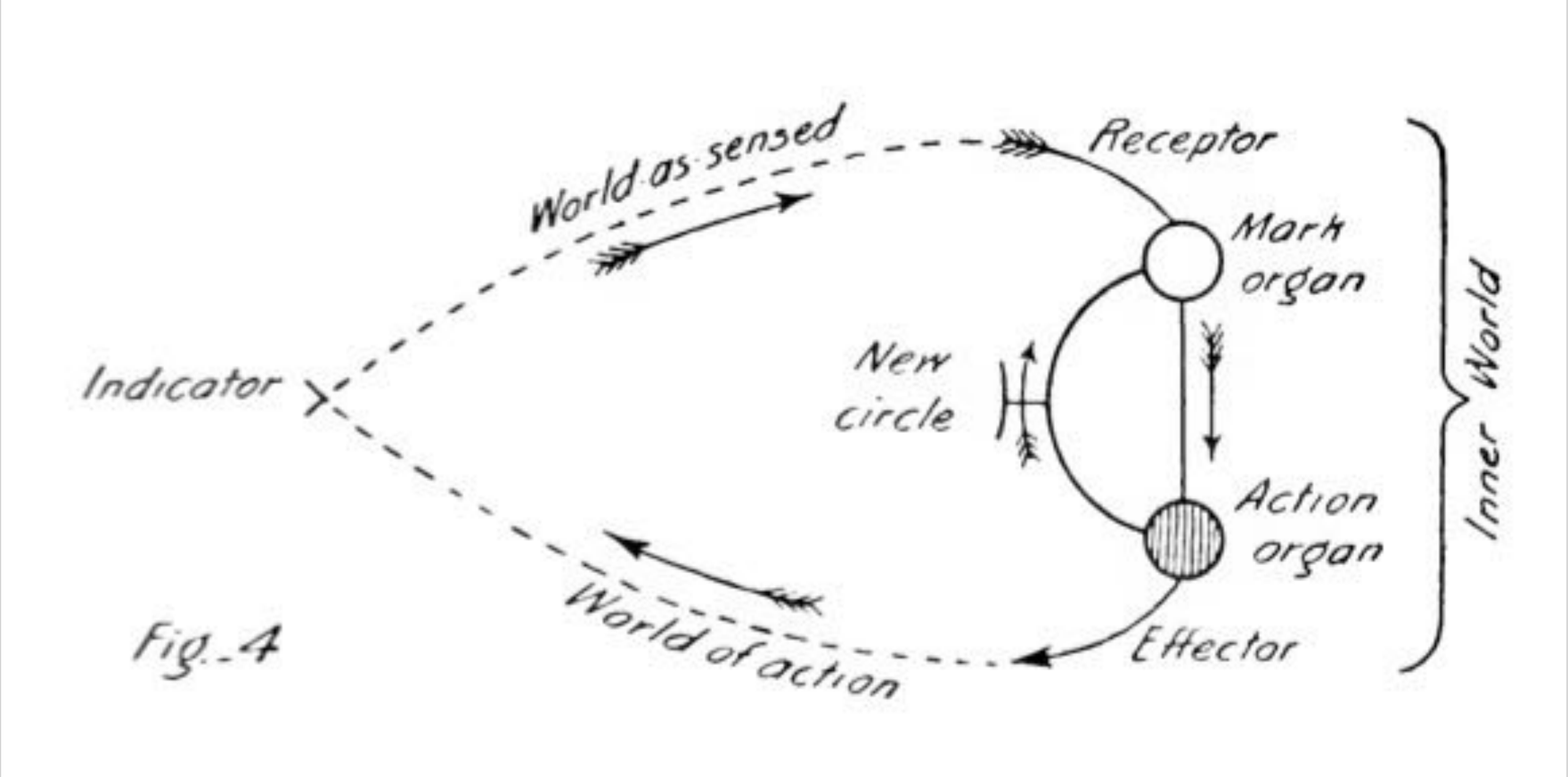
Umwelt



Jacob von Uexküll, *Theoretical Biology*, 1926, p157

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Umwelt

Jacob von Uexküll, *A Stroll Through the Worlds of Animal and Men*, 1934, forester and oak tree (left), p74, ant and oak tree (right) p78

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DIY Biology

Do-it-yourself biology (DIY biology, DIY bio) is a biotechnological social movement in which individuals, communities, and small organizations study biology and life science using the same methods as traditional research institutions.
https://monoskop.org/DIY_biology
https://en.wikipedia.org/wiki/Do-it-yourself_biology

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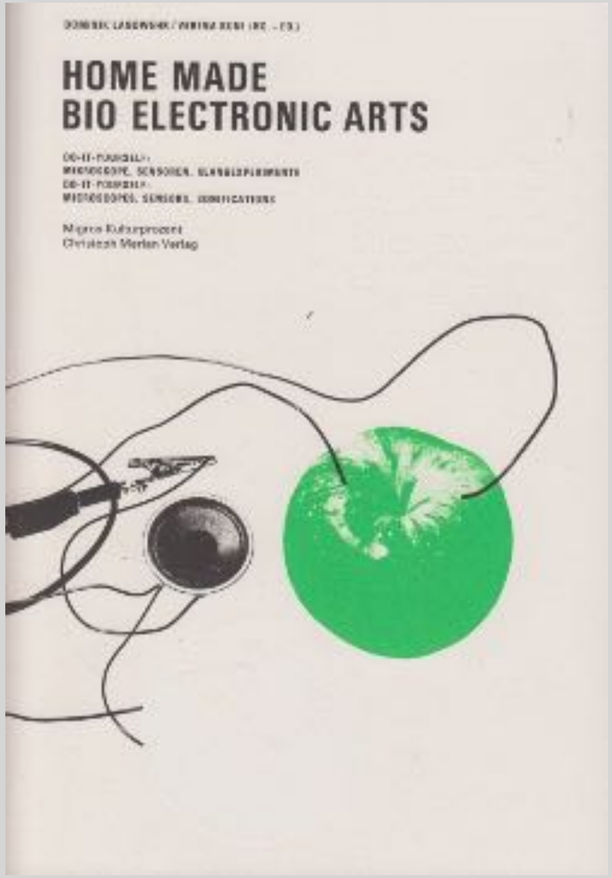
***HOME MADE BIO ELECTRONIC ARTS*. Eds. Verena Kuni & Dominik Landwehr, Basel 2013**



"Science for everyone" is the motto of a new movement involving biology and electronics. Here the do-it-yourself approach that is already well-established in the electronics and computer scene is applied to the field of natural sciences, often blurring the borderlines between science and art.
https://www.kuni.org/v/publications/data/910

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Hackteria

The aim of the Hackteria project is to develop a rich wiki-based web resource for people interested in or developing projects that involve bioart, open source software/hardware, DIY biology, art/science collaborations and electronic experimentation.
https://www.hackteria.org/about/

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Microorganisms and Their Hosts

Gallery “Atletika”, Vilnius, 2020. Photo: Andrej Vasilenko

Das Projekt untersucht, wie ausgewählte Mikroorganismen uns beeinflussen und wie wir die Mikroorganismen beeinflussen.

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Microorganisms and Their Hosts

Proposal for Microbial Therapy. Photo: Andrej Vasilenko

Die Installation „Proposal for Microbial Therapy“ besteht aus zwei Aquarien mit Joghurt: Das erste ist mit *Lactobacillus reuteri* und das zweite mit *Streptococcus thermophilus*-Bakterienstämmen besiedelt. Die Aquarien sind mit einer Elektronik verbunden, mit deren Hilfe die Veränderung des pH-Werts verfolgt werden kann.

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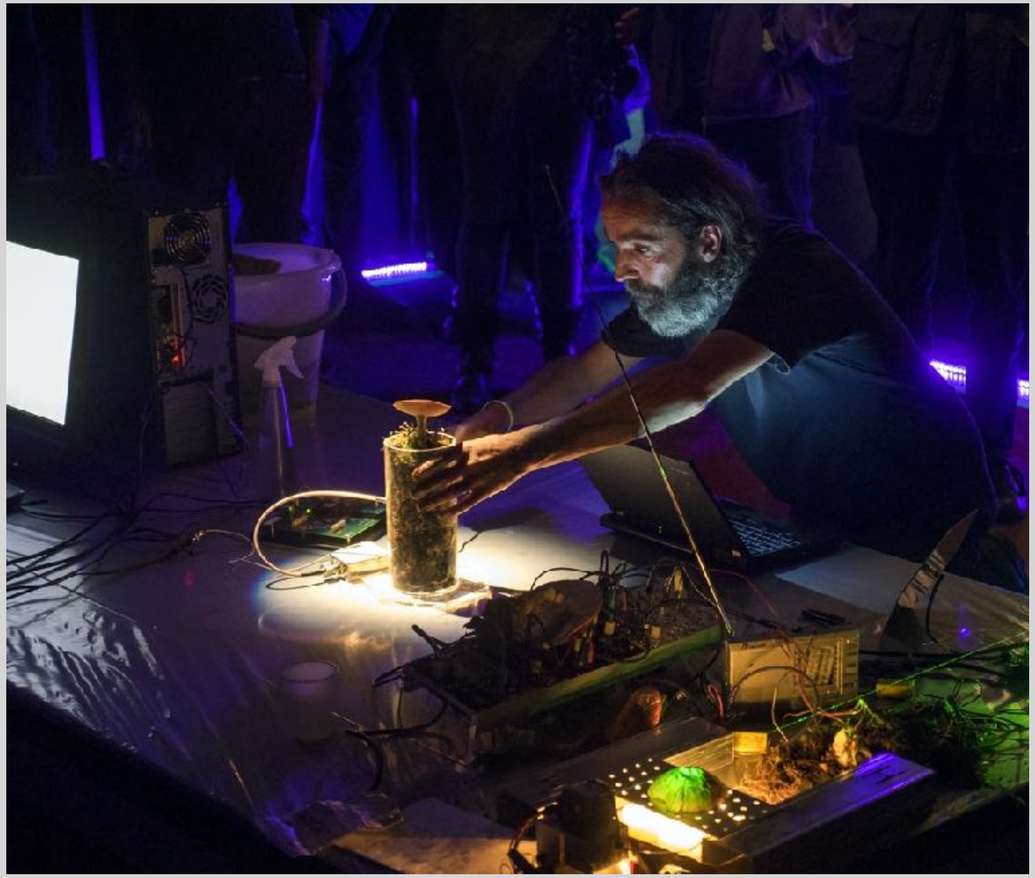
***Radio Mycelium Array [RMA]*, 2017+. Martin Howse**



“Conventional radio telescope arrays make use of a technique called interferometry to combine signals received on multiple smaller antennas… In the case of the RMA, the arrayed Amanitas act as receiving antennas for deep space signals, to be combined in underground mycelial electrochemical signals.” https://www.1010.co.uk/org/RMA.html

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Biotricity. Bacteria Battery #5. Rasa Šmite un Raitis Šmits

Biotricity sonifies the process of generating electricity from bacteria living in pond and lake, or in common, everyday waste water. The microbial fuel cells is the next-generation bio-technology that converts chemical energy to electrical energy by using microorganisms.

https://smitesmits.com/BacteriaBattery5.html

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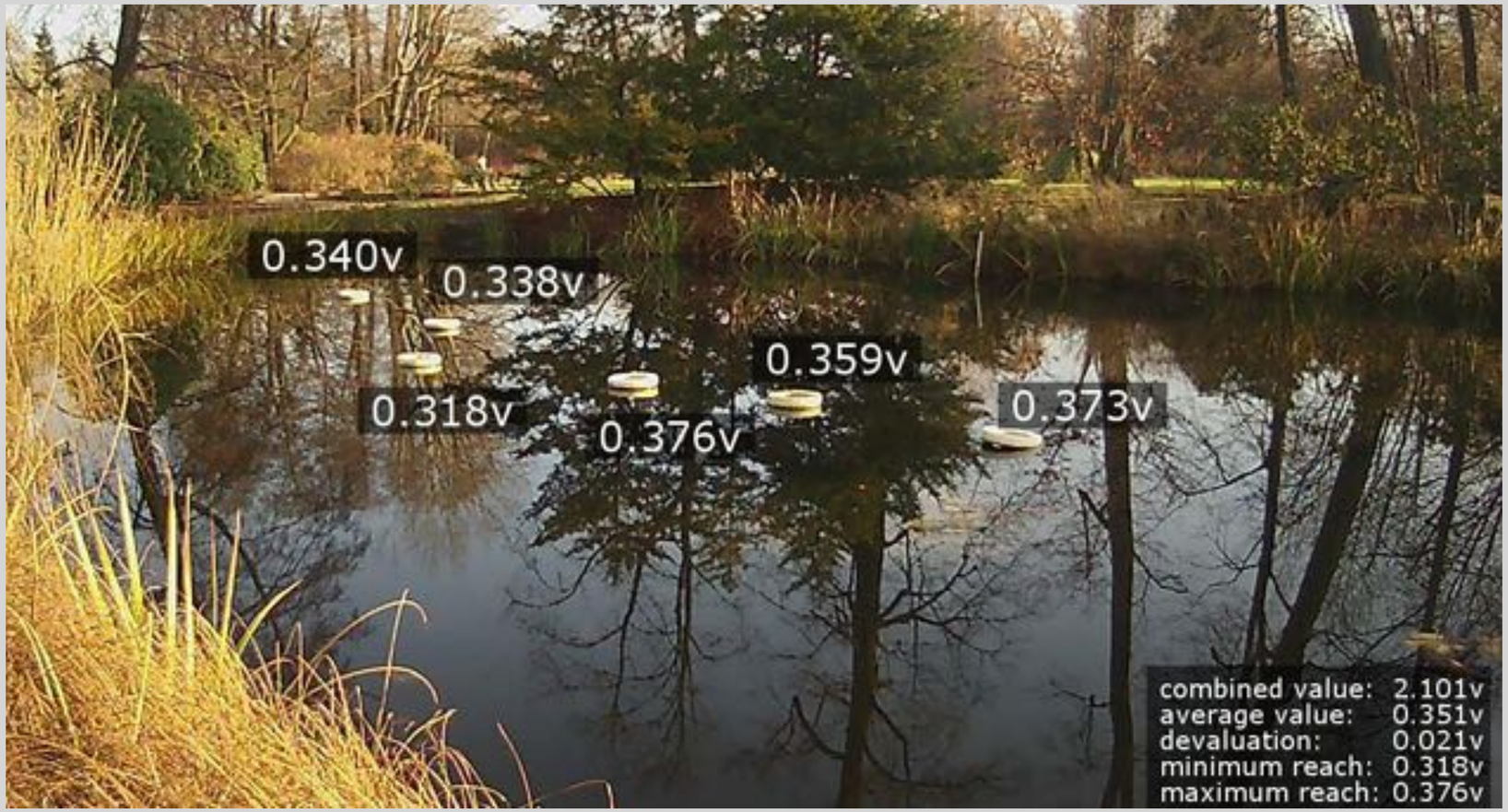
Biotricity. Pond Battery. Rasa Šmite un Raitis Šmits



The installation "Biotricity" consists of two bacteria battery cells where electricity is produced by microorganisms that live in the mud. The fluctuations of bacteria electricity are shown in realtime visualisations and two channel sound. https://rixc.org/en/artbase/0/biotricity-pond-battery/

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***Milk Project (MilkLine)*. Esther Polak, Ieva Auzina and RIXC (NL/LV)**

"The *MilkLine* is one of the countless movements of the international food trade, in this case milk, produced by Latvian farmers, made into cheese by a local factory with the help of an Italian expert, transported to the Netherlands, stored in a charming Dutch cheese warehouse to ripen, sold at the Utrecht market and finally eaten by Dutch citizens." http://Rixc.lv, photo: https://milkproject.net/

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Discussion

Can we meaningfully engage with another organism’s Umwelt?

Where does collaboration end and instrumentalization begin?

Does DIY biology truly democratize knowledge, or does it reproduce existing paradigms?