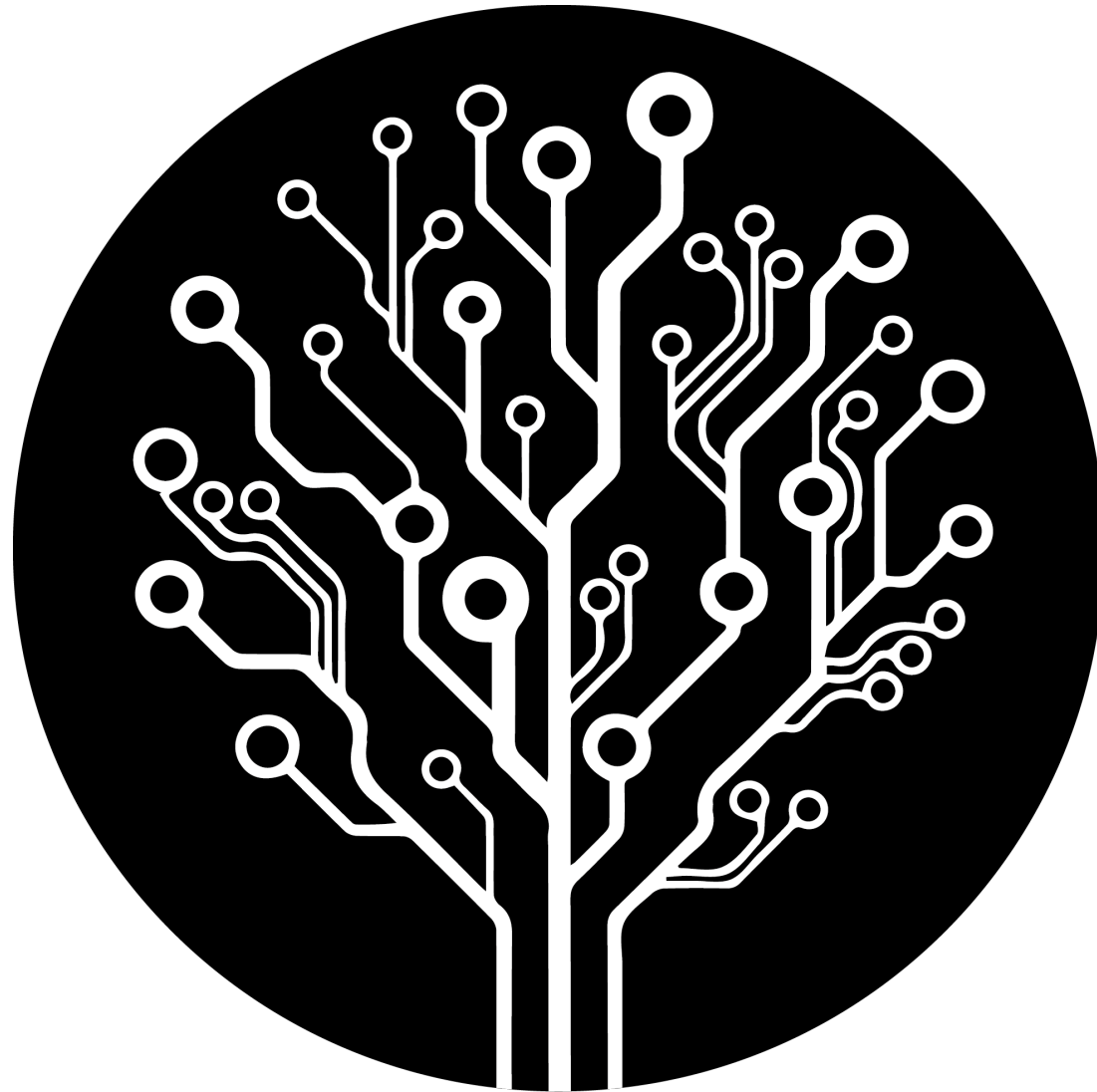
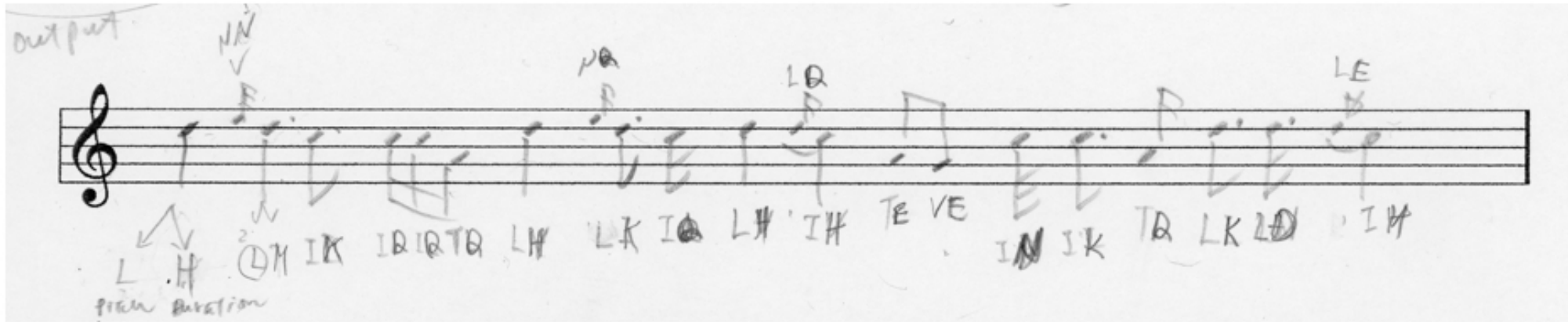




**biohack
academy**



1.音楽をDNA塩基配列に変換



Note No.	1		2		3		4		5		6	
	Pitch (Frequency)	Duration	Pitch (Frequency)	Duration	Pitch (Frequency)	Duration	Pitch (Frequency)	Duration	Pitch (Frequency)	Duration	Pitch (Frequency)	Duration
Pitch/ Duration	D5	1/4	E5	1/32	D5	1/4+1/8	C5	1/8+1/16	C5	1/16	C5	1/16
Amino Acid -	L - 1	H - 1	N - 1	N - 2	L - 2	M - 1	I - 1	K - 1	I - 2	Q - 1	I - 3	Q - 2
DNA codon	TTA	CAT	AAT	AAC	TTG	ATG	ATT	AAA	ATC	CAA	ATA	CAG

TTACATAATAACTTGATGATTAAAATCCAAATACAG...

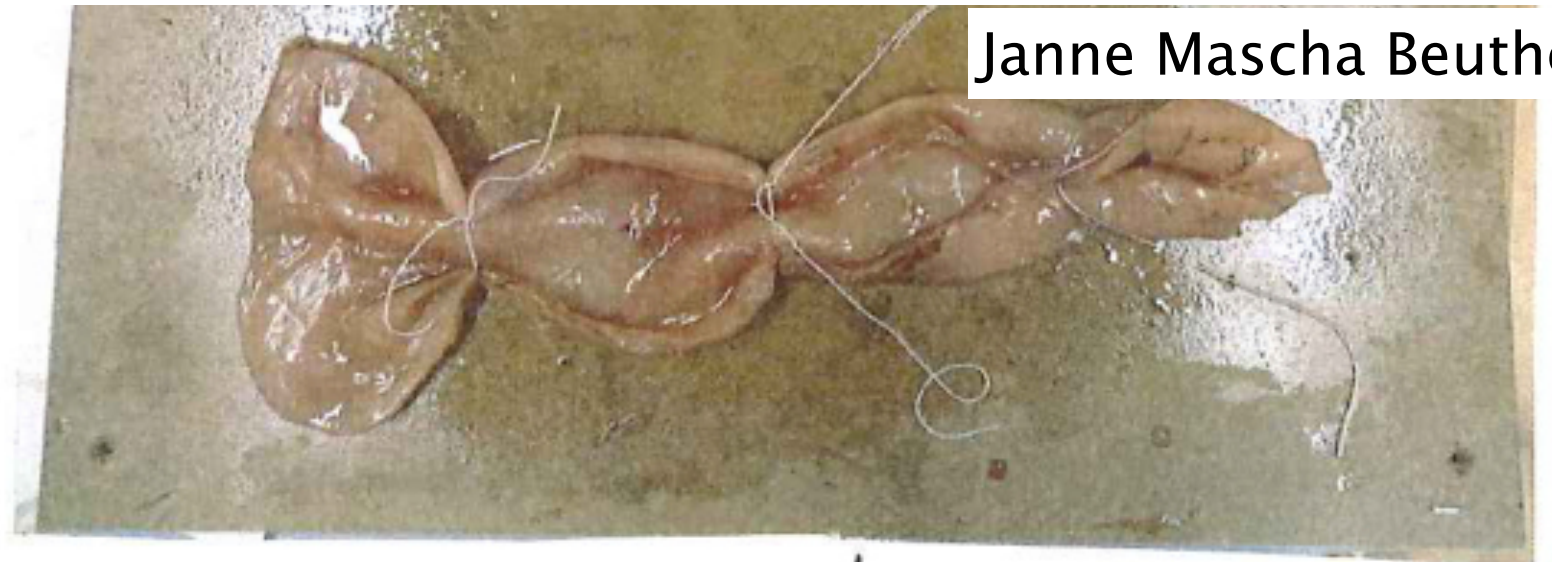


Experimenting with biomaterials

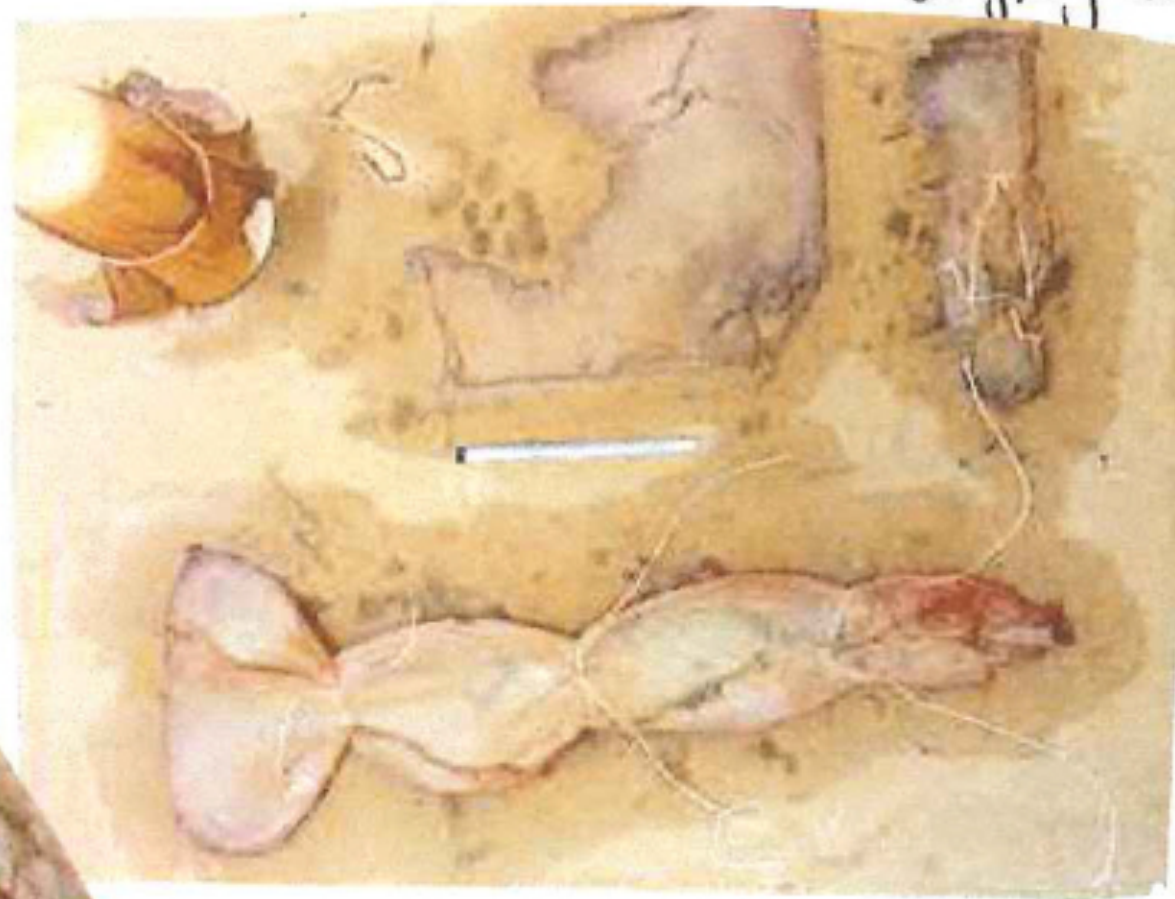
Janne Mascha Beuthel



after
4 days



drying in shape objects
from 15.04



after 4 days
16.04.
cup, piece dry,
the rounded ones
not dried yet





Design intelligent infrastructure

Jan-Maarten Luursema





DIY Biohack Academy kit

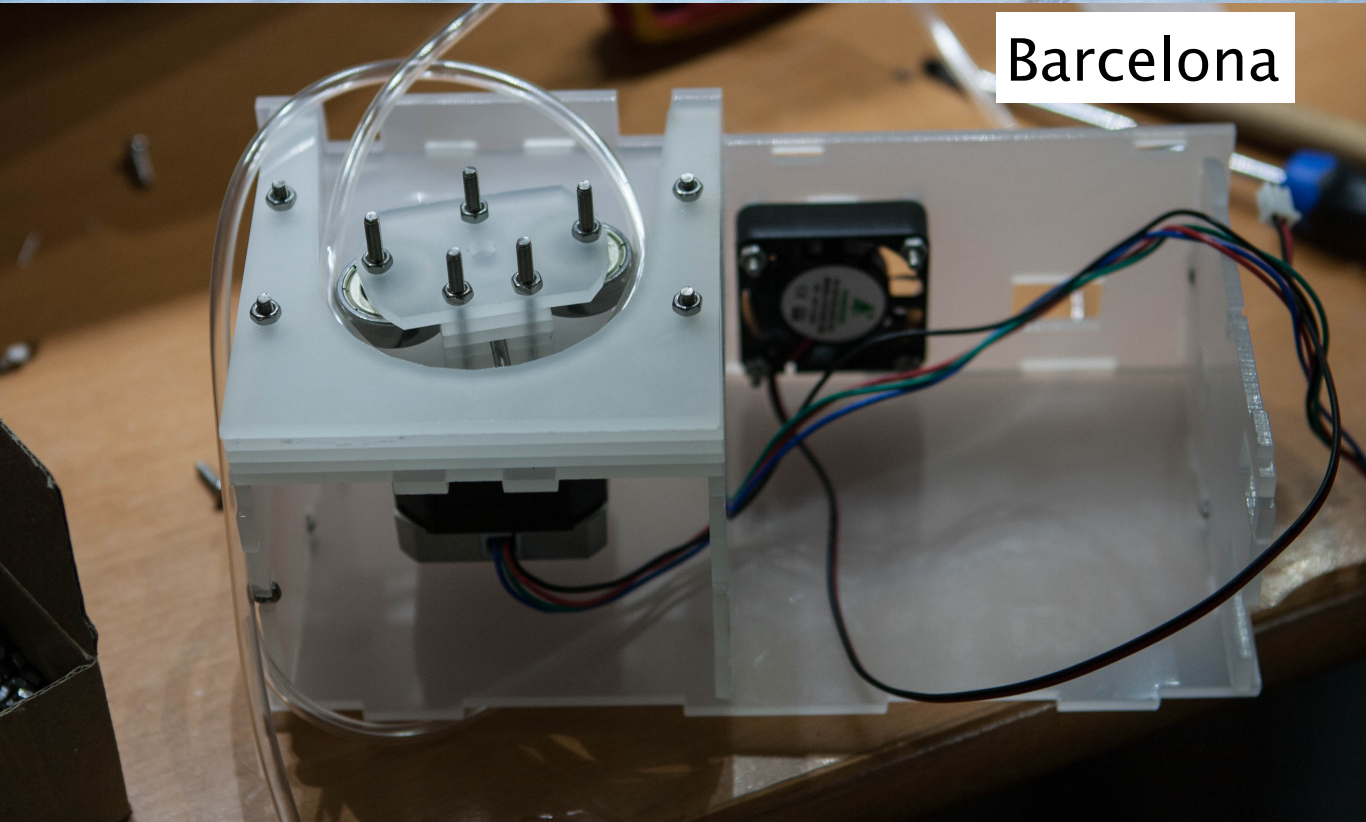




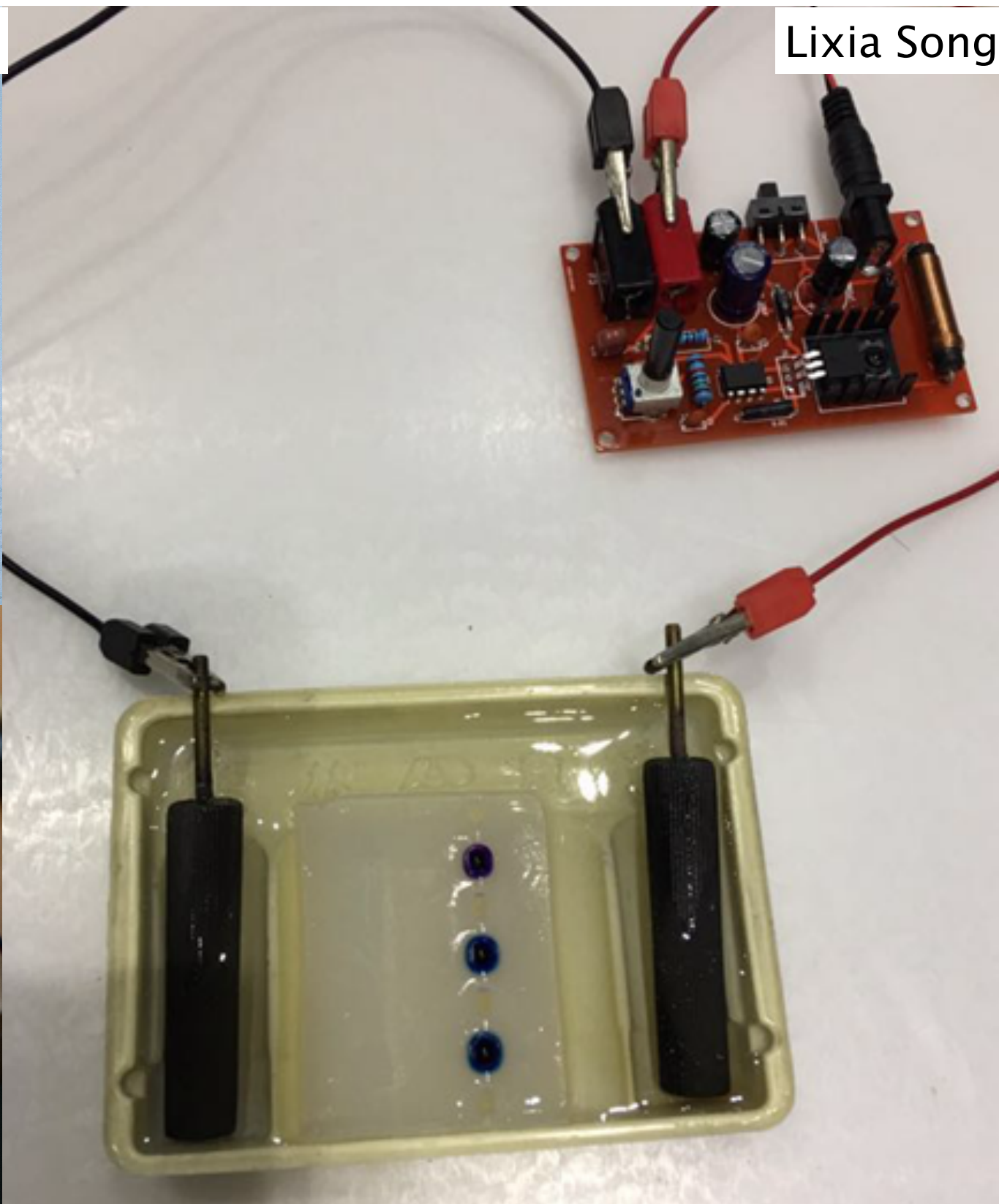
Invent new lab tools



Akio Ohta



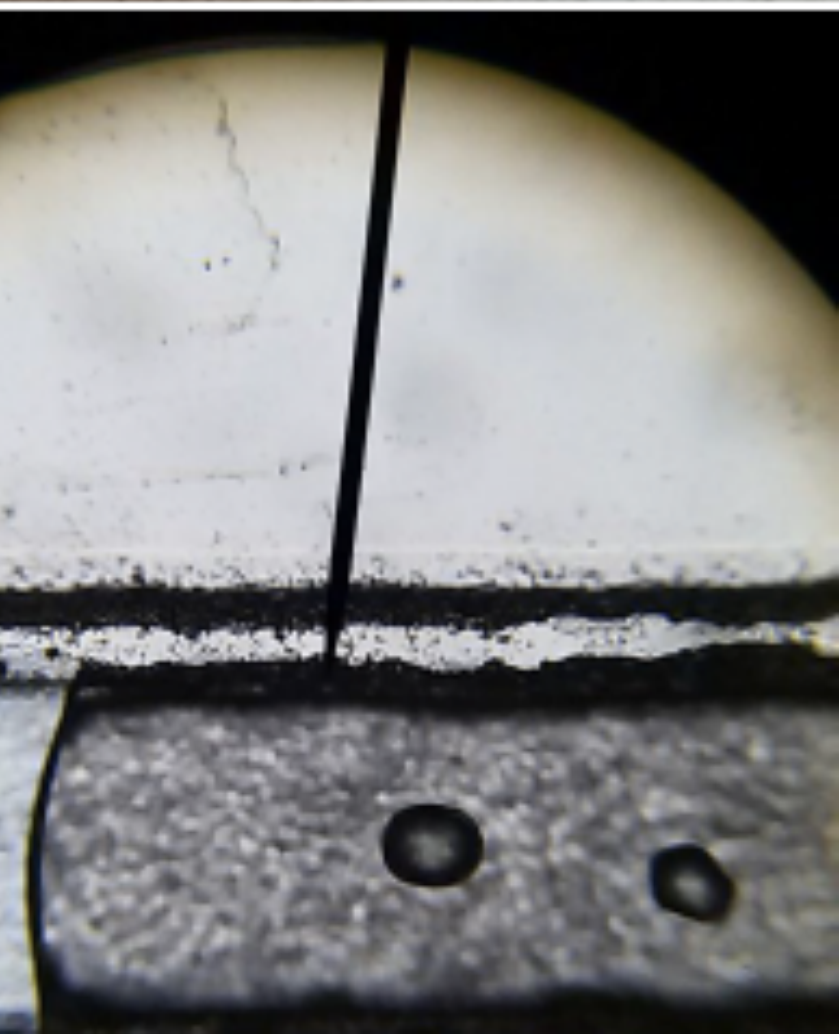
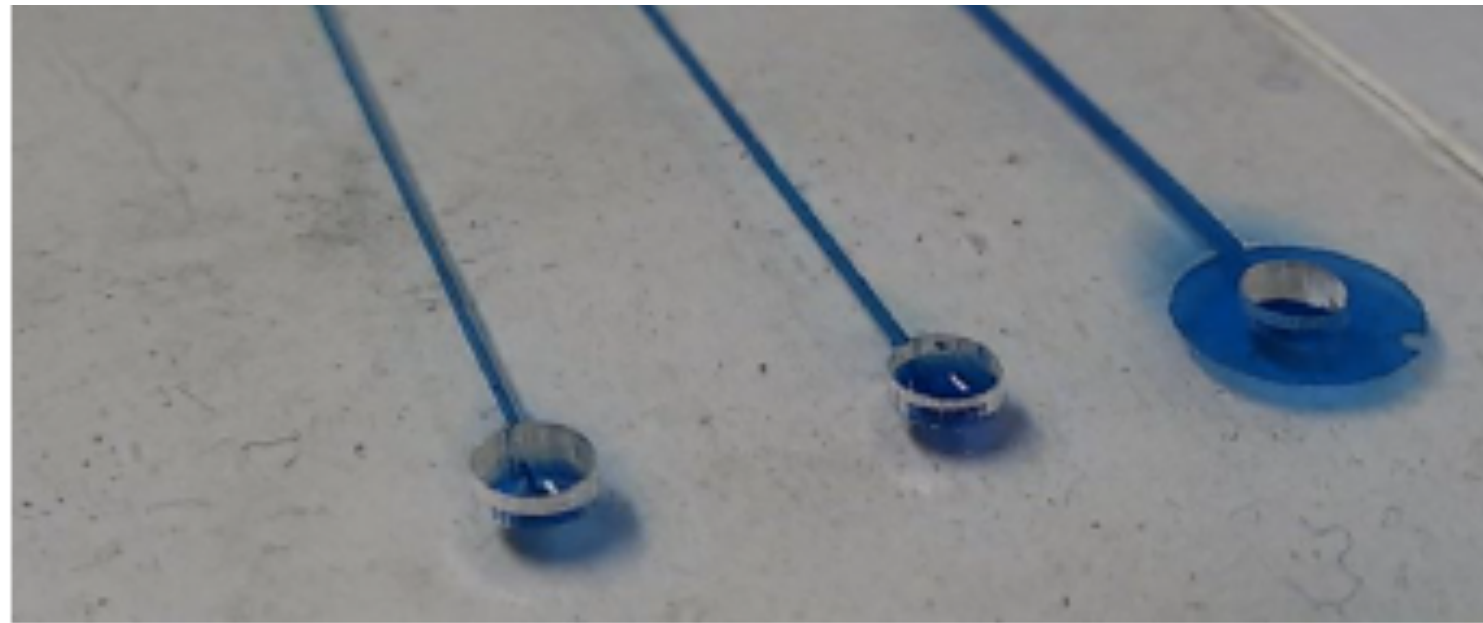
Barcelona



Lixia Song



Experiment with microfluidic chips



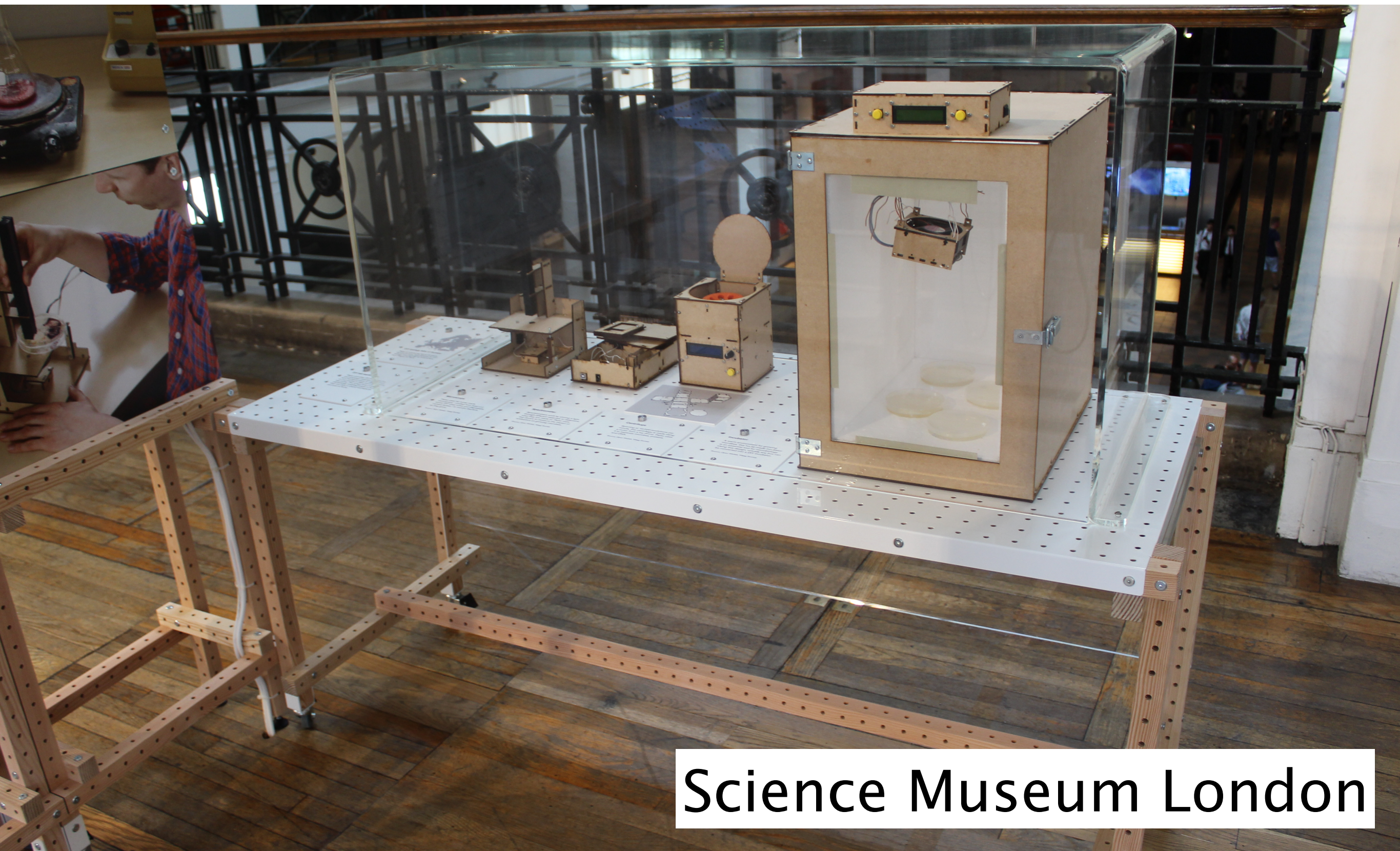


Video track plant growth





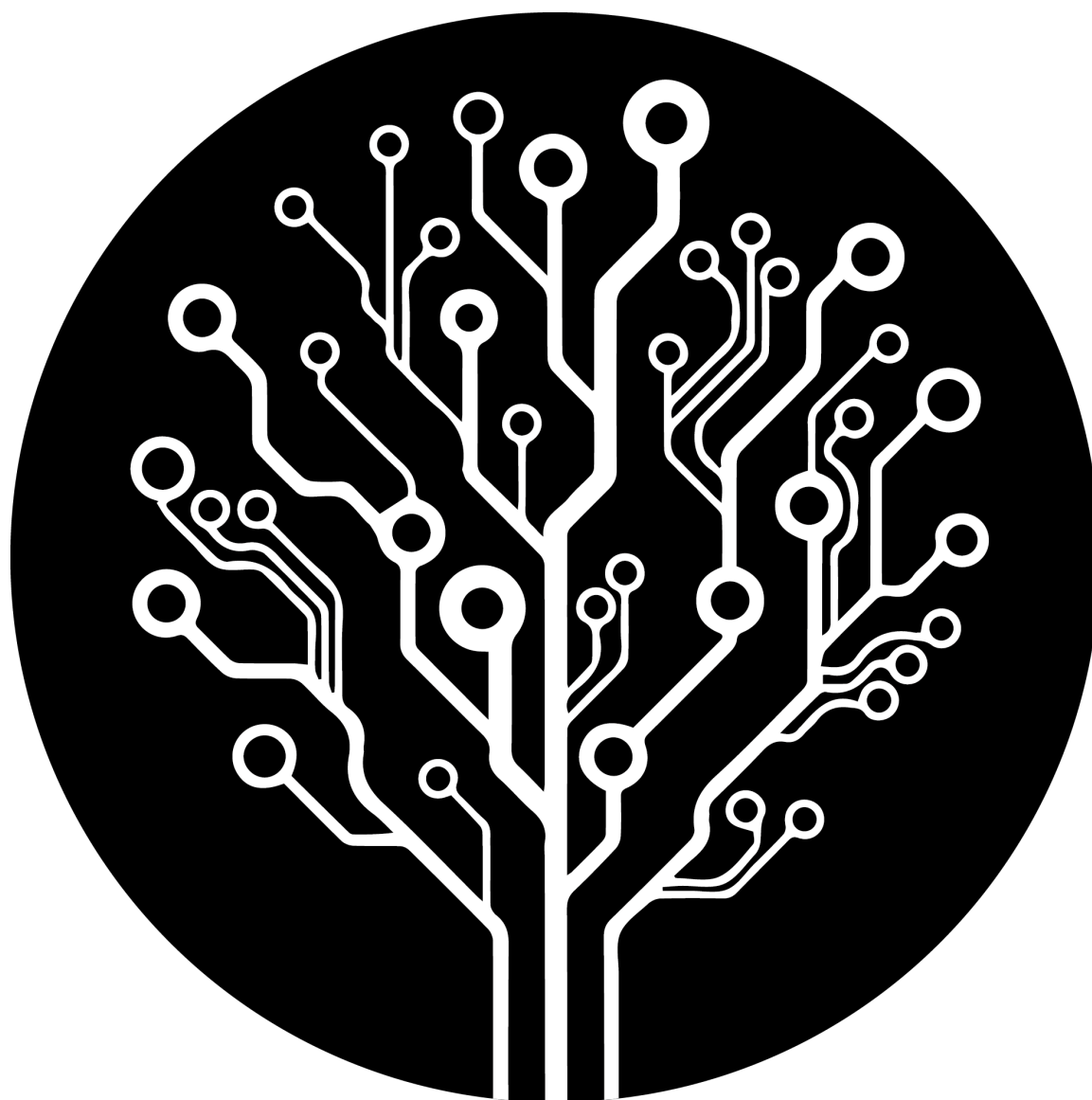
End up in galleries & museums



Science Museum London



Welcome – ようこそ – Bienvenido – Bienvenue
Wilkommen – خوش آمد – Welkom



**biohack
academy**





Today's schedule

- Introduction
- History of Biohacking
- Biosafety
- 3D design tools
- Sterile hood design



The Challenge

Build your lab

Use it

Share it



Build a lab



biohack academy
waag society

Open Source BioHack Kit

Sterile Hood

Centrifuge

Microscope

Incubator

Webcam
Microscope

Thermocycler

Syringe Pump

Stirrer

Webcam Spectrometer

Arduino
Spectrometer

Peristaltic Pump

Plz fork, hack and share
github.com/BioHackAcademy



Everything Open Source



This repository Search

Pull requests Issues Gist



BioHackAcademy / BHA_Stirrer

Unwatch 4

Star 2

Fork 7

Code

Issues 0

Pull requests 0

Projects 0

Wiki

Pulse

Graphs

Settings

BioHack Academy Magnetic Stirrer

Edit

14 commits

2 branches

1 release

1 contributor

GPL-2.0

Branch: master

New pull request

Create new file

Upload files

Find file

Clone or download

PieterVanBoheemen BHA4 update

Latest commit ed9670a on Dec 16, 2016

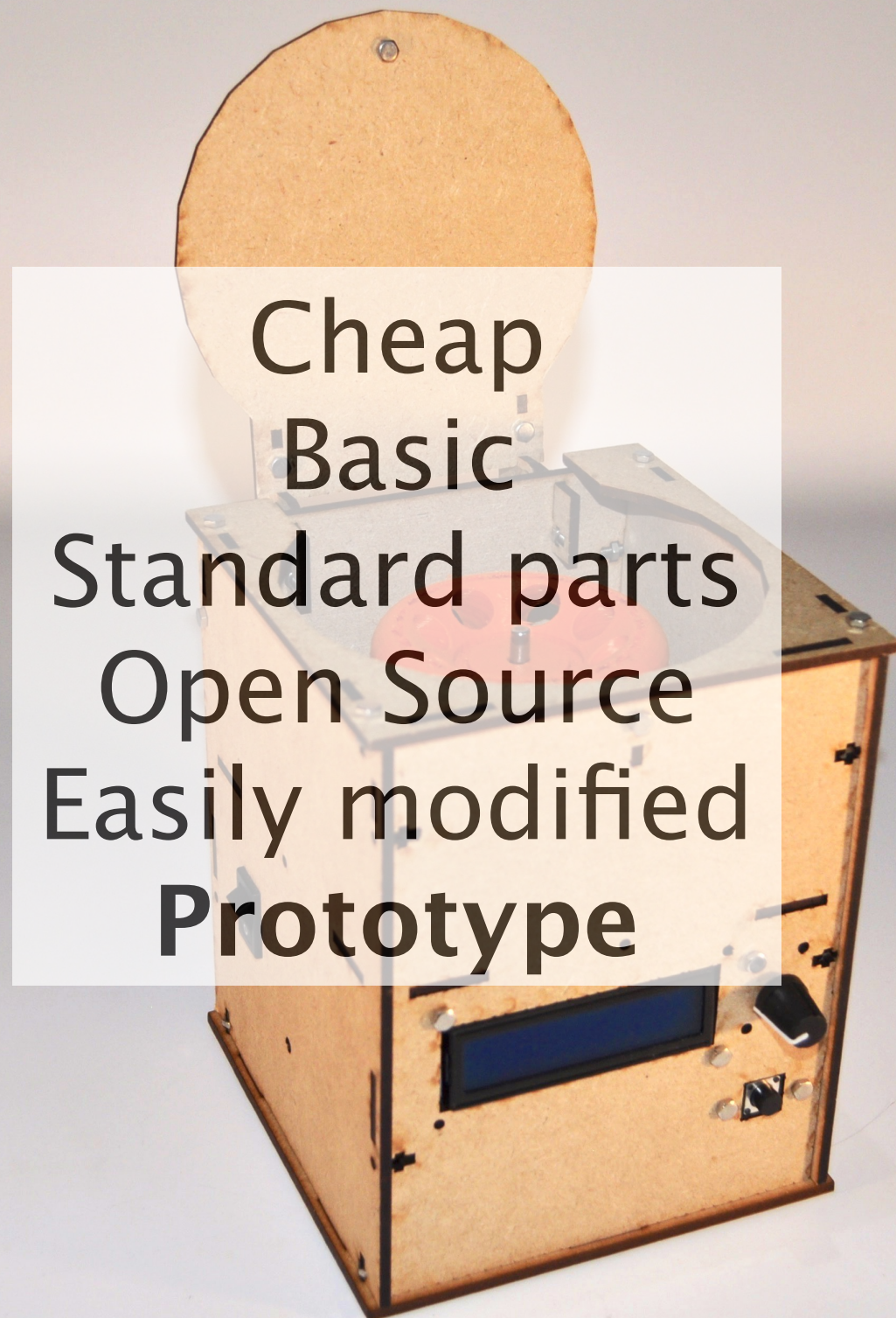
Pictures	pictures + assembly guide	11 months ago
BoM.md	BHA4 update	2 months ago
LICENSE	init	2 years ago
Magnetic Stirrer-Cut-Sheet.svg	BHA4 update	2 months ago
Magnetic-Stirrer-Fritzing.fzz	BHA4 update	2 months ago
Magnetic-Stirrer-Sketchup.skp	BHA4 update	2 months ago
README.md	BHA4 update	2 months ago
Stirrer-Assembly.pdf	pictures + assembly guide	11 months ago

README.md

BHA Stirrer



The difference



Cheap
Basic
Standard parts
Open Source
Easily modified
Prototype



Robust
Tested
Safe
Idiot proof
Warranty
Daily use



Use your lab



Waag Society - CC-BY-SA 4.0



Waag Society - CC-BY-SA 4.0



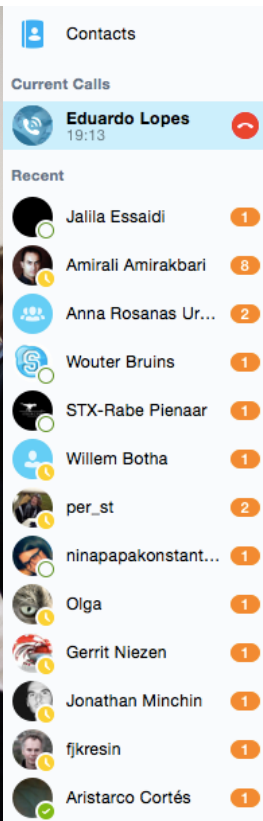
Waag Society - CC-BY-SA 4.0

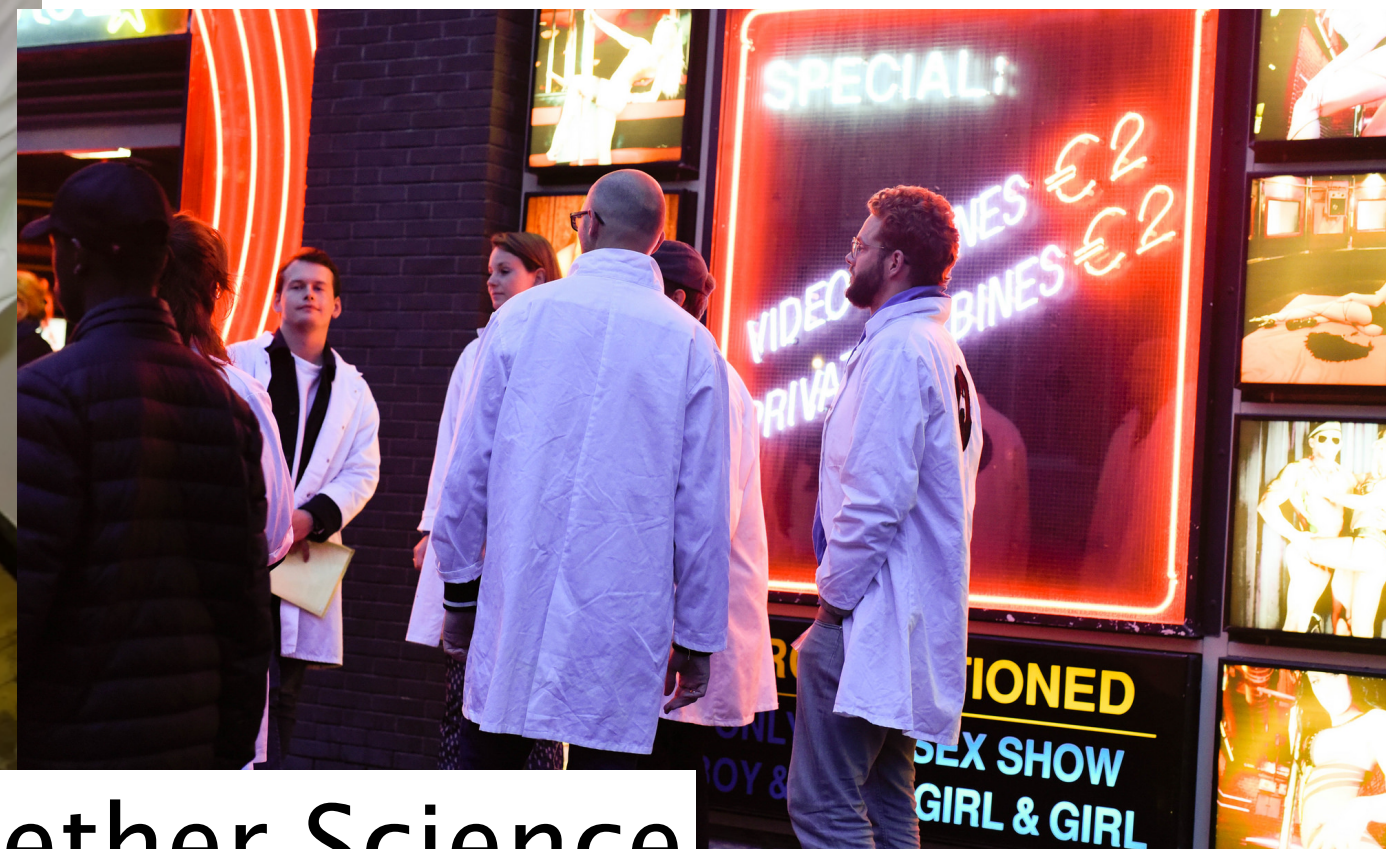


Future Everything - CC-BY-SA 3.0

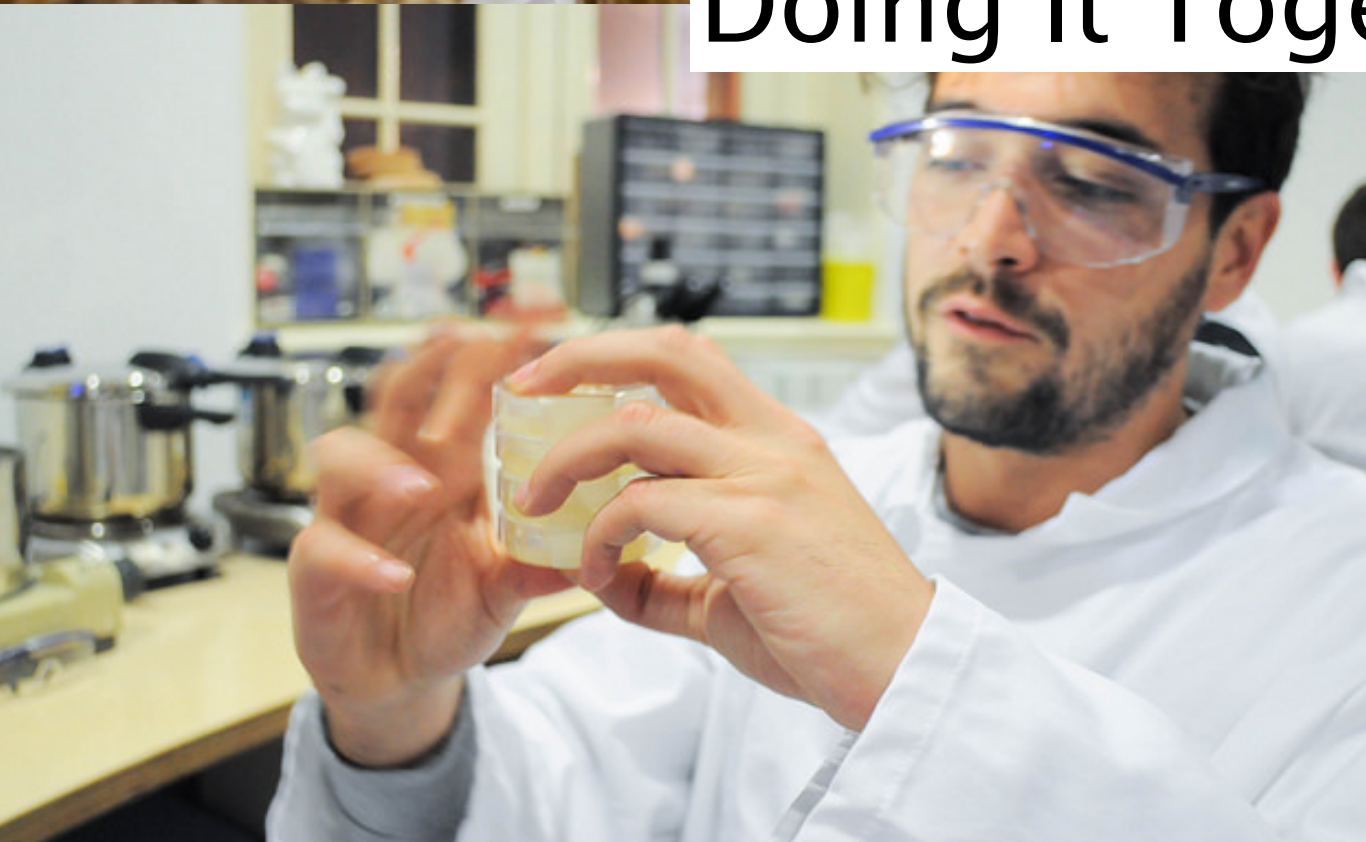


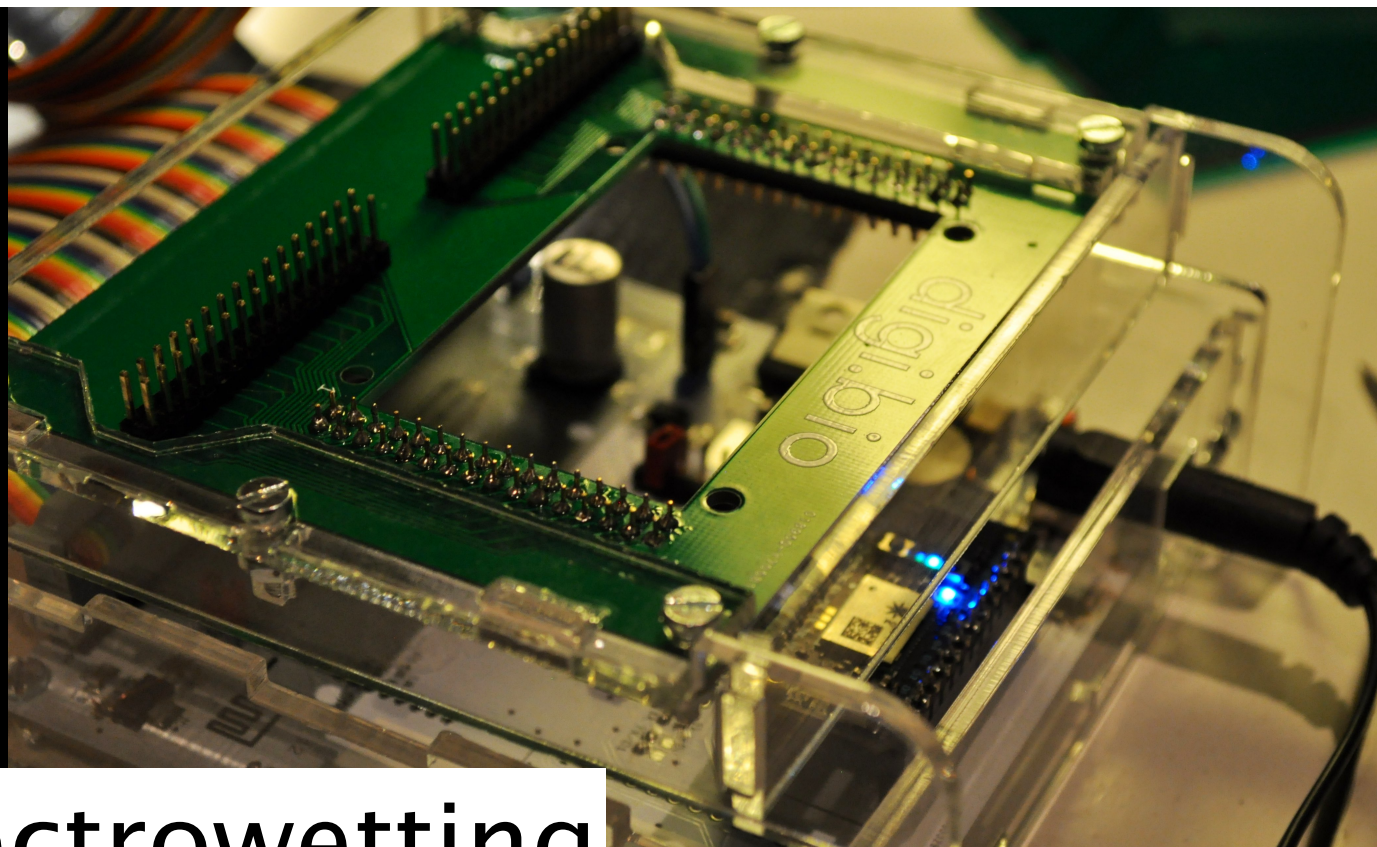
Share it



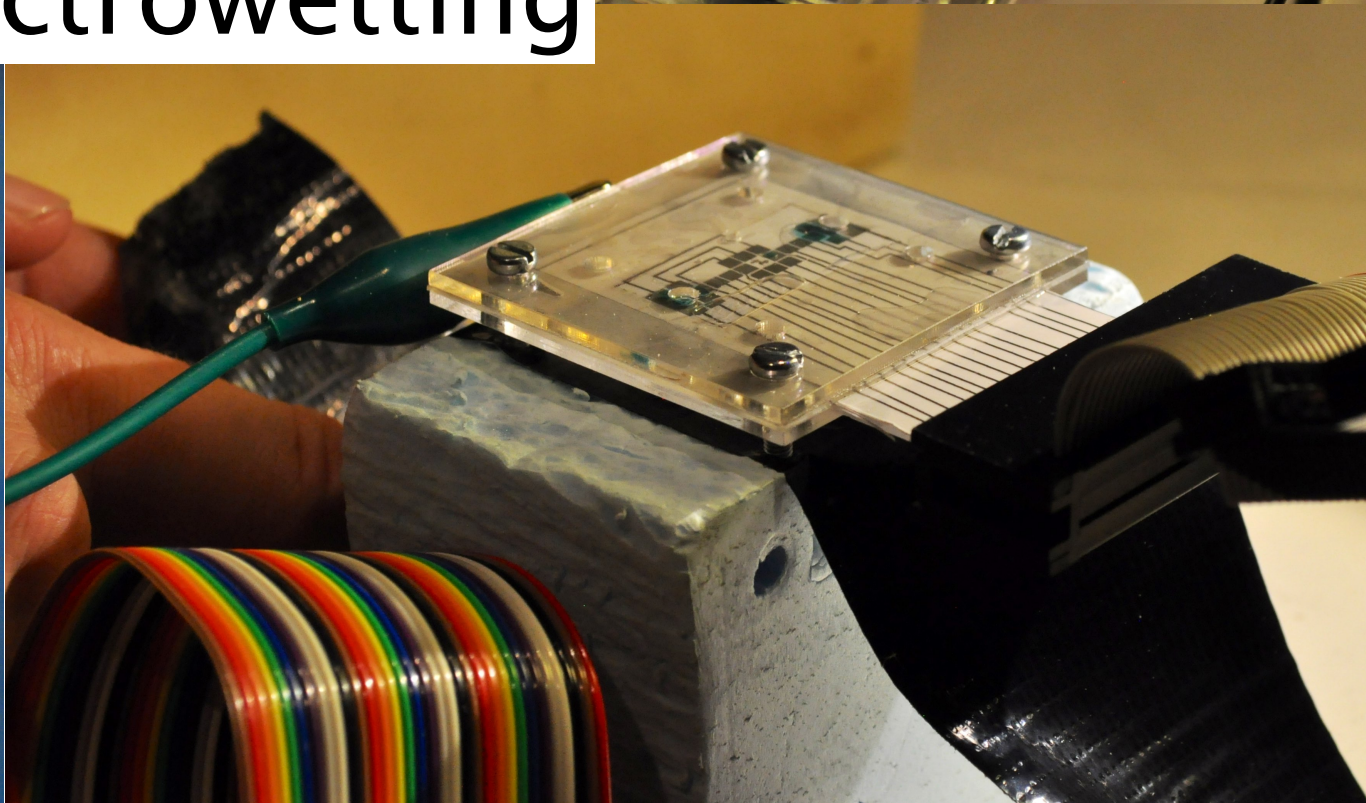
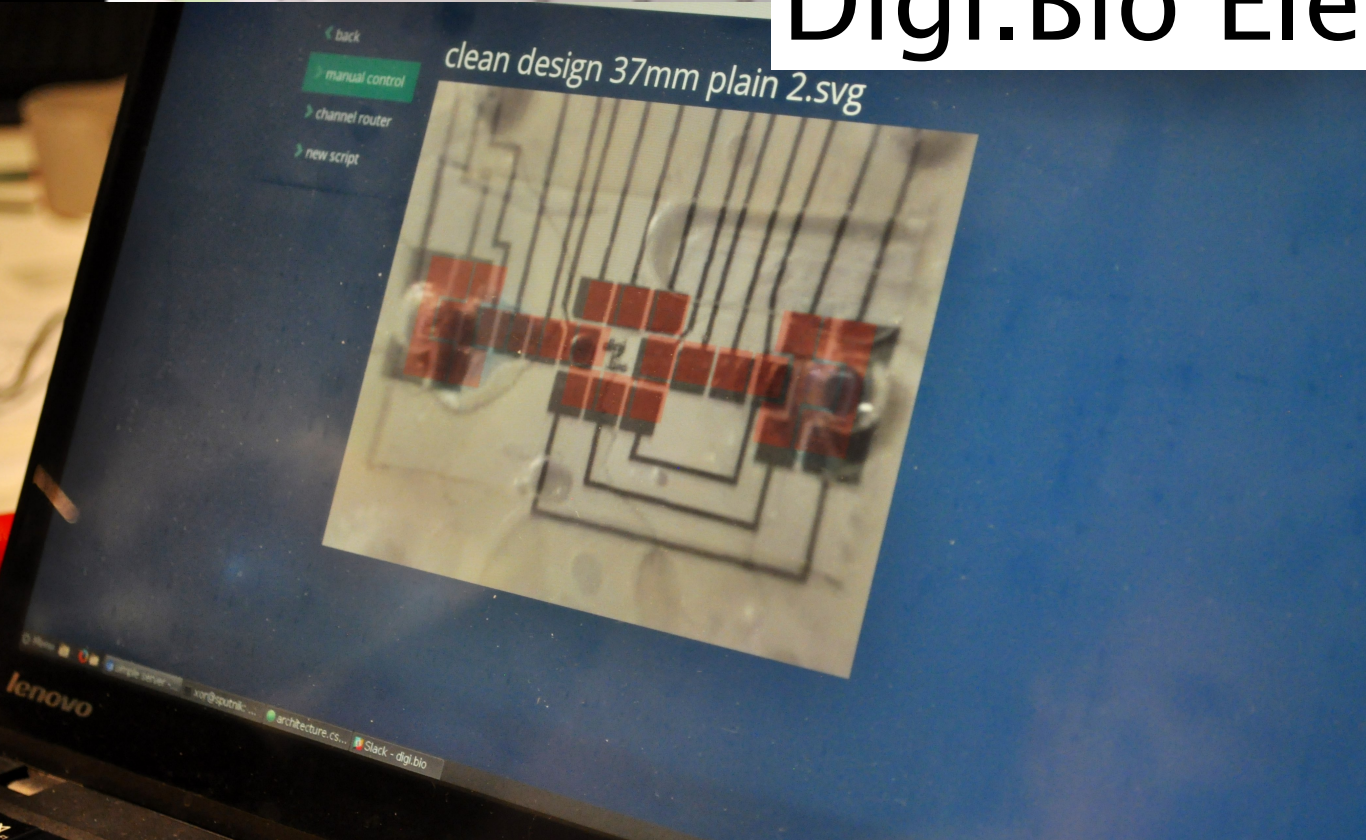


Doing It Together Science





Digi.Bio Electrowetting





The goal of this Academy

Skills you will learn:

- Microbiology
- Molecular biology
- Biotechnological reactor design
- Biorefinery
- Spectral analytics
- Bio informatics
- Analog electronics
- AVR microprocessor programming
- 3D drawing and parametric design
- 2D computer aided design
- 3D printing
- Open design licensing
- Chemical and biological safety

Tools you will learn to use:

- All the tools you will build yourself
- Lasercutter
- 3D printer
- Arduino processing language
- OpenSCAD 3D modeling
- Sketchup 3D modeling
- Fritzing electronic circuit design
- Inkscape 2D design
- Markdown language
- Github



The Team



Roland van Dierendonck



Xiamyra Daal



Lucas Evers



Emma Pareschi



Schedule: Classes

1	Introduction	Jan 29
2	Microbiology	Feb 5
3	Physiology & Electronics	Feb 12
4	Bioethics & Optics	Feb 19
5	Genetics	Feb 26
6	YOUR PROJECTS	March 5
7	Biomaterials & Seperation techniques	March 12
8	Bioinformatics & Spectrometry	March 19
9	Biodigital games and media	March 26
10	Graduation Show	April 2



Schedule: Devices

1	Sterile Hood	Jan 29
2	Magnetic Stirrer	Feb 5
3	Incubator	Feb 12
4	Microscopes	Feb 19
5	Thermocycler & Gelbox	Feb 26
6	YOUR PROJECTS	March 5
7	Centrifuge	March 12
8		March 19
9	Spectrometer	March 26
10	Pumps & Bioreactor	April 2



Schedule: Practicals

1	Digital Fabrication Device construction	Jan 29
2	Cultivating microbes	Feb 5
3	Arduino Microbe isolation	Feb 12
4	Microscopy	Feb 19
5	DNA fingerprinting PCR	Feb 26
6	YOUR PROJECTS	March 5
7	P2P reviewing Chloroplast isolation	March 12
8	Spectrometry, PyMol	March 19
9	Biotic games	March 26
10	Final presentation	April 2



Example schedule: Microbes

1		Jan 29
2	Cultivation	Feb 5
3	Isolation	Feb 12
4	Characterisation	Feb 19
5	DNA	Feb 26
6		March 5
7	Down stream processing	March 12
8	Spectral analytics	March 19
9	Bioreactor	March 26
10		April 2



Weekly Project Meetings

Project meetings to discuss:

1. Develop your own project;
2. Set up your own documentation site on Github;
3. Publishing progress;
4. Collaborations with peers;
5. Go through the assignment results



Syllabus

- <http://biohackacademy.github.io>
 - Lecture Slides
 - Lecture Videos
- Device blueprints, circuits and code
- Practical protocols
- [Preparation](#)



BioHack Academy

Pieter van Boheemen
Edit Profile

FAVORITES

- News Feed
- Messages 5
- Events
- BioHack Academy
- BioHack Academy

APPS

- Games
- Belote.com
- Belote Multijoueur
- Suggest Edits
- Pokes
- Saved
- Photos
- Find Friends

PAGES

- Fablab Amsterdam 2
- Pages Feed
- Like Pages
- Create Page
- Create Ad

GROUPS

- Facebook Libérati... 20+
- Create Group
- New Groups

EVENTS

- Create Event

BioHack Academy
Public Group

Joined ▾ Share Notifications ...

Discussion Members Events Photos Files

Search this group 🔍

Write Post Add Photo / Video Create Poll Add File

Write something...

RECENT ACTIVITY

Pieter van Boheemen changed the type of group: BioHack Academy to Study Group.
4 hrs

Like Comment

Seen by 6

Write a comment...
Press Enter to post.

OLDER

Pieter van Boheemen made Xiammy Dee an admin.
7 hrs

Xiammy Dee

ADD MEMBERS

+ Enter name or email address...

MEMBERS 14 Members (6 new)

Message · Invite by Email

DESCRIPTION Edit

BioHack Academy is a global 10 week course on creative biotechnology by Waag Society

GROUP TYPE
Study Group

TAGS Add Tags

Add a few descriptive keywords.

GROUP CHATS

No group chats, start one now.

+ Start New Chat



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