Dr. Marc Dusseiller
Schöneggstr. 34
CH-8004 Zürich

+41 (0)78 645 82 59 (CH)

skype: dusjagr
marc@dusseiller.ch
www.dusseiller.ch/labs

dusjagr labs

ideas research movies instruments

Curriculum Vitae – Short Biography

Dr. Marc R. Dusseiller Citizen of Switzerland, born on 4.11.1975

Dr. Marc R. Dusseiller is a transdisciplinary scholar, lecturer for micro- and nanotechnology, cultural facilitator and artist. He works in an integral way to combine science, art and education. He performs DIY (do-it-yourself) workshops in lo-fi electronics and synths, hardware hacking for citizen science and DIY microscopy. He was co-organizing Dock18, Room for Mediacultures, diy* festival (Zürich, Switzerland), KIBLIX 2011 (Maribor, Slovenia), workshops for artists, schools and children as the former president (2008-12) of the Swiss Mechatronic Art Society, SGMK. In collaboration with Kapelica Gallery, he has started the BioTehna Lab in Ljubljana (2012 - 2013), an open platform for interdisciplinary and artistic research on life sciences. Currently, he is developing means to perform bio- and nanotechnology research and dissemination (Hackteria | Open Source Biological Art) in a DIY fashion in kitchens, ateliers and in developing countries. He was the co-organizer of the different editions of HackteriaLab 2010 - 2014 Zürich, Romainmotier, Bangalore and Yogyakarta.

Short Biography

'15 - now	Guest faculty researcher at the (Art)ScienceBLR, Srishti School for Art, Design and Technology, Bangalore, India
'12 - '13	Co-Initiator and scientific program director of BioTehna Lab, with Kapelica Gallery, Ljubljana, Slovenia
'09 - now	Co-founder of Hackteria | Open Source Biological Art and Co-Organizer of HackteriaLabs 2010 - 2013, International
'07 - now	Organization of festivals and workshops for the Swiss Mechatronic Art Society (SGMK) and Dock18, Switzerland
'08 - now	Lecturer for traditional materials in sculpting and hands-on lab courses at ETH Zürich, Switzerland
'08 - '12	Lecturer for Micro- and Nanosystems for Life Sciences at FHNW, School for Life Sciences, Switzerland
'06	Doctor of Sciences "Micro- and Nanoengineering the 3D Environment of Cells in Culture", ETH Zürich, Switzerland
'01	Diploma in Material Science and Engineering, ETH Zürich, Switzerland

Selected Work

'15	Collaboration on BioAutonomy Lab and development of DIY Gynecology tools, Hangar, Barcelona, Spain
'15	Facilitator of diploma projects on „Extreme Places and Extended Senses" at Srishti, Bangalore, India
'14	Organizer and active Mentor of PiksteriaLab 2014 – Bergen, as part of PIKSEL14 - be\O/art, Bergen, Norway
'14	Co-Organizer of Läb(e) am Egge in collaboration with Baggenstos & Rudolf and Corner College, Zürich, Switzerland
'14	Workshop „DIY von Laborgeräten in der Bioanalytik", in partnership with SATW, Muttenz, Switzerland
'14	Workshop with Andy Gracie Artistic Instruments for Submarine Exploration @ Arte y Ciencia en el Mar, Gijon, Spain
'14	Workshop with Dominik Mahnič Mestna jaga: Helsinki Rabbit Hunts, @ foodycle festival, Helsinki, Finland
'14	Initiator of RandeLab, an artist-in-residence program for forest, nature and eco-hacking, Mersihausen, Switzerland
'14	Co-organisation of #HSC lecture series, Hackteria Swiss Curriculum @ Corner College, Zürich, Switzerland
'14	Co-organisation of Hackteria: Biologische Kunst – Wissenschaft, Natur und Biohacking, Schaffhausen, Switzerland
'14	Co-director of HackteriaLab 2014 – Yogyakarta, and various workshops across Java, Indonesia
'13	NanoHacking workshop for high-school and art students, Biofilia, Aalto University, Helsinki, Finland
'13	Hackteria DIY-Biohacking: Agar is the Media @ CynetART Festival, Dresden Germany
'13	Hackteria BioHacking Lab at Share Cyberpunk Academy, REPUBLIKA Festival, Rijeka, Croatia
'13	Co-organization of poolloop Festival and Hackteria Field-trip, Starkart Gallery, Zürich, Switzerland
'13	Organization of MobileLabs Hackathon, BioTehna, Kapelica Gallery, Ljubljana, Slovenia
'13	Workshops and presentation during LabEasy with MadLab, Arts Catalyst, London, UK
'13	Co-organization of HackteriaLab 2013 – Bangalore, Bangalore, India
'13	Residency and workshops at Lifepatch - citizen initiative in art, science and technology, Yogyakarta, Indonesia
'12	Co-organization with Denisa Kera of Nomadic Science Lab during Mutamorphosis 2012, Prague, Czech Republik
'12 - '13	Initiation, lab setup and various workshops at BioTehna Lab with Kapelica Gallery, Ljubljana, Slovenia
'12	Public art-and-science lab „NanoŠmano – LifeSystems / ŽiviSistemi", Kapelica Gallery, Ljubljana, Slovenia
'12	Hackerspace tour with Urs Gaudenz and workshops at Machine Project and BioCurious, California, USA
'12	Mentor at Sci-Art Nanolab, UCLA, CNSI and Art/Sci center, Los Angeles, USA
'12	Workshops and presentation at 1st Annual Hands-On Workshop in POC Diagnostics, Nairobi, Kenya
'12	Invited speaker at SHARE conference, Beograd, Serbia
'12	Workshop with Keith Lam „X-Spirituaal Sound Hacks" at dimension+ lab, Hongkong, China
'11 - '12	Residencies at the Center for Everything, Bangalore, India and HONF, Yogyakarta, Indonesia
'11	Workshop and performance with ISRO and anyma for EXPERIMENTA! 2011, Bangalore, India
'11	Co-curator of International Festival KIBLIX 2011 „Share is in the Air", Maribor, Slovenia
'11	Keynote presentation about Hackteria at the First UK DIYbio Summit, MadLab, Manchester, UK
'11	Co-organization of workshops „Hackteria & SGMK BioCyberKidzz", CYW, Ars Electronica 2011, Linz, Austria
'11	Co-organization of HackteriaLab 2011 | Romainmôtier/Zürich, Switzerland
'11	Research based Exhibition „NanoŠmano – Šmall Matter", Kapelica Gallery, Ljubljana, Slovenia
'11	Hackteria workshops at Pixelache 2011, (Finland), MechartLab (Switzerland) and I'MM hackerspace (Croatia)
'10	Research based Exhibition with Stefan Doepner: „NanoŠmano", Kapelica Gallery, Ljubljana, Slovenia
'10	Hackteria BioElectronix workshop and SGMK diy makeaway at ISEA2010, Dortmund, Germany
'10	Workshop for Teachers DIY Microscopes, Technorama, Winterthur, Switzerland
'10	Workshop SlowGames, in collaboration with René Bauer, Bachelor in Game Design, ZHdK, Switzerland
'10	Organisation of the first Hackteria Lab, Dock18, Zürich, Switzerland
'09 & '10	Playaround Workshop in collaboration with dimension+ and NTUA, Taipei, Taiwan
'09	Foundation of Hackteria | Open Source Biological Art and Bio-Art workshops at Piksel09, videotage and others
'09 & '10	DIY and Bio-Art Workshops during cellsbutton#03, Gadjah Mada University, Yogyakarta, Indonesia
'09	Bio-Art Workshops at CEMA, Srishti School for Art, Design and Technology, Bangalore, India
'09 - '13	Co-organization and workshops for the poolloop Festival, '09, '11, '13, Zurich, Switzerland
'09	Collaboration on the installation Garage Astrobiology @ Interactivos?09, Medialab Prado, Madrid, Spain
'08	Workshop at playaround (Taiwan) organized by microplayground, in collaboration with NCTU and ITRI, Taiwan
'08	Cooperation on interactive media sculpture "The Electric Retina" with Prof. Jill Scott, Zürich, Switzerland
'07 & '08	Coordinator of diy* festival, Zurich, Switzerland

Awards

'12	Nomination for award „Zedler-Preis 2012 für Freies Wissen“ for “Hackteria, Open Source Biological Art“
'11	Award „Förderbeitrag durch KulturRaum Schaffhausen 2011 for HackteriaLab2011, KIBLIX2011 and more
'09	Award „Werkbeitrag der Migros Kulturprozent“ for “Hackteria, Open Source Biological Art“
‘09	Award for “Hackteria, Open Source Biological Art“ by Bundesamt für Kultur, Projekt Sitemapping
‘08	Award for the best poster presentation at NanoTech 2008
‘08	2nd Prize for “Hase Znacht” at agent-provocteur’s contest in january 2008, a 30 sec stop-motion movie
‘07	1st Prize for “Duell”, a 10 sec pixelanimation @ www.5-10-20.ch Shortest Silent Movie Competition
‘05	Travel Award from the 2005 ASCB Summer Meeting on Engineering Cell Biology - The Cell in Context, Seattle, USA
‘03	“Lab on a Chip Award” for best poster presentation at NanoTech 2003

Further documents online:

Complete Curriculum Vitae (scientific)	http://www.dusseiller.ch/cv/CV_dusseiller_main_2007.pdf
Cultural portfolio	http://www.dusseiller.ch/cv/dusjagr_labs_2011.pdf
Press links dusjagr labs (personal website)	http://www.dusseiller.ch/labs/?page_id=92
Selected presentations and talks	http://www.slideshare.net/dusjagr/
Vimeo channel	https://vimeo.com/dusjagr
Facebook	https://www.facebook.com/dusjagr

Main Projects

Swiss Mechatronic Art Society
Schweizerische Gesellschaft für Mechatronische Kunst, SGMK (Reg. Society with seat in Zürich)

The Swiss Mechatronic Art Society (SGMK, established in 2006) is a collective of engineers, hackers, scientists and artists that joined to collaborate and promote on creative and critical uses of technology. They develop DIY technologies, collaborate with social and educational institutions, run the diy* festival and the public „MechArt Lab“ in Zurich, and organize workshops in electronics, robotics, physical computing, diy-biology, lofi-music. SGMK has been supported by Bundesamt für Kultur, Migros Kulturprozent, Stadt Zürich and more.

online links:
SGMK . Swiss Mechatronic Art Society http://www.mechatronicart.ch

Hackteria | Open Source Biological Art (international network and webplatform, Reg. Society with seat in Zürich)

Hackteria is a webplatform and collection of Open Source Biological Art Projects instigated in February 2009 by Andy Gracie, Marc Dusseiller and Yashas Shetty, after collaboration during the Interactivos?09 Garage Science at Medialab Prado in Madrid. The aim of the 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. As a community platform hackteria tries to encourage the collaboration of scientists, hackers and artists to combine their experitise, write critical and theoretical reflections, share simple instructions to work with lifescience technologies, develop open source hardware for generic laboratory infrastructure and cooperate on the organization of workshops, temporary labs, hack-sprints and meetings. The hackteria project has been supported by: Sir Ratan Tata Trust, KulturRaum SH, Pro Helvetia, Migros Kulturprozent and more.

online links:

Hackteria | Open Source Biological Art	http://hackteria.org
Hackteria Wiki	http://hackteria.org/wiki/
Press / Media about Hackteria	http://hackteria.org/?cat=49c

BioTehna | open platform for interdisciplinary and artistic research on life sciences, Ljubljana, Slovenia

BioTehna is an open platform for interdisciplinary and artistic research on life sciences and a series of public workshops, each mentored by expert/s in a specific scientific field. The BioTehna Lab is an open community bio-lab, where we ignite curiosity, experiment and explore interesting connections between nature and technology. Here, artists and scientists creatively combine living systems with innovative engineering solutions and in this way encourage reflection and awareness of the world in which we live in and how we think about the future. The initiative started as a collaboration of hackteria | Open Source Biological Art and Kapelica Gallery. The BioTehna platform has been supported through the KiiCS project by the European Commission / 7th Framework Programme and the Swiss Contribution to the enlarged European Union.

online links:

BioTehna	http://hackteria.org/?p=2423
Kapelica Gallery	http://www.kapelica.org/

dusjagr labs

ideas research movies instruments

Research Plan

Introductory Remarks

During the last 8 years I have intentionally dedicated my personal research on practical „Real World“ topics outside of institutional and academic research institutions, exploring various new fields and working in a broad variety of cultural enviromnents. Having an opportunity to deepen these research interests at Aalto University would give me the time urgently needed to synthesize and share my partially intrinsic knowledge into a more reflected form and focus on it's value in a transdisciplinary educational framework. On the other hand I truly believe in the value of „amateur“ research, citizen science projects and the fertile innovative grounds present in the current rise of hackerspaces and more generally in informal learning environemnts of the DIY culture and grassroots organisations. Building bridges between the academic educationist discourses and the above mentioned auto-didactic self-learning environemnts could be one of the most enriching contributions of my role in the Department of Art Education. Thus I see my role less in establishing new research topics for myself, but introducing my already established practices into the academic environement, but on the other hand also deepen my knowledge of the theoretical research and discourses around trandisciplinary education at the art & science interface.

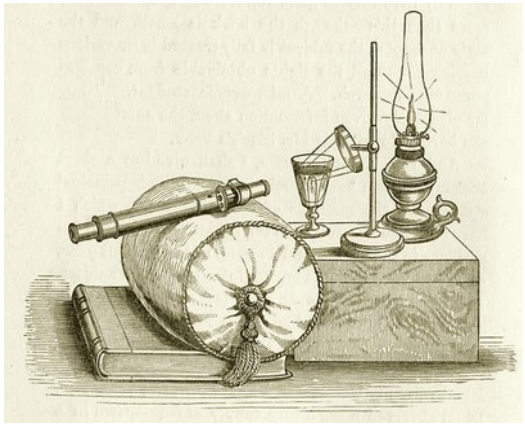
Mentoring and Teaching

I am very happy to contribute to the development of project ideas and mentoring of students with my broad background experience in material science and engineering, nano- and biotechnology and the more recent practical art-tech&sci education and biohacking strategies. I hope to involve some of the students in my main interests of research desribed below, as well as learning and researching into new topics as part of the collaborations with the doctoral students. During the last years most of my mentoring was only for short time projects, such as the *wet*PONG laboratory projects developed during my teachings at FHNW 2008 – 2012 or during 1-2 week workshops related to the hackteria framework, and I am very much looking forward for more intensive and longer term mentoring and collaborations with students on the masters and doctoral level.

Additionally I can offer to develop, organize and hold introductory classes on various topics of basic science, with an transdisiplinary approach dedicated for students from art, design, media and art education.

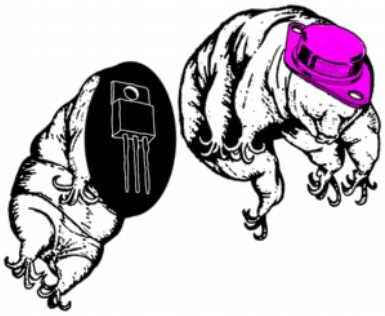
Crafting of Scientific Instruments for Personalized and Interdisciplinary Learning

> *„Science is popularly regarded as a “cognitive” activity – a discipline of the mind. But there is also a more physical and tactile tradition in science – a tradition in which scientists do not merely measure and theorize but also construct the instruments needed to do so. Indeed, many of the most important advances in scientific history were based on a combination of science, engineering, and design. Galileo’s construction of his own telescope (as described in Galilei, 1610), Boyle and Hooke’s design of the air-pump for experimentation with low pressure (Shapin, 1996), and Kelvin’s construction of a tide- measuring device (MacDonald, 1964) are examples of this tradition and staples of scientific lore. By building their own instruments – and understanding the capabilities and limitations of those instruments – scientists have historically gained deeper insights into the nature of the phenomena under investigation.“*
>
> - Mitchel Resnick, Lifelong Kindergarten, MIT



Since my early days as a young researcher and engineer I highly enjoyed working in the field of experimental sciences, designing and making experimental setups to test a scientific hypothesis or develop further existing early stage technologies. In fact, especially historically, it is a very common task of a scientist to design and construct their own instrumentation. For scientists, as pioneering explorers in the world of the unkown, there is and never will be a „mass produced“ product to do so. Only very recently, during the last two decades, a large industry has grown for scientific instrumentation as a consumer product, borrowing from design and marketing strategies from Apple's iPhone or the car industry. As Resnick has put it nicely in his article „Beyond Black Boxes: Bringing Transparency and Aesthetics Back to Scientific Investigation“ [Resnick 2000].

Through my experience of working with artists interested in science over the last years and also communicating with a general public at various art/science events, I have experienced a deep misunderstanding and unawareness of that crafts tradition in science. Many artists are overwhelmed and inspired by the visual presence of the instrumentation itselves and lack a more rational understanding of it's inside workings, which sometimes



lead to an overmystification of the „machine“ instead of a critical and poetic interpretation about the content of the artist's interests in the sciences.

At the same time I have investigated and developed varous instructions and workshop on making DIY laboratory instruments, most prominently my activities around the DIY microscope. Through these activities I have seen and explored the very promising educational value of that „make your own“ science instrument, both for artists working in the field, aswell as in all other educational environments, from children in primary schools to undergraduate students in biomedical engineering. There is some fundamental learning experience in touching the materiality of the instrument, in crafting prototypes for scientific experimentation. And even if they might „fail“ in giving high-quality reproducible data suitable for academic publication, the more fundamental insight into the workings of the phenomena under observation and the sharpening of the students skill in critical thinking

The difference between the meaning of „understanding“ and „grasping“ is more nicely described in the German language, where „begreifen“ is involving a more deeper use of the mind and the body to interpret an object of interest and create a conception of the world around us, as Gerd Folkers describes in his article on „Der Sinn des Begreifens“:

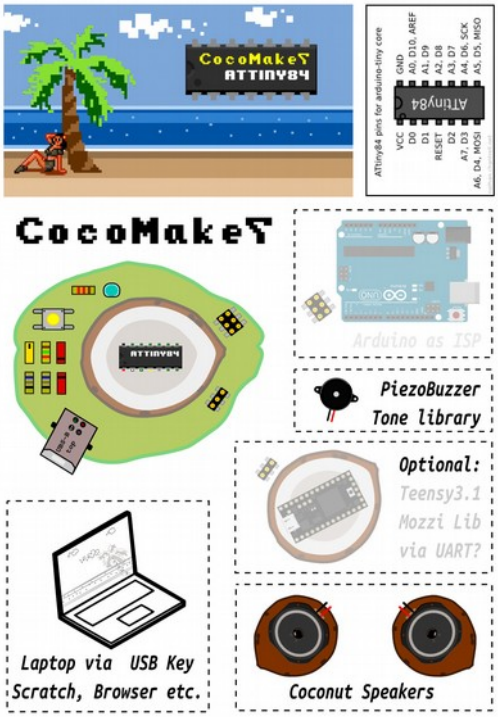
> *„Fälschlicherweise werden “verstehen” und “begreifen” heute synonym verwendet. Zusätzlich zum Betrachten lege ich Hand an und begreife das Objekt im wahrsten Sinne des Worts. Diese zusätzlichen Informationen helfen dem Gehirn, viel tiefer in die Bedeutung des Objekts einzudringen und es so tatsächlich zu verstehen. Begreifen heisst demnach, Geist und Körper zu benutzen, um ein Objekt zu deuten. Und genau dies ist notwendig um uns als körperliche Wesen eine Vorstellung von der Welt, die uns umgibt, zu machen.“*
> - Gerd Folkers, Abstrakt, N°8 Machen ist Macht

I am now interested in developing further that environment for learning, as an interdisciplinary educational method, the crafting of scientific instruments, but not as a mere construction kit with predefined parts and instructions, but as a very open tool-kit that allows the poetic interpretation of such and personalizing the aesthetics of these instruments to enable a personal ownership of the projects by the students. We have already started this explorations with a focus on students training in the bioanalytical sciences, and I would like to broaden it to a more wider group of learners in the field of arts.

http://hackteria.org/wiki/SATW-DIY

Digital and Interactive Hardware/Software Learning Tools for Low-Resource Settings

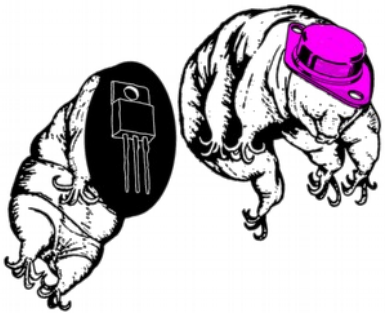
Through my activities in doing workshops in low-resource settings, eg. the Drisha School in Bangalore or various schools in Indonesia or Nepal, I have seen excellent educators using the most up-to date pedagogic concepts. It seemed to me that the free access and open source resources to educational materials, especially for teaching programming and digital storytelling, such as Scratch, can have a fundamental impact in digital literacy, both in industrialized nations, aswell as in the global south. Similar platforms, developed by interdisciplinary teams of hackers, designers and educators, have now been developed to include dedicated hardware for physical computing, environmental sensing and digital interactivity, eg. the arduino platform, the smart citizen toolkit or the Makey Makey. But the prize of these tools are still a limiting factor for their implementation (besides the general limit of access to computers). While in Europe a 30$ hardware platform is considered „low-cost“, it can be a limiting factor in another environment and will not be implemented at all. We have initiated several projects with a team of international hardware developers, educators and designers to tackle that issue, such as the BabyGnusbuino, an arduino-compatible educational platform that can be locally produced for approximately 2€ or very recently the CocoMake7, which could replace a MakeyMakey for 1/10th of the cost of the original.



http://hackteria.org/projects/cocomake7/

http://wiki.sgmk-ssam.ch/index.php/Babygnusbuino-v2

I would be very interested to continue some of these appraoches in collaboration with other departments at Aalto University, Media Factory, Electrical Engineering, as well as organizing international events outside of Finland, such hackathons and co-production labs, to enable temporary and immersive production and research environments in the „Real World“.



Hacking Biofilia

During many workshops and temporary labs, we have loved to say the following:

„If you don't build your lab you don't own your lab."
- unknown

And when I was doing my workshop at Aalto, using the LUMA lab and biofilia, it was exactly what I was trying to create as an experience for the students. Instead of preparing the space for them before they arrive, I let them completely rearrange and setup the LUMA lab as a „Nano-hacking" laboratory, unpack the materials and arange the tools I brought and through this creating a more personalized learning environement, where THEY are in charge.

The biofilia laboratory is definitely a great oportunity to introduce artists and other people into the methodologies of modern biological science, having access to these environments seems sometimes very difficult for artists to achieve. And I can see even more opportunites and topics to use the biofilia environemnt for international courses, master classes, aswell as using it for interdiscplinary training iniside of Aalto University.

On the other hand I do think that only using this advanced laboratory space in art&sci education does also creates another boundary of non-access and does not really empower art students to continue their sparked interest in working with biological and living media further on in their practice. This has been one of the core approaches we have inverstigated and worked on during the last 6 years in the hackteria framework, setting up cheap and DIY laboratories for doing basic biology at home, in a kitchen, in an artist's studio or in a pop-up lab in a tropical jungle. So I would be very happy to complement the current activities in biofilia with a more hacker approach to practical science work and education. Also I am very interested to document, research and write more in-depth about „How to set up a biology lab in an art school", consolidating the knowledge of our network into a usable document of recommendations, which can be adapted to a local context.

http://hackteria.org/wiki/NanoHacking:_Converging_Life_and_Tech_at_the_Nanoscale_-_BiofiliA_HighSchool,_Finland

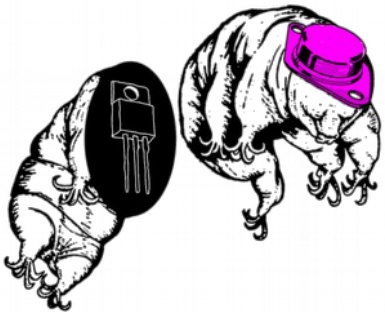
International Workshopology Symposium

The field of media arts has always been very interdisciplinary and many practitioners have a non-linear professional background, engineers bridging from computer science into sculpture or performance, landscape painters learning to program for digital interactivity. So to keep up with the fast developments in technology at many festivals and other events workshops are extremely important both as a learning enviroment for their own professional development, as well as a stable and regular income for the artist/hackers/mentors giving the workshops. Not many of those workshopologists do have a formal education in pedagogy or in-depth exposure to an educational environment. After discussions at the pikselache festival in Helsiniki in 2011, we started a small discussion group on that issue, inviting „workshopologists" and other practitioners to share their best (and worst) practices, and trying to put forward these meta-level discussion on workshops at various festivals instead of just executing them. During following events labelled as „Workshopology Symposium" in Maribor, Zurich, Ljubljana and Yogyakarta, we have brought together enthusiastic self-tought workopologists with science communicators, artists and designers, social activists, art educators and hackers. We believe in the cross-fertilization from these informal educational settings with other pedagogic enviromnents and we have now started a more local network around workshopology, who meets regularly in Switzerland.

I hope to continue with that idea during my time at Aalto University, organizing both local and international gatherings, in Helsinki, aswell as in other parts of the world, with the goal to analyze and document more in-depth these practices and share them widely through open online channels.

http://wiki.sgmk-ssam.ch/index.php?title=Workshopology

http://www.workshopology.org/



References

(Unsorted references used in framing the above research plan)

Csikszentmihalyi, Mihaly. 2013. Creativity: The Psychology of Discovery and Invention. Reprint edition. Harper Perennial.

Cybulski, James, James Clements, and Manu Prakash. 2014. “Foldscope: Origami-Based Paper Microscope.”arXiv:1403.1211 [physics], March.http://arxiv.org/abs/1403.1211.

Harris, Eva. 1998. A Low-Cost Approach to PCR : Appropriate Transfer of Biomolecular Techniques: Appropriate Transfer of Biomolecular Techniques. Oxford University Press, USA.

Gabrielson, Curt. 2013.Tinkering: Kids Learn by Making Stuff. 1 edition. Sebastopol, CA: Maker Media, Inc.

Gregory L. Charvat. 2015. “Hacking Education; Project-Based Learning Trumps the Ivory Tower.”Hackaday. Accessed January 4.http://hackaday.com/2014/12/31/hacking-education-project-based-learning-trumps-the-ivory-tower/.

Griffiths, Amber. 2015. “DIY Labs Are an Exciting Alternative to University Science Research.” The Guardian. Accessed March 17.http://www.theguardian.com/higher-education-network/blog/2014/jun/16/diy-labs-exciting-alternative-university-science-research.

Kera, Denisa. 2012. “Nano{Š}mano Lab in Ljubljana: Disruptive Prototypes and Experimental Governance of Nanotechnologies in the Hackerspaces.” JCOM11: 4.

Kera, Denisa. 2014. “Innovation Regimes Based on Collaborative and Global Tinkering: Synthetic Biology and Nanotechnology in the Hackerspaces.”Technology in Society, Nanotech traveling abroad: The international dimension of nanotechnology as a changing concept, 37 (May): 28–37. doi:10.1016/j.techsoc.2013.07.004.

Magrini, Boris. 2014. “Hackteria: An Example of Neomodern Activism.”Leonardo Electronic Almanac 20 (1).http://ojs.gold.ac.uk/index.php/lea/article/view/11.

Papanek, Victor. 1985.Design for the Real World: Human Ecology and Social Change. 2nd edition. Chicago, Ill: Academy Chicago Publishers.

Resnick, Mitchel, Robbie Berg, and Michael Eisenberg. 2000. “Beyond Black Boxes: Bringing Transparency and Aesthetics back to Scientific Investigation.”JOURNAL OF THE LEARNING SCIENCES 9: 7–30.

Seyfried, Günter, Lei Pei, and Markus Schmidt. 2014. “European Do-It-Yourself (DIY) Biology: Beyond the Hope, Hype and Horror.” BioEssays, April, n/a–n/a. doi:10.1002/bies.201300149.

UNESCO, various. 1973. Low Cost Equipment for Science and Technology Education. UNESCO.http://otp.unesco-ci.org/training-resource/learning-materials/low-cost-equipment-science-and-technology-education.

dusjagr labs

ideas research movies instruments

HACKTERIA.ORG
Open Source Biological Art

Relevant publications by Dr. M. Dusseiller, et. al.

Journal publications, book chapters and policy papers

Hackteria.org: Nomadic Science and Democratized Labs & Suggested Actions, *SEAD: White Papers 2014, Denisa Kera, Marc Dusseiller*

The “Hackteria | Open Source Biological Art” initiative started in February 2009 when Andy Gracie, Marc Dusseiller and Yashas Shetty initiated a new model of interdisciplinary cooperation during the “Interactivos 09 Garage Science” workshop at Medialab Prado in Madrid. Instead of using the predominant artist collective model, they intentionally decided to use the hackerspace model of cooperation in interdisciplinary projects. This model is based on the idea of co-working in alternative and independent, temporal spaces rather than building stable structures, such as art laboratories and (new)media centres, or looking for residencies in science laboratories etc. This model also rigorously uses wikis and “work in progress” documents instead of well documented and presented final artworks, which tour various festival and exhibitions. The mode of presentation are workshops involving various people in groups in various parts in the world and sharing know how on what works and what does not work.

Denisa Kera, Marc Dusseiller. 2014, “Hackteria.org: Nomadic Science and Democratized Labs.” *SEAD: White Papers*. Accessed March 24. https://seadnetwork.wordpress.com/white-paper-abstracts/abstracts/hackteria-org-nomadic-science-and-democratized-labs/.

“Suggested Actions: Hackteria.org - Nomadic Science and Democratized Labs.” 2015. Accessed March 24. https://www.academia.edu/2420033/Suggested_Actions_Hackteria.org_-_Nomadic_Science_and_Democratized_Labs.

Home Made Bio Electronic Arts „Do-it-yourself: Microscopes, Sensors, Sonifications“, *Dominik Landwehr, Verena Kuni (Ed.) 2013, Chapter 1 and Interview, M. Dusseiller*

“Science for all” is the motto of a new movement which deals with biology and electronics. It applies the do-it-yourself approach, well established in the electronic and computer scene, to natural sciences. Here the boundaries between the arts and sciences are fluid. The artists and scientists who work together in an interdisciplinary manner call themselves “bio-hackers” or “bio-punks” and deliberately continue in the creative tradition of those two movements. Their research is designed to communicate scientific insights which are otherwise reserved for scientists. Home Made Bio Electronic Arts introduces leading exponents and presents six easy do-it-yourself experimental projects.

• Six easy do-it-yourself experimental projects

• For biotechnology and electronics do-it-yourself enthusiasts

http://hackteria.org/wp-content/uploads/2013/05/hm3-hackteria-pages.pdf

Microfabricated Three-Dimensional Environments for Single Cell Studies, *Perspectives paper, Biointerphases, 1, 2006, Dusseiller, Marc, Michael Smith, Viola Vogel, and Marcus Textor*

Finally, arrays of engineered 3D cell substrates have significant potential to probe in high-throughput screens the relationship between drug efficacy and the physical and biochemical parameters of given cell environments, thereby improving their predictive power. This approach allows for detection of anomalous points of outliers, within a single population, information which would be missed when only comparing population averages between groups. These future directions highlight our current approach to engineer environments for single cells or aggregates, where aspects including materials properties, interface functionalization, and spatial organization should be considered Fig. 4. Progress will heavily depend on collaborative efforts and open communication between material scientists, to develop smart functional materials serving as sensing and actuating elements, biomedical engineers and molecular biologists, to provide engineered proteins and cells, computer scientists, to expedite analysis of rapidly growing data sets, and engineers, to finally integrate the

Dusseiller, Marc, Michael Smith, Viola Vogel, and Marcus Textor. 2006. “Microfabricated Three-Dimensional Environments for Single Cell Studies.” *Biointerphases,* 1 (1): P1–P4. Doi:10.1116/1.2190698.

http://hackteria.org/wp-content/uploads/2015/04/dusseiller_2006_biointerphases1.pdf

dusjagr labs

ideas research movies instruments

Comment

During the years between 2006 and today, I have intentionally worked outside of the academic world of publication, on the streets, in the djungles and in schools worldwide. I see the value of my work through my public and open-access actions and online publications, not closed-access academic writings. Priority has it's impact and the sustainibility of a growing network. Nevertheless my contributions to the activities in the hackteria framework, science communciation and other educational projects, have given rise to a large amount of public attention, traditional print press, interviews, video documentations, book chapters have been written about our work and it has been analyzed academically by a wide array of researchers. My role as a public figure is thus more in creating real world examples, influencing policy makers and talking to a wide public audience. A large selection of those publications can be found in the attachement about my achievements. Below is a short summary of publications in academic journals, which I was authoring myself and/or in collaboration with my co-authors. Most of them go back to my time as a research in the field of bionanotechnology during and after my PhD at ETH Zürich, 2001 – 2006.

Publication list, M. Dusseiller

Journal publications

Denisa Kera, Marc Dusseiller. 2014, “Hackteria.org: Nomadic Science and Democratized Labs.” *SEAD: White Papers*. https://seadnetwork.wordpress.com/white-paper-abstracts/abstracts/hackteria-org-nomadic-science-and-democratized-labs/. Policy recommendation “Suggested Actions: Hackteria.org - Nomadic Science and Democratized Labs.” https://www.academia.edu/2420033/Suggested_Actions_Hackteria.org_-_Nomadic_Science_and_Democratized_Labs.

Dusseiller, Marc, Michael Smith, Viola Vogel, and Marcus Textor. 2006. “Microfabricated Three-Dimensional Environments for Single Cell Studies.” *Biointerphases,* 1 (1): P1–P4. Doi:10.1116/1.2190698.

Tang, C.S., M. Dusseiller, S. Makohliso, M. Heuschkel, S. Sharma, B. Keller, and J. Voros. 2006. “Dynamic, Electronically Switchable Surfaces for Membrane Protein Microarrays.” Anal. Chem. 78 (3): 711–17.http://dx.doi.org/10.1021/ac051244a.

Dusseiller, Marc R., Dominik Schlaepfer, Mirabai Koch, Ruth Kroschewski, and Marcus Textor. 2005. “An Inverted Microcontact Printing Method on Topographically Structured Polystyrene Chips for Arrayed Micro-3-D Culturing of Single Cells.” Biomaterials 26 (29): 5917–25. doi:10.1016/j.biomaterials.2005.02.032.

Dusseiller, M.R., B. Niederberger, B. Stadler, D. Falconnet, X. Jiang, and J. Voros. 2005. “A Novel Crossed Microfluidic Device for the Precise Positioning of Proteins and Vesicles.”Lab Chip 5 (12): 1387–92.http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=16286970.

Thesis

Dusseiller, M.R. 2005. “Micro- and Nanoengineering the 3-Dimensional Environment of Cells in Culture.” Diss. ETH No. 16433. http://dx.doi.org/10.3929/ethz-a-005206909

Keywords: NANOBIOTECHNOLOGY, CELL CULTURES, TISSUE CULTURES, BIOLOGICAL TECHNIQUES

Book chapters

Home Made Bio Electronic Arts „Do-it-yourself: Microscopes, Sensors, Sonifications“, Dominik Landwehr, Verena Kuni (Ed.) 2013, Chapter 1 and Interview, M. Dusseiller, http://hackteria.org/wp-content/uploads/2013/05/hm3-hackteria-pages.pdf

Conference proceedings

„Biohacking - Democratization through Demystification of Bio- and Nanotechnology“ 1st Point-of-Care Diagnostics Conference, 2012, Nairobi, Kenya, Marc Dusseiller

„HACKTERIA“, Share Conference, 2012, Belgrade, Serbia, Marc Dusseiller, Yashas Shetty

„NanoŠmano vs. wetPONG - Experiences in Outreach and Education at the BioNanoInterface“, SLONANO Conference, 2011, Ljubljana, Slovenia, Marc R. Dusseiller, Erik Reimhult, Špela Petrič, Gorazd Planinšič, Bengt Sjölén, Urs Gaudenz, Jurij Krpan

„Transdisciplinary Approaches on Education at the NanoBioInterface“, Swiss Design Network Conference SDN10, 2010, Basel, Switzerland, Marc Dusseiller

„wetPONG – A creativity approach to project based learning in microfluidics“, NanoBioTech Montreux, 2008, Switzerland, Marc Dusseiller

HACKTERIA.ORG
Open Source Biological Art

dusjagr labs

ideas research movies instruments

Achievements where Dr. M. Dusseiller was involved as collaboration partner

Relevant Initiatives

Swiss Mechatronic Art Society - Schweizerische Gesellschaft für Mechatronische Kunst, SGMK

(Reg. Society with seat in Zürich)

The Swiss Mechatronic Art Society (SGMK, established in 2006) is a collective of engineers, hackers, scientists and artists that joined to collaborate and promote on creative and critical uses of technology. They develop DIY technologies, collaborate with social and educational institutions, run the diy* festival and the public „MechArt Lab“ in Zurich, and organize workshops in electronics, robotics, physical computing, diy-biology, lofi-music. SGMK has been supported by Bundesamt für Kultur, Migros Kulturprozent, Stadt Zürich and more.

online links:

SGMK . Swiss Mechatronic Art Society	http://www.mechatronicart.ch

Hackteria | Open Source Biological Art

(international network and webplatform, Reg. Society with seat in Zürich)

Hackteria is a webplatform and collection of Open Source Biological Art Projects instigated in February 2009 by Andy Gracie, Marc Dusseiller and Yashas Shetty, after collaboration during the Interactivos?09 Garage Science at Medialab Prado in Madrid. The aim of the 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. As a community platform hackteria tries to encourage the collaboration of scientists, hackers and artists to combine their experitise, write critical and theoretical reflections, share simple instructions to work with lifescience technologies, develop open source hardware for generic laboratory infrastructure and cooperate on the organization of workshops, temporary labs, hack-sprints and meetings. The hackteria project has been supported by: Sir Ratan Tata Trust, KulturRaum SH, Pro Helvetia, Migros Kulturprozent and more.

online links:

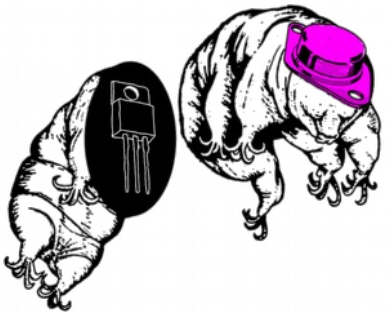
Hackteria | Open Source Biological Art	http://hackteria.org
Hackteria Wiki	http://hackteria.org/wiki/
Press / Media about Hackteria	http://hackteria.org/?cat=49c

BioTehna | open platform for interdisciplinary and artistic research on life sciences, Ljubljana, Slovenia

BioTehna is an open platform for interdisciplinary and artistic research on life sciences and a series of public workshops, each mentored by expert/s in a specific scientific field. The BioTehna Lab is an open community bio-lab, where we ignite curiosity, experiment and explore interesting connections between nature and technology. Here, artists and scientists creatively combine living systems with innovative engineering solutions and in this way encourage reflection and awareness of the world in which we live in and how we think about the future. The initiative started as a collaboration of hackteria | Open Source Biological Art and Kapelica Gallery. The BioTehna platform has been supported through the KiiCS project by the European Commission / 7th Framework Programme and the Swiss Contribution to the enlarged European Union.

online links:

BioTehna	http://hackteria.org/?p=2423
Kapelica Gallery	http://www.kapelica.org/



Achievements - Projects

HackteriaLab 2014 - Yogyakarta

Within the framework of "Hackteria | Open Source Biological Art", the HackteriaLab immersive format plays a key role in experimentation and the development of new models for knowledge sharing and collaboration building, in the emerging artistic practices related to bio- and nanotechnology and science in general.

HackteriaLab, our version of a production workshop, is a form of cultural intervention, contributing to the development of our contemporary culture and art milieu. It creates a melting pot of the practices of art and science, of culture and environment. It aims to broaden the intercultural knowledge exchange and realizes this know-how through workshops, participatory prototype exhibitions and online wiki-like documentations.

http://hackteria.org/hackterialab/hlab14/
http://hackteria.org/wiki/HLab14-Documentary

Earlier editions:
http://hackteria.org/category/hackterialab/

DIY biolabs and Open Source Laboratory Infrastructure

If you don't build your lab you don't own your lab. Hackteria is dedicated to develop and promote open designs for affordable laboratory equipment. We are convinced that basic technology should be open and accessible to everyone. We are part of the growing open hardware community and collaborate in various projects.

How to build the essential tools you need in a DIYBio lab? Out of many workshops and open labs sessions grew a set of generic lab equipment that are easy to build and fun to use. Many iteration in the design process were needed to make the construction simple and robust. All devices are built from standard and widely-available components and documented open source.

http://www.gaudi.ch/GaudiLabs/?page_id=328
http://hackteria.org/wiki/GynePUNK_biolabs

Workshops

Hackteria has conducted workshops on eg. DIY biology, BioArt, Synthetic Biology, Microscopy, Fermentation and BioElectronix in Europe (Switzerland, Slovenia, Norway, Austria, Hungary, Serbia, United Kingdom, Croatia Germany) , Asia (India, Indonesia, Taiwan, Hong Kong), Africa (Kenya), South America (Colombia, Brazil) and North America (US, Canada).

http://hackteria.org/category/workshops/
http://hackteria.org/projects/news/global_hackteria_workshops/

Temporary Public Labs

The NanoŠmano Labs initiated in 2010 by Stefan Doepner and Marc Dusseiller in collaboration with Kapelica Gallery (Ljubljana, Slovenia) offer a unique model but also setting and perspective on the use of nanotechnology in interdisciplinary science, art and design projects. In these temporary, ad hoc labs artists, hackers, scientists, and the lay public meet to perform rather than simply witness nanotechnological protocols. They collectively tinker and experiment outside the professional laboratory, in a gallery (2010), in a abandoned bar (2011) or in a community garden (2012), where they manage to ignore the typical function of a gallery setting, and define a new, liminal space of interactions and exchanges across disciplines, scales and practices.

http://hackteria.org/tag/nanosmano/

Other Temporary Public Labs:
http://hackteria.org/projects/labe-am-egge/
http://hackteria.org/workshops/piksterialab-2014

dusjagr labs

ideas research movies instruments

Dr. Marc Dusseiller
Schöneggstr. 34
CH-8004 Zürich

+41 (0)78 645 82 59
skype: dusjagr
marc@dusseiller.ch
www.dusseiller.ch/labs

Professor Helena Sederholm
School of Arts, Design and Architecture
Aalto University
FI - Helsinki

Bangalore, 4.14.2015

Postdoctoral Researcher in Art & Science Education, Department of Art, Aalto University

To whom it may concern,

While sitting here with my project partners from the (Art)ScienceBLR Lab, in Sristhi School for Art, Design and Technology, in India, having deep discussions about avantgarde education at the art&science interface in a low-resource context, working with students on developing and designing learning experiences, but also reflecting on how, where and what to do with my life... an email comes in through the vast network of my online contacts „Aalto University: call for post doc“. I wasn't taking much notice. And next day another one „post doc / biofilia“ and then another one „Did you see this? You should apply!“ and „An Open call is open now. Are you going to apply for it?“...

Reading your call, I do have to say, that I never before saw a description that so uniquely fits my core interests, builds upon my experience and fits my future career development plans. Additionally I do think that I can very constructively contribute to the ongoing activities at Aalto University around Biofilia and the art & science education. I am very much looking forward to an interview to look into more detail on how we can structure and develop an interesting research program as well as organize international meetings, combining institutional and academic players with more informal and grass-roots educationists from the DIY, biohacker and citizen science communities I have been involved over the last 8 years.

Within my activies in the **Hackteria framework**, we have been investigating a radically transdisiplinary approach to public engagement with the lifescience, developed workshops on bioart and DIY biology, maintained one of the most substantial online resource about these topics on the hackteria/wiki and established a large network of enthusiastic educators, hackers, engineers and artists, who has been collaborating on the organization of events, such as the HackteriaLabs and the Workshopology Symposiums.

I already had the opportunity for a short term engagement with Aalto University, when I did a 4-day workshop in coordination with LUMO and biofilia in December 2013, „**NanoHacking: Converging Life and Tech at the Nanoscale**“. I am looking forward to learn more about the pioneering educational system of Finland, known for it's unique implementations of contemporary pedagogic thought on a national level and according to the media, in doing so, becoming the most advanced and successful learning environment in Europe.

Yours sincerely,

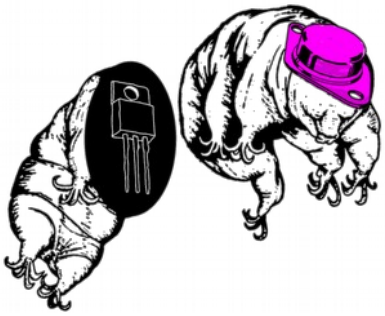
Dr. Marc Dusseiller

Attachments:
Short Biography
Most relevant publication, abstract and links
Selected publication list
Overview of achievements
Research plan

Appendix I: Workshops... a global success story 2009 – 2015

See the map online: http://batchgeo.com/map/92d1ce31505c81347b43adeb3ee9faed

Hackteria Workshops	City	Country	Date
Extreme Places Extended Senses @ ANET	Port Blair	India	2015-01-10
PiksteriaLab 2014 - Bergen	Bergen	Norway	2014-11-15
postgender body-hacks @ DanseFestival Barents	Hammerfest	Norway	2014-11-06
Explorations in Bioluminescence - Ueber das Leuchten von Würsten	Zürich	Switzerland	2014-10-20
Do-it-yourself von Laborgeräten in der Bioanalytik SATW	Muttenz	Switzerland	2014-10-13
Arte y Ciencia en el Mar	Gijón	Spain	2014-09-25
BioTransLab @ aRtropocode - Summer of Labs, Galicia	A Coruña	Spain	2014-09-17
Mestna jaga: Helsinški mestni zajec | Helsinki Rabbit Hunts	Helsinki	Finland	2014-09-04
Lick the Moonmilk	Lüdtoldsmatt	Switzerland	2014-08-10
Randen SummerLab 2014 -Forest-SoilGeeking or how to Fix-the-World	Merishausen	Switzerland	2014-07-13
Shake It Baby, HomeMade Kimchi @ KopenLab	Copenhagen	Denmark	2014-06-21
DIY Mikroskopie für SchülerInnen - Part of Hackteria Biologische Kunst	Schaffhausen	Switzerland	2014-06-12
Waterhackathon	Lausanne	Switzerland	2014-06-06
HackteriaLab 2014 - Yogyakarta	Yogyakarta	Indonesia	2014-04-13
Tourdigrade - BioElectronix for Artists and Geeks	Surabaya	Indonesia	2014-04-02
Tourdigrade - BioElectronix Hackathon and Performance	Jakarta	Indonesia	2014-03-17
BrainHacking vs. Larry's Tattoo Show @ SURVIVE!garage	Yogyakarta	Indonesia	2014-02-21
Solder Synth Sense Sore Sore Sip	Yogyakarta	Indonesia	2014-02-02
Do-it-yourself von Laborgeräten in der Bioanalytik SATW pre-workshop	Basel	Switzerland	2014-01-09
µFluidic Hackathon: Towards the Nail-Studio Lab-on-a-Chip Device	Luzern	Switzerland	2014-01-07
FolkCulture Hackathon: OpenTraps, Wine @ Underes Ätzisloo	Merishausen	Switzerland	2014-01-02
BioHackerWerk @ Hyperwerk, Basel	Basel	Switzerland	2013-12-18
NanoHacking @ Biofilia, Aalto University	Helsinki	Finland	2013-12-02
Agar is the Media @ CynetArt, Dresden	Dresden	Germany	2013-11-17
Cave µ-Safari 2: Jama Mačkovica	Logatec	Slovenia	2013-10-18
Urban Ecology meets Artist's Kitchen, Schnegge Z'Nacht	Ljubljana	Slovenia	2013-10-02
Cave µ-Safari in Vranja Jama	Logatec	Slovenia	2013-09-06
BioTehna DIY microscopy @ Sajeta Festival	Sajeta	Slovenia	2013-08-10
Hackteria BioHacking Lab @ Share Cyberpunk Academy / REPUBLIKA	Rijeka	Croatia	2013-07-18
Hackteria Appenzeller Field Trip @ poolloop festival '13	Zürich	Switzerland	2013-07-04



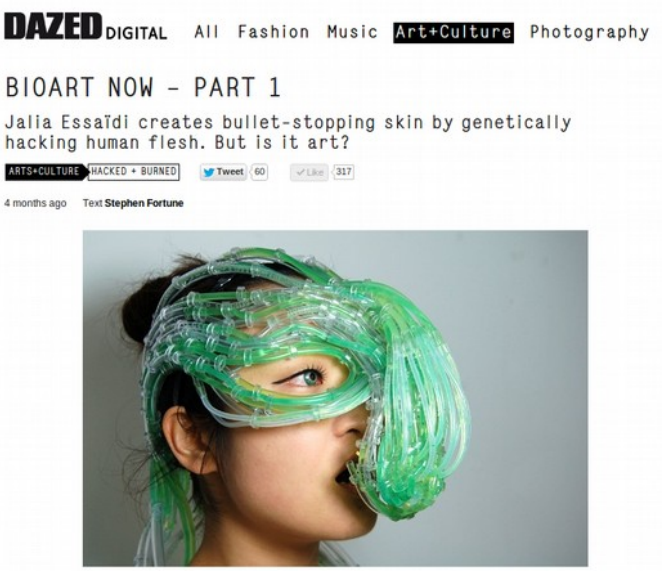
MobileLabs Hackathon	Ljubljana	Slovenia	2013-06-14
SoftBots	Ljubljana	Slovenia	2013-05-20
BioLumi HackSession	Luzern	Switzerland	2013-05-02
Hack-a-Taq @ ateliér hirokouri	Lausanne	Switzerland	2013-04-06
DIY microscopy - BioTehna	Ljubljana	Slovenia	2013-03-26
LabEasy @ Arts Catalyst - Collaboration with MadLab	London	UK	2013-03-05
The Art of BioHacking or How to make Cheese and Wine, HEAD	Geneva	Switzerland	2013-02-18
HackteriaLab 2013 - Bangalore	Bangalore	India	2013-01-28
Remote Microscopy GaudiLabs -> Lifepatch	Luzern	Switzerland	2013-01-22
DIY Microscopy at Tumbuh Elementary School	Yogyakarta	Indonesia	2013-01-11
Remote session to WetLab @ Waag Society	Amsterdam	Netherlands	2012-12-20
BioHacking vs. BioPunk @ I'MM	Zagreb	Croatia	2012-12-14
Nomadic Science Lab, Mutamorphosis	Prague	Czech Rep	2012-12-03
BioCyberKidzz @ Soft Control	Maribor	Slovenia	2012-11-27
BioElectronix at BioTehna Lab	Ljubljana	Slovenia	2012-10-31
Chara algae hacking session	Zurich	Switzerland	2012-10-27
DIY Laser Tweezers hack and document sprint at the Farm Lab	Lausanne	Switzerland	2012-09-29
Bioprinting, DIY microscopy with Hackteria @ BioCurious	Sunnyvale	USA	2012-08-02
Microscopy Workshop at Machineproject	Los Angeles	USA	2012-07-28
DIY microscope webcam for Hemocytometer collaborative research	Yogyakarta	Indonesia	2012-12-10
Hackteria @ POC Diagnostics Workshop	Nairobi	Kenya	2012-06-29
Hackteria Algae Sprint @ GaudiLabs	Lucern	Switzerland	2012-06-09
Expanded Technology, Yashas Shetty, Residency @ Gasworks	London	UK	2012-05-15
Riga city biosphere maping Workshop by Antti Tenetz	Riga	Latvia	2012-01-18
"Cyber Hair Wars" – Microscopy Workshop for Elementary School	Yogyakarta	Indonesia	2012-01-14
Hackteria Microscopy and Visuals Workshop	Lucern	Switzerland	2012-01-13
Autonomous Public Lab, Yashas Shetty @ OCAD	Toronto	Canada	2012-01-17
Hackteria Distillery @ Jaaga	Bangalore	India	2011-12-20
Demos at the UK DIYbio Summit	Manchester	UK	2011-10-30
Hackteria BioLab Workshop @ I'MM	Zagreb	Croatia	2011-10-25
Hackteria & SGMK BioCyberKidzz Ars Electronica	Linz	Austria	2011-09-10
DIY Microscopy workshop at Atelier Nord	Oslo	Norway	2011-09-04
HackteriaLab 2011 - Romainmotier	Romainmôtier	Switzerland	2011-08-01
Hackteria workshop	Medellin	Colombia	2011-04-12
Biolectronix for Artists Pixelache Festival with Finnish Bioart Society	Helsinki	Finland	2011-03-08
BioElectronix @ MechArtLab	Zürich	Switzerland	2011-02-19
DIY Microscopy Workshop @ MechArtLab	Zürich	Switzerland	2011-02-12
Optical Mouse Hacking	Budapest	Hungary	2010-12-07
Getting on Plant's Nerves – Hackteria DIY bio lab @ HAIP festival	Ljubljana	Slovenia	2010-11-24
Bioelectronix for Artists @ ISEA2010 Ruhr with Andy Gracie	Dortmund	Germany	2010-08-23
Haemacytometry and PS3 Eye Hacks	Yogyakarta	Indonesia	2010-07-30
USB Mikroskopie Technorama	Zurich	Switzerland	2010-06-12
DIY microscopy @ Dock18	Zurich	Switzerland	2010-04-10
HackteriaLab 2010 - Dock18	Zürich	Switzerland	2010-04-06
Webcam Microscope building workshop, Ecole Superieure D'Art	D'Aix en Prov.	France	2010-03-09
Hackteria @ PlayAround 09, NTUA	Taipei	Taiwan	2009-12-07
BioElectronix for Artists @ Piksel09	Bergen	Norway	2009-11-19
Bioelectronix for Artists @ Videotage	Hongkong	China	2009-11-14
DIY microscopy Workshop @ MIT	Boston	USA	2009-11-10
DIY Microscopy Home Made Forschungswoche by SGMK	Vico Morcote	Switzerland	2009-08-24
BioElectronix for Scientist @ UGM	Yogyakarta	Indonesia	2009-08-10
BioElectronix for Artists @CEMA with Yashas Shetty	Bangalore	India	2009-07-24
DIY Microscopy & Lab Hacking with Kaspar König @ NK	Berlin	Germany	2009-05-06

Apppendix II: Media and Press Selection

Press

Dazed & Confused: BIOART NOW: August 2013, S. Fortune

http://www.dazeddigital.com/artsandculture/article/16465/1/bioart-now-%E2%80%93-part-1


DAZED DIGITAL All Fashion Music Art+Culture Photography

BIOART NOW – PART 1

Jalia Essaïdi creates bullet-stopping skin by genetically hacking human flesh. But is it art?

ARTS+CULTURE HACKED + BURNED Tweet 60 Like 317

4 months ago Text Stephen Fortune

„... On the global stage biohacking collective Hackteria has lead the way on demystifing bioart and providing people with easy practical ways to engage with it. Formed in 2009 and featuring chapters in Europe, India and Indonesia the Hackteria Wikipedia has become the de-facto resource for all budding biohackers. The interplay between biohacking and bioart is particularly fluid among Hackteria affiliated practitioners. “Hackteria is not, generally speaking, about finished products or finished works. The bioart just happens, but is not the primary goal” said Hackteria co-founder Marc Dusseiller. Some of that 'incidental bioart' has been quite sublime. -....“

„...The Hackteria flavour of bioart and biotech education is particularly visible in Indonesia, where sister organisation Lifepatch complements the bioart residencies hosted by media-art lab the House of Natural Fiber (HONF), helping underfunded school students with such ingenious hacks as converting a webcam into a functioning microscope. At HONF in 2010, Julian Abraham and others initiated a project aimed at creating a safe form of fermentation based on tropical fruit, after the Indonesian government raised prohibitively high duties on alcohol. After leaving HONF, Abraham continued the theme, creating sound-based bioart pieces under the name Kapitän Biopunk. He provided workshops in homebrewing alcohol to accompany his Fermentation Madness, a sound-art piece that converts the processes of fermentation into an interactive soundscape. -....“

Zu Besuch bei den Biohackern , Schweiz am Sonntag, Nr. 18, 5. Mai 2013 , R. Schuppisser

wicht gestört: «Das Parlament über die

Bio-Hacker als neue Technikrevolutionäre

VON RAFFAEL SCHUPPISSER

«Wenn ich Teenager wäre, würde ich die Biologie hacken und künstliches Leben erschaffen», sagt Microsoft-Gründer Bill Gates – und weltweit folgen Hobbybiologen seinem Rat. Auch hierzulande gibt es eine kleine Community, die «Schweiz am Sonntag» hat zwei sogenannte Bio-Hacker besucht. Sie kultivieren Bakterien und experimentieren mit Gentechnik – und das im Heimlabor, das zu dem wird, was die berühmte Garage einst für die Software-Revolutionäre wie Gates und Steve Jobs war. Kommen aus diesem Labor die nächsten Quantensprünge der Technik? Bereits wird an einer Leuchtpflanze geforscht.

> SEITEN 46/47

Arme Rei

1:12-INITIATIVE, Minde kämpferische Paroler ke macht die Umve sen Thema und be mühlenhaft, die Rei Schweiz immer reic widern, die Reiche Land vertrieben. W der heutigen Ausga lierte Ökonomen Patrik Schellenba Think Tank Aveni Lampart vom SGB.

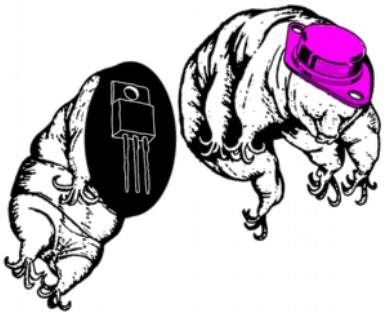
h mit dem FCB ab, für n Song schreiben will. w spricht er über seinen nd sagt, was für ihn zum rt. (SK)

> SEITEN 13/14

„... Bakterien kultivieren und mit Gentechnik experimentieren: Das geht auch im Heimlabor, nennt sich Amateur-Biologen bauen selber Laborinstrumente und träumen von leuchtenden Pflanzen. Einige auch vom grossen Geld.

DER ERSTE VERSUCH des Experiments ist fehlgeschlagen. Marc, Tuuli und Urs hatten verschiedene Fische gekauft, in Salzwasser eingelegt und einige Tage liegen gelassen. Nun sollten sich eigentlich die biolumineszierenden Bakterien auf dem Fisch vermehren, sodass man ihr Leuchten im Dunkeln erkennt. Die Bakterien sollten dann in einer Nährlösung aus Salzwasser, Pepton und Agar kultivieren. Doch nun muss erst einmal neuer Fisch her. Experimentieren im Heimlabor braucht Geduld. Marc, Urs und Tuuli sind Biohacker und damit Teil einer Bewegung, die die Welt ähnlich verändern könnte, wie in den 70er-Jahren die Computer-Tüftler mit der Entwicklung des PC in der Garage. Das zumindest glauben euphorische Journalisten und Technik-enthusiastische Wissenschafter. So meinte etwa der Physiker und Freidenker Freeman Dyson 2007 in einem Essay, «dass die domestizierte Biotechnologie unser Leben in den nächsten 50 Jahren mindestens so stark prägen werde, wie die Domestizierung des Computers in den letzten 50 Jahren». - ...„

• • • •



Kelindan Seni dan Sains Terapan, *Majalah Tempo, May 2014, Hendro Wiyanto*

http://lifepatch.org/Kelindan_Seni_dan_Sains_Terapan

Para seniman Yogya berkolaborasi dengan sejumlah peneliti berbasis laboratorium menghasilkan karya tak lazim

SUASANA Galeri 2, Langgeng Art Foundation (LAF), Jaan Suryodiningratan 37, Yogyakarta, petang itu sudah mirip kapal pecah. Ember plastik, meja bambu, botol dan tabung-tabung ramping, sampai akuarium berbaur dengan juluran kabel, layar televisi LCD, dan laptop di mana-mana. Di lantai, ada silang-silang jalur yang meruapkan bau tanah, menghubungkan penonton dengan centang-perenang obyek dan pelaku eksperimen. Sejumlah peserta pameran sibuk mengutak-atik karya. Inilah pameran "#HLab 14 (HackteriaLab 2014)", proyek kerja sama antara para peretas, ilmuwan, peneliti, dan seniman, yang berlangsung sejak 25 April sampai 2 Mei ini.

SENI PAMERAN

[1]

Kelindan Seni dan Sains Terapan

Para seniman Yogya berkolaborasi dengan sejumlah peneliti berbasis laboratorium menghasilkan karya tak lazim

jakan sejumlah komunitas dan lembaga. Reklamasi tanah pertanian pasca-letusan Gunung Merapi (2010) dilakukan oleh Laboratorium Mikrobiologi Fakultas Pertanian Universitas Gadjah Mada, pengawasan sungai dan kandungan bakteri *E. coli* oleh komunitas Lifepatch (Yogyakarta), serta upaya pelestarian keberagaman hayati di Hutan Wonosadi oleh kelompok Green Tech. Apa yang kita temukan di pameran ini?

Die Forscherpiraten kommen ins Museum, *Schaffhauser Nachrichten, 11. June 2014, Saskia Baumgartner*

Bei Hackteria vermischt sich Biologie mit Kunst. Am nächsten Wochenende geben beteiligte Forscher und Kreative im Museum zu Allerheiligen einen Einblick darin.

Interdisziplinärer Ansatz

Aber was wollen die Hackteria-Organisatoren nun erreichen – ein modernes Biologie-Projekt schaffen oder Kunst machen? «Wir wollen erst einmal, dass Menschen aufhören, in solchen Boxen zu denken», sagt Dusseiller. «Wir machen nicht nur Kunst, und wir machen nicht nur Wissenschaft, wir wollen Grenzen aufbrechen.» Interdisziplinarität ist das Stichwort.

Lokale Themen

Gerne werden zu den Veranstaltungen auch lokale Künstler und Wissenschaftler geladen, und man setzt sich mit den Themen vor Ort auseinander. Beim HackteriaLab in Indonesien etwa waren die dortige Wasserverschmutzung und der Vulkanismus Thema – in der Nähe Yogyakartas gibt es mehrere aktive Vulkane, erst im Februar hat wieder eine Aschewolke die Stadt überzogen. Zumindest der Randen wird bei der Hackteria-Veranstaltung in Schaffhausen auch Thema sein. Dieser soll bei einem Klangspaziergang – einer akustischen Entdeckungsreise – erkundet werden.

Die Forscherpiraten kommen ins Museum

Bei Hackteria vermischt sich Biologie mit Kunst. Am nächsten Wochenende geben beteiligte Forscher und Kreative im Museum zu Allerheiligen einen Einblick darin.

VON SASKIA BAUMGARTNER

Winzige Amöben mit acht Beinen schwimmen auf dem Computerbildschirm hin und her. Die Bilder dieser sogenannten Bärtierchen liefert eine Webcam, welche zuvor mit wenigen Handgriffen zum Mikroskop umgebaut wurde. Mit einem Alltagsgegenstand wurde so ein kostengünstiges Labergerät für den Heimgebrauch gebastelt.

Diesen Mikroskopie-Experiment ist typisch für Hackteria. Und es veranschaulicht, was die beteiligten Künstler und Wissenschaftler – etwas vereinfacht – im Sinn haben: mit simplen Technologien die Welt der Bakterien zugänglich machen.

Neuer Zugang zur Biologie

Hackteria entstand im Jahr 2006. Der in Schaffhausen aufgewachsene Marc Dusseiller ist einer der Gründungsmitglieder. Der studierte Musikalwissenschaftler war auch derjenige, der das selbst gebastelte Webcam-Mikroskop entwickelte. Dusseiller sagt über seine Motivation: «Bis vor zehn Jahren fehlte der Zugang zu professionellen Labors und damit auch zur Biologie und Biotechnologie.» Verschiedene Projekte hätten diesen inzwischen wieder geöffnet, so auch Hackteria.

Die Bewegung – deren Name aus den englischen Begriffen «hacking», von «computer hacking», und «bacteria» zusammengesetzt ist – richtet sich vor allem an kreative Menschen, die ein Interesse an Biologie-Themen haben. Mittlerweile ist ein internationales Netzwerk, bestehend aus Künstlern, Computer-Hackern, Philosophen und Forschern, entstanden, das durch die Website hackteria.org verbunden ist.

Die einzelnen Forscher und Künstler experimentieren jedoch nicht nur im Heimlabor und tauschen ihre Resultate anschliessend über das Internet miteinander aus. Sie veranstalten auch grosse jährliche Treffen, die sie Lab, also Labor, nennen. Das letzte HackteriaLab fand im April in Yogyakarta, dem kulturellen Zentrum der indonesischen Insel Java, statt.

Neben diesen jährlichen Treffen gibt es auch zahlreiche weitere Projekte. Dusseiller und seine Mitstreiter organisieren vielerorts Diskussionsrunden und Workshops. Eine solche Veranstaltung ist auch am kommenden Wochenende im Museum zu Allerheiligen in Schaffhausen geplant (siehe Kasten) – hier kommen auch die Bärtierchen wieder zum Einsatz.

Interdisziplinärer Ansatz

Aber was wollen die Hackteria-Organisatoren nun erreichen – ein modernes Biologie-Projekt schaffen oder Kunst machen? «Wir wollen erst einmal, dass Menschen aufhören, in solchen Boxen zu denken», sagt Dusseiller.

So funktioniert Hackteria: Musikerin Pei-Wen Liu und Hackteria-Mitbegründer Marc Dusseiller mit einem Koffer voller Experimente, die aus Alltagsgegenständen entwickelt wurden.

Beim Workshop am 12. Juni bauen die Teilnehmer mit ein paar Handgriffen eine Webcam zum Mikroskop um.

Programm Hackteria im Museum zu Allerheiligen

Donnerstag, 12. Juni: Von 13 bis 16 Uhr findet ein Workshop im Vortragssaal des Museums zu Allerheiligen statt, bei dem ein Webcam-Mikroskop gebaut wird. Anmeldungen sind erwünscht.

Freitag, 13. Juni: Ab 18.15 Uhr Diskussionsrunde über Biokunst, Biohacking und Transdisziplinarität mit Gästen aus Finnland, Indonesien und der Schweiz.

Samstag, 14. Juni: Ab 11.30 Klangspaziergang auf dem Randen. Teilnehmerzahl begrenzt. Ab 18.00 Uhr biologisch inspirierte Klangexperimente und Soundperformances im Museum zu Allerheiligen. (sba)

Mehr Informationen

«Wir machen nicht nur Kunst, und wir machen nicht nur Wissenschaft, wir wollen Grenzen aufbrechen.» Interdisziplinarität ist das Stichwort.

Eine klare Definition sei deshalb auch schwierig, weil Hackteria sich – wie auch die Umwelt selbst – stets verändere, sagt die Musikerin und Lehrerin Pei-Wen Liu aus Zürich.

Mitmachen kann bei Hackteria eigentlich jeder. Dusseiller organisiert regelmässig Veranstaltungen für Schüler, beim Workshop am kommenden Donnerstag etwa werden auch Kantonschüler mitexperimentieren.

Lokale Themen

Gerne werden zu den Veranstaltungen auch lokale Künstler und Wissenschaftler geladen, und man setzt sich mit den Themen vor Ort auseinander. Beim HackteriaLab in Indonesien etwa waren die dortige Wasserverschmutzung und der Vulkanismus Thema – in der Nähe Yogyakartas gibt es mehrere aktive Vulkane, erst im Februar hat wieder eine Aschewolke die Stadt überzogen.

Zumindest der Randen wird bei der Hackteria-Veranstaltung in Schaffhausen auch Thema sein. Dieser soll bei einem Klangspaziergang – einer akustischen Entdeckungsreise – erkundet werden.

Video Documentations

***Documentation on Hackteria | Open Source Biological Art**, 2010, Migros Kulturprozenz*

https://vimeo.com/18052500

***Documentation of HackteriaLab 2013 – Bangalore**, Julian „Togar“ Abraham*

https://vimeo.com/61235658

***„SENI GOTONG ROYONG, HackteriaLab 2014 – Yogyakarta“** Documentary Film by X–Code films*

http://hackteria.org/wiki/HLab14-Documentary

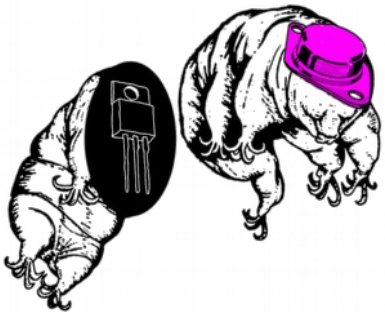
Citizen science has long contributed to the health of local communities by making people aware of their environment in the form of oral histories and traditional wisdom. Recently, the effort to democratize science created opportunities for innovation and a model for public participation in science. These movements rippled into many things such as a kind of revival of traditional knowledge, influential policy forces, changes in how we produce and share knowledge into an iterative and collective process. Yogyakarta, Indonesia, has been one of the most active hubs in this movement.

HackteriaLab 2014 – Yogyakakarta is a two-weeks making-oriented gathering of researchers, artists, scientists, academicians, hackers and whatevers in Yogyakarta. It was hosted by LIFEPATCH - citizen initiative in art, science and technology and co-organized together with HACKTERIA | Open Source Biological Art in collaboration with various regional partners. As a web and community platform, Hackteria tries to encourage scientists, hackers and artists to collaborate and combine their expertise, write critical and theoretical reflections, share simple instructions to work with life science technologies and cooperate on the organization of workshops, festival and meetings.

Produced and directed by X-Code films, this documentary was made during the two weeks of HackteriaLab 2014 – Yogyakarta. It offers you a glimpse of (almost) everything that happens and documents the participants wish list for future collaborations and works.

***„Hüt im Gschpröch“** Interview and discussion, Schaffhauser Fernsehen, 12. Juni 2014*

http://hackteria.org/media/hut-im-gschproch-shf/



Interviews

***The Art of Open and Free Science**, MCD #68, 2012, Ed. A. Delfanti, Interview S. Tocchetti*

http://www.digitalmcd.com/mcd-68-la-culture-libre-the-open/

ART & SCIENCE THE OPEN FUTURE/FREE CULTURE

INTERVIEW WITH MARC DUSSEILLER

HACKTERIA

Could you explain what is Open Source Biological Art and how it relates to DIY biology?

Whether it is a wiki or a workshop or both doesn't really matter, what is essential is to enable people to collaborate and shaer knowle edge and instructions. Open Source Biological Art enables people to perform complex scientific protocols without the support of an official institution. We believe that it is important to enable more people to feel confident in working with living systems in order for creative and new ideas to emerge. When applied to science and art, it can create a new type of public participation and understanding of both domains.

What is your view on the future of citizen science?

My hope is that if more people are making things with their hands and have this direct and everyday experience with scientific protocols, we can demystify science and open the whole decision making process to more people and opinions. I think this is the future society, where I want to live, a place where tinkerers and lay people find new and unexpected uses and functions of technologies and scientific knowledge, where they hack it and adapt it to their dreams and lives and don't wait for some big corporation or government to decide what is good or safe for them.

***Der Aufstand der Bastler,** November 2012, ABSTRAKT N°8 "Machen ist Macht", Max Celko*

http://hackteria.org/?p=1870

In Garagenlaboren macht sich analog zu den Computernerds der späten Siebzigerjahre eine junge Generation von Amateurbiologen ans Werk: die Biohacker. Marc Dusseiller ist Gründer des Hacker-Netzwerks Hackteria. Dass in der Szene der Bill Gates der Do-it-yourself-Forschung zu finden ist, glaubt er aber trotzdem nicht.

... Worin liegt denn der gesellschaftliche Mehrwert des Selberforschens?

Ein zentraler gesellschaftlicher Nutzen ist es, dass die DIYBioszene auch Laien den Zugang zur wissenschaftlichen Diskussion ermöglicht. Damit wird die Biotechnologie zumindest ein Stück weit demokratisiert. Ich halte dies für sehr wichtig, denn wir stehen heute an einem Punkt, an dem die Biotechnologie rasante Fortschritte macht und völlig neue Möglichkeiten eröffnet, lebende Materie zu manipulieren. Es liegt jetzt an uns allen, gemeinsam als Gesellschaft zu definieren, welche Forschung wir möchten und welche gesetzlichen Schranken wir der Biotechnologie auferlegen. Als Folge des grösseren Wissens sind die Leute auch weniger anfällig für populistische Ideen von Politikern oder leere Marketingversprechen von Firmen.

***Gott im Hobbyraum,** NZZ am Sonntag, 19. Okt 2014, Dominik Imseng*

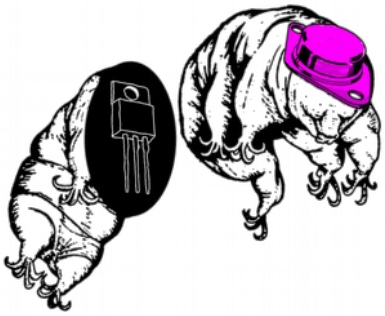
http://hackteria.org/media/gott-im-hobbyraum-nzz-am-sonntag-19-okt-2014/

Auch in der Schweiz wächst die Szene der Freizeit-Forscher, die in der Küche oder in der Garage an künstlichem Leben basteln. Ist das die Demokratisierung der Wissenschaft oder eine Gefahr für die Allgemeinheit? Und was ist mit Biowaffen? Von Dominik Imseng

Gott im Hobbyraum

I am not God!

«Es geht darum, einen Blick hinter den Vorhang zu werfen, an der Zukunft teilzuhaben, eine transformative Erfahrung zu machen», sagt der studierte Mikrotechniker, der ein Bio-Labor in Koffergrösse entwickelt hat, das sich überallhin mitnehmen lässt. Wer sich mit Gaudenz unterhält, führt ein rasch hochphilosophisches Gespräch entlang den Schnittstellen Mensch/Technik, Code/Zelle, Bit/Atom und nicht zuletzt Wissenschaft/Kunst. So gehört denn auch das Schweizer Künstlerduo Heidy Baggenstos und Andreas Rudolf, das leuchtende Pilze und Bakterien züchtet, zu Gaudenz' Biohacker-Freundeskreis. «Gerade solche Bio-Art-Projekte zeigen, wie breit die Biohacker-Bewegung ist», sagt Gaudenz. «Technologieaktivismus, Bürgerwissenschaft, Kunst – alles ist Biohacking. Permanent gärt und brodelt es in der Szene. Man trifft sich irgendwo, packt sein Zeug aus, experimentiert. So entsteht ein befruchtender Dialog.



Further Reading

Innovation regimes based on collaborative and global tinkering: Synthetic biology and nanotechnology in the hackerspaces, *Technology in Society, October 2013, Denisa Kera*

http://www.sciencedirect.com/science/article/pii/S0160791X13000638

Typically nanotechnology and synthetic biology are discussed in terms of novel life forms and materials created in laboratories, or by novel convergences of technologies (ICTs and biological protocols) and science paradigms (engineering and biology) they initiated. Equally inspiring is their ability to generate novel institutions and global communities around emergent sciences, which radicalize the forms of public engagement and ethical deliberation. We are starting to witness alternative (iGEM competitions) and almost underground R&D engagements with Synthetic Biology (DIYbio movement), which inspired the emerging bottom-up involvements in nanotechnologies in projects, such as the NanoSmanoLab in Slovenia. These bottom-up involvements use tinkering and design as models for both research and public engagement. They democratize science and initiate a type of grassroots “science diplomacy”, supporting research in developing countries. We will discuss several recent examples, which demonstrate these novel networks (“Gene gun” project by Rüdiger Trojok from the Copenhagen based hackerspace, Labitat.dk, the “Bioluminescence Project” by Patrik D'haeseleer from Biocurious biotech hackerspace in Sunnyvale, CA, and the “Biodesign for the real world” project by members of the Hackteria.org). They all use design prototypes to enable collaborative and global tinkering, in which science and community are brought together in open biology laboratories and DIYbio hackerspaces, such as Hackteria.org or Biocurious. In these projects research protocols encompass broader innovative, social and ethical norms. Hackerspaces represent a unique opportunity for a more inclusive, experimental, and participatory policy that supports both public and global involvements in emergent scientific fields.

Hackteria: An example of neomodern activism*. Leonardo Electronic Almanac, Vol 20.1, 2014, Boris Magrini*

http://ojs.gold.ac.uk/index.php/lea/article/view/11

As a platform for knowledge sharing and artistic exploration, Hackteria constitutes a network of artists and researchers that merge the use of biotechnologies with hacking and do-it-yourself strategies. Its process-oriented and performative approaches, opposing to the materialistic imperatives of the art market, lean to the tradition of political art. In the present paper, I am arguing that Hackteria embodies what could be considered a neomodern activism, other recent examples of which are emerging within the new media art field. Instead of rejecting new controversial technologies, they propose a vision of a society that is moved forward by a more democratic use and discussion of these technologies. The activities of Hackteria are examined through the presentation of a bio-lab created in Ljubljana.

The roots of Hackteria: from performative art to tactical media.

The events organized by Hackteria are rooted in a long tradition of media art, as well as process-oriented and performative approaches. Performative art is not equivalent to process-oriented art; as Andreas Broeckmann correctly pointed out, “it only makes sense to speak of process-orientation in cases where the evolving process itself is a main factor of the aesthetic experience of the work.” [4] Nonetheless, neither performative nor process-oriented art focus on the creation of a finite product, a distinctive trait of the activities run by Hackteria. Furthermore, the BioTehna project, for example, share both performative, interactive and process-oriented qualities, for it is not the lab as such that is meaningful to the artistic intent of the group but rather the process involved in building and running it.