



# JUST MAKE IT!

DEVELOPING AND PROMOTING THE  
CONNECTION BETWEEN DESIGNERS  
AND MAKERS.

**JUST MAKE IT! -  
Developing and  
promoting the connection  
between designers and  
makers.**

PROJECT I (EX3)  
Mestrado de Design de  
Comunicação  
Faculdade de Belas-  
Artes da Universidade de  
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Vanessa Lança

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# INTRO.

This project addresses the issue of critical making, the critical production in post digital culture practices. In critical making, by Matt Ratto and Garnet Hertz are directed to design practices that critically involve technology. In Ratto and Hertz's original perspective, the maker movement as its spaces, such as fablabs, hacklabs, digital manufacturing workshops, has become a totally inclusive concept and, therefore, has emancipated itself from this specific context.

The physical and conceptual creative exploration, focuses on the use of material-to-do things production - as explicit practice of concept elaboration within a social study of technology.

Artistic research as a rule involves practices in which textual and artistic approaches are closely related. In artistic research the researcher writes something about doing/ creating, while the practice informs and completes the writing, obtaining more knowledge.

Open Source and DIY practices in critical making can be constructively used to question under-reported and little criticized modes of production and distribution in contemporary art.

And finally, the post digital cultures: Open Source, DIY (Do It Yourself) and Maker.

# 01

## METHODS AND CRITICAL

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[1] Critical Making: Conceptual and Material Studies in Technology and Social Life, Matt Ratto

[2] Conversations in Critical Making, Garnet Hertz

[3] Bishop, R. (2016) Across & beyond: A transmediale reader on post-Methodologies for a Post-digital World. In Daphne Dragona (pp.184-201). Berlin: Sternberg Press

[4] Tomorrow's Storeys. (2020). Retrieved 13 December 2020, from <http://tomorrows.sgt.gr/project.php?lang=en&pid=82>

[5] Evan Roth. (2020). Retrieved 13 December 2020, from <http://www.evan-roth.com/work/burial-ceremony/>

# CRITICAL MAKING

“The use of the term critical making to describe our work signals a desire to theoretically and pragmatically connect two modes of engagement with the world that are often held separate—

critical thinking, typically understood as conceptually and linguistically based, and physical “making,” goal-based material work. A critical making project involves three stages, analytically though

not functionally separable. The project may start from any of these. One stage involves the review of relevant literature and compilation of useful concepts and theories. This is mined for specific ideas that can be metaphorically “mapped” to material prototypes, and explored through fabrication. In another stage, groups of scholars, students, and/or stakeholders jointly design and build technical prototypes. Rather than being purposive or fully functional devices, prototype

development is used to extend knowledge and skills in relevant technical areas as well as to provide the means for conceptual exploration. A third stage involves an iterative process of reconfiguration and conversation, and reflection begins. This process involves wrestling with the technical prototypes, exploring the various configurations and alternative possibilities, and using them to express, critique, and extend relevant concepts, theories, and models.” [1]

" (...) critical making is about turning the relationship between technology and society from a "matter of fact" into a "matter of concern." I see this as requiring personal investment, a "caring for" that is not typically part of either technical or social scholarly education and have tried to draw out some of the aspects of what this might both theoretically and materially require through both our experiments in critical making and the brief reflections (...)" [1]

"(...) the connection between critical

reflection on social and organizational issues and provide mappings between scholarship in these areas and specific joint, hands-on prototyping projects. Critical making is thus similar to "critical design" and the other previously mentioned design strategies in its explicit focus on transforming the imagination and opening up reflexive perspectives to designers. However, unlike these approaches, my main goal is not to create objects that in their apprehension open new visions

and possibilities for observers. Instead, while physical prototypes are constructed and shared with others, our main focus is on the act of shared construction itself as an activity and a site for enhancing and extending conceptual understandings of critical sociotechnical issues." [1]

"The use of the term critical making to describe our work signals a desire to theoretically and pragmatically connect two modes of engagement with

the world that are often held separate —critical thinking, typically understood as conceptually and linguistically based, and physical "making," goal-based material work." [1]

"Critical making emphasizes the shared acts of making rather than the evocative object. The final prototypes are not intended to be displayed and to speak for themselves." [1]

"The starting point for these conversations was to take reflective stock of the DIY maker

movement, which has emerged over the last decade through publications like Make magazine and related Maker Faire events, open-source hardware projects like the Arduino microprocessor platform, and new developments in low-cost 3D printing.” [2]

“Other topics include the interplay between critical theory and hands-on practice, contemporary art, the process of developing new technologies, open source hardware, tactical media and politics,

interdisciplinarity and academic institutions, critical and speculative design, mass-produced consumer culture, and hackers and hackerspaces.” [2]

## DESIGN & PRACTICAL METHODOLOGIES

(...) current artistic strategies and methodologies and argues that an answer can be found in forms of subversion that, just like power, might be soft. It presents a genealogy of soft, subversive practices

that emerged with the open-source movement and gave birth to a vivid workshop and learning culture in which artistic strategies came to play a new role. Specifically, I discuss how



subversive strategies often drive the methods that artists use in workshops complementing their artistic work. Subversiveness is no longer found only in interventions, performances, and online projects, but also in creating the preconditions for effecting change.” [3]

“Based on a coexistence of practical and theoretical work, forms of resistance can render possible an understanding of different forms of power; and what is to be achieved,

as Foucault writes in other works, is related to the power of knowledge and the potentiality of critique.” [1]

“(…) it should be taken into consideration that workshops cannot but reflect an artist’s practice. They offer what Fuller describes as “a range of ways of sensing, doing and knowing” that can only be located in “art methodologies.” The acts of subversion performed by artists within this context inspire and shape the concept, methods and goals of workshops,

often building a strong connection between the two.” [3]

“(…) the methodologies deployed in the workshops are open for appropriation and modification by users. This is beneficial not only for the participants but also for the artists themselves, who can see their work completed in different ways.” [3]

“(…) these artistic, subversive methodologies can be considered as expressions of a term

Philip Agre introduced and Michael Dieter recently revisited: “Critical Technical Practice,” which emphasizes the need to frame questions when problems are being addressed, bridging practical with reflexive work. While core ideas of artistic strategies are theoretically contextualized in artist workshops, a tangibility to materiality — from examining real data sets to designing critical prototypes — is also present.” [3]

“(…) subversive artistic methodologies are by nature affective. The methodological shift to constructive learning environments reflects the will and anxiety of today’s artists to bring to light their ideas, knowledge, and methods and to equip others with them.” [3]

“Could 3D printing be used to build tools for tomorrow’s art activism, taking a distance from the usual promises and narratives of maker culture? In their model of workshop, participants are

invited to design 3D “disobedient objects” and discuss their potentiality as tools for political and social movements. As “dystopia, horror and weirding” are used methodologically, a technology like 3D printing becomes strange, disrupting its own revolutionary narrative and opening new interpretations and approaches.” [3]

“Artist workshops, then, may like offer a ground for the necessary exploration, encounter, and disagreement toward these ends.”

“While they may discomfort or inconvenience users, these practices also succeed in exposing the limitations that digital media impose on experience and, in doing so, challenge the usual assumptions. In the last few years, estrangement became a strategy used by artists engaging with the materiality of digital culture. This may involve the reimagining of 3D printed objects, as the “3D Additivist Manifesto” suggests; the location and exposure of forgotten and eerie territories

affected by the development of technology, as is often present in the work of Liam Young;” [3]

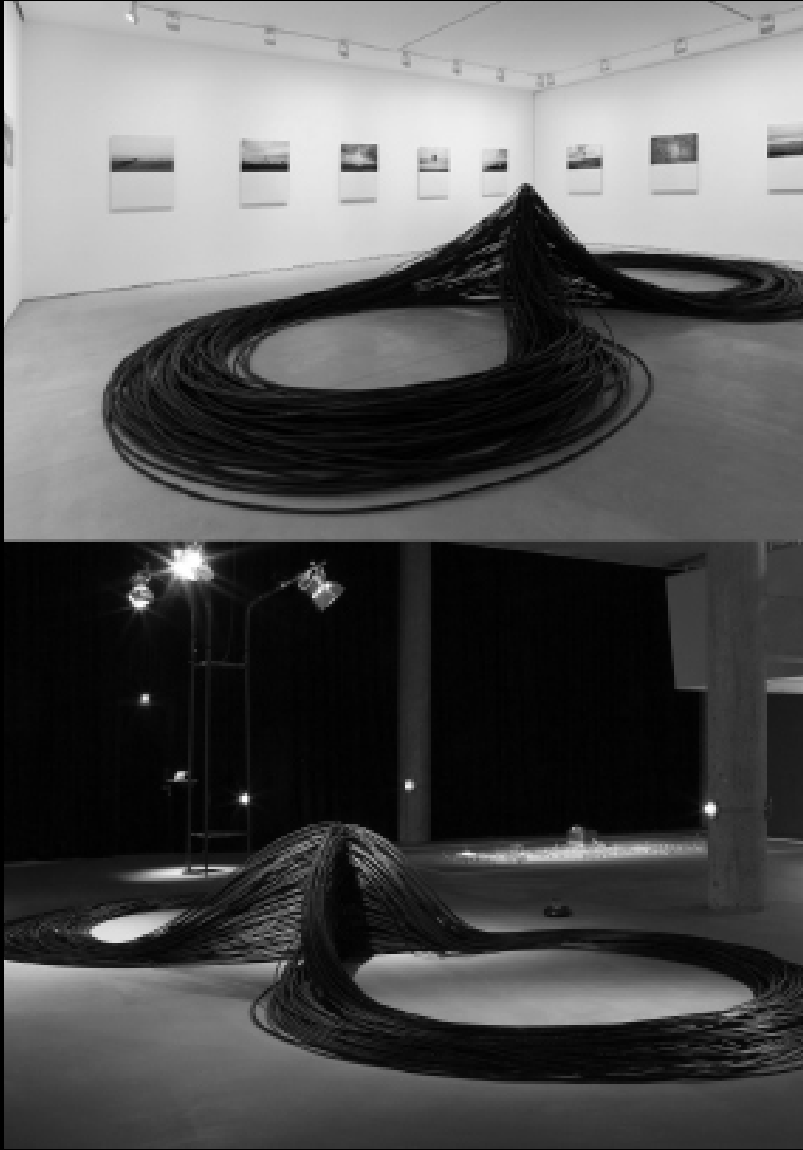
“(…) Evan Roth’s Burial Ceremony (2015), an infinity loop of fiber optic cables.<sup>48</sup> In all these cases a distancing from the familiar is achieved, one that allows the audience “to stand outside of the world” it is in and to “look back in on it.” Workshops accompanying projects achieve similar ends.” [3]



“In Tomorrow’s Storeys we drift from room to room, eavesdropping in on the overheard conversations of the occupants of a near future Athenian apartment block. Beginning two months prior to the opening of the Tomorrows exhibition architect Liam Young organised a public think tank consisting of a group of science fiction authors, visual artists, directors, photographers and architects, aiming to produce a series of critical fictions about the future of Athens. Through discussions, illustrations and speculations, the working group authored a series of short stories set within the walls of a single imaginary apartment block, collectively constructing narratives of the future life of Athenian citizens. Evolved from the traditional form of the Polykatoikia, the building they designed is a continuous urban mass where each

Athenian is not given a minimum basic income but rather a minimum basic floor area, a percentage of the volume of a building but not a fixed location. The block is a portrayal of a new form of urban organisation where a building is reformatted like a Facebook page and a diverse group of occupants are collapsed together in radical juxtapositions as they roam across the floors, following functions that are shifting by the hour. This is just one temporary moment in a block of endless configurations, a window into a speculative building, the city that surrounds it and the lives it contains.” [4]

“Burial Ceremony” 2km of GYTA53 direct bury fibre-optic cable, 120cm x 690cm x 330cm, 2015



““Burial Ceremony is a monumental sculpture created from 2km of direct bury fiber optic cable. Generally shipped on large wooden spools, fiber optic cable must be unspooled before it is placed underground. It is an industry standard best practice to lay the cable out in this figure-eight shape (which also resembles the infinity symbol) in order to prevent twisting and pressure on the fibers. As the cable repeatedly crosses over itself, it rises upward to create a pyramidal form. The work stands as a monument to an otherwise monument-less Internet, and invites the viewer to share proximity with a typically invisible and yet fundamental physical element of the Internet.” [5]

“(...) an infinity loop of fiber optic cables.<sup>48</sup> In all these cases a distancing from the familiar is achieved, one that allows the audience “to stand outside of the world” it is in and to “look back in on it.” Workshops accompanying projects achieve similar ends.” [1]

# 02

## THE 3D ADDITIVIST MANIFESTO & ADDITIVISM

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- [3] Bishop, R. (2016) Across & beyond: A transmediale reader on post-Methodologies for a Post-digital World. In Daphne Dragona (pp.184-201). Berlin: Sternberg Press  
[additivism.org/cookbook](https://additivism.org/cookbook)  
from <https://additivism.org/about>
- [8] Vilém Flusser Residency for Artistic Research 2016: Morehshin Allahyari & Daniel Rourke | transmediale. Retrieved 13 December 2020, from <https://statement>
- [9] Panther Modern (2015). Retrieved 13 December 2020, from <http://www.morehshin.com/panther-modern/>

# 3D ADDITIVIST MANIFESTO

Morehshin Allahyari &  
Daniel Rourke  
The 3D Additivist  
Manifesto

"When artist  
Morehshin Allahyari  
and theorist Daniel  
Rourke published  
their "3D Additivist

Manifesto" in 2015,  
they stated their wish  
to "encourage, interfere  
and reverse-engineer  
the  
possibilities encoded  
into the censored,  
the invisible, and  
the radical notion"  
of 3D printing.

The manifesto was  
a call to artists,  
activists, designers,  
and engineers to  
take the "additivist  
technologies to their  
limits" and to question  
forms of resistance  
and emancipation.  
Workshops were  
organized to support  
this purposefully  
ambiguous and  
provocative manifesto.  
Embracing "the  
speculative, the  
provocative and the  
weird" the artists  
were interested in the  
potentiality of objects  
that have never existed  
before, like "ruins,  
cracks, fissures and  
flaws" that can take on

"a life of their own."<sup>50</sup>  
Could 3D printing be  
used to build  
tools for tomorrow's  
art activism, taking  
a distance from the  
usual promises and  
narratives of maker  
culture? In their  
model of workshop,  
participants are  
invited to design 3D  
"disobedient  
objects" and discuss  
their potentiality as  
tools for political and  
social movements." [3]

"The 3D Additivist  
Cookbook, devised  
and edited by  
Morehshin Allahyari  
& Daniel Rourke, is  
a free compendium



of imaginative, provocative works from over 100 world-leading artists, activists and theorists. The 3D Additivist Cookbook contains .obj and .stl files for the 3D printer, as well as critical and fictional texts, templates, recipes, (im)practical designs and methodologies for living in this most contradictory of times.” [6]

“The 3D Additivist Cookbook, devised and edited by Morehshin Allahyari & Daniel Rourke, is a free compendium of imaginative, provocative works from over 100 world-leading artists, activists and theorists. The 3D Additivist Cookbook contains .obj and .stl files for the 3D printer, as well as critical and fictional texts, templates, recipes, (im)practical designs and methodologies for living in this most contradictory of times.” [6]

The 3D Additivist Cookbook // page 001



# THE 3D ADDITIVIST MANIFESTO

Derived from petrochemicals boiled into being from the black oil of a trillion ancient bacterioles, the plastic used in 3D Additive manufacturing is a metaphor before it has even been layered into shape. Its potential belies the complications of its history: that matter is the sum and prolongation of our ancestry; that creativity is brutal, sensual, rude, coarse, and cruel.<sup>1</sup> We declare that the world's splendour has been enriched by a new beauty: the beauty of crap, kipple<sup>2</sup> and detritus. A planet crystallised with great plastic tendrils like serpents with pixelated breath<sup>3</sup> ... for a revolution that runs on disposable armaments is more desirable than the contents of Edward Snowden's briefcase; more breathtaking than The United Nations Legislative Series.

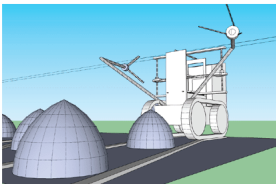

1/8

Waelab-Lomé Author	W.AFATE 3D Printer to Mars Project	2012 Year	#fabulation Format	#kipple Theme	#extrude Action
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Relocation of computing garbage dumps to Mars via the development of a new generation of autonomous machines made from recycled waste

## W.AFATE 3D PRINTER TO MARS

1/2

**Our waste for space exploration**  
Rather than send its computer waste to poor countries, why would the West not send it to Mars? Our project wants to realize this utopia. The W.AFATE, an African 3D printer completely built from e-waste, is a pioneer of this new era representing the ecology and virtuosity of space conquest. An African 3D printer at the forefront of interstellar recycling.

**From recycling to Self Assembly 4D Printing**  
The W.AFATE will make and print tools and machines for a new life on Mars. Our machines carry the promise of cosmic adventure, allowing others to make active machines for creating the necessary equipment and living environments in anticipation of a possible colonization of the planet Mars. The W.AFATE will create objects that can change after they are printed, making and remaking themselves. Instead of building something new, why not create materials that build themselves? Machines that produce themselves with minimum energy consumption and without a computer to order... all you need is environmental waste.

**Problems which our solution resolves:**

- Avoiding and relocating pollution on Earth.
- Reducing the enormous costs involved in the conquest of space.

**Questions we still need to answer:**

- What energy are we going to use?
- With what materials on Mars are we going to print?
- How are we going to command these machines?

W.AFATE to MARS is primarily an international collaboration between Africa and Europe as part of Space Apps Challenge 2013. In La Cantine/Paris Sénamé and Julien met. They mobilized the WoeLab team based in Togo, West Africa, and worked in duplex with them to develop the project.

WoeLab is an innovative community based on sharing and collaborative initiative. W.AFATE is one of the very first African symbols of this contemporary movement of 'commons' which is being developed around the world and channelled through African traditions. The W.AFATE is an invention of the entire WoeLab Community, including all the thirty young residents who benefits from the WoeLab program.



Dr. Anna Greenspan and  
Dr. Suzanne Livingston  
Author

The Electric Deep: Dream  
Visions of the Additive Machine  
Project

2016  
Year

#methods  
Format

#futures  
Theme

morph  
Action

# THE ELECTRIC DEEP: DREAM VISIONS OF THE ADDITIVE MACHINE

“THE 3D PRINTER  
HAS BECOME, IF NOT  
YET IN REALITY, AT  
LEAST IN THE STORIES  
WE TELL, A VEHICLE  
OF EXTRAORDINARY  
MUTATION...”

1/6

Rosa Merikman  
Author

How Not to be Read (a recipe using DCT)  
Project

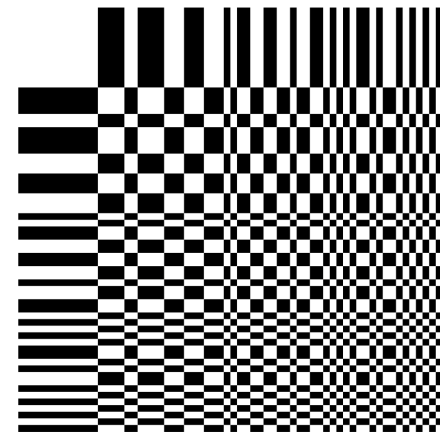
2016  
Year

#recipe #sense #break  
Format Theme Action

Recipe for using the  
aesthetics of JPEG  
macroblocks to mask a  
secret message as error



# HOW NOT TO BE READ (A RECIPE USING DCT)



1/2

for remodeling thought  
into profound, and  
often nightmarish, new  
shapes #Additivism  
aims to expose in-  
betweens, empower  
the powerless,  
and question the  
presupposed.” [7]

## ADDITIVISM

“#Additivism is a  
movement concerned  
with critiquing ‘radical’  
new technologies in  
fablabs, workshops,  
and classrooms; at  
social, ecological,  
and global scales. The  
term is a portmanteau  
of additive and  
activism: a gesture  
to the complex  
scales at which new  
forms of action and  
intervention must  
take place in an era  
increasingly saturated  
by PostHuman affects.  
By considering the 3D  
printer as a technology

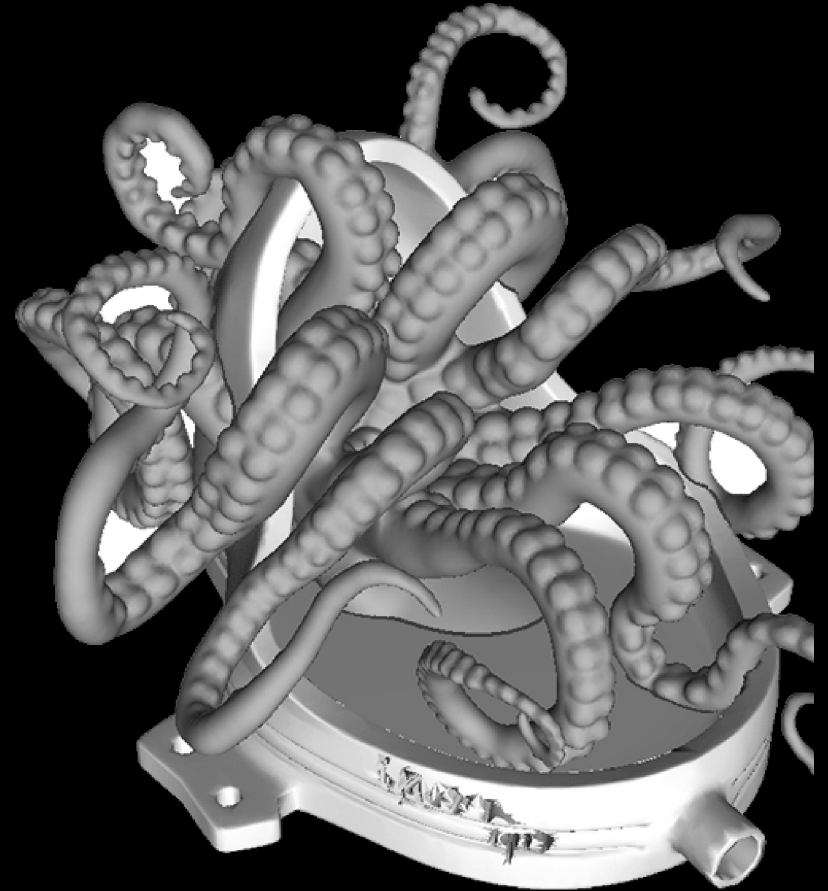


“3D fabrication can therefore be considered as the critical framework of #Additivism. The 3D printer is a profound figure for our times. A technology for channeling creative endeavour, through digital processes, into the layering of raw matter excavated from ancient geological eras. Considered as a tool for art, design and engineering, and gesturing towards a forthcoming era of synthetic chemistry and biological augmentation, 3D fabrication technologies

are already a site of common exchange between disciplines and material modalities. #Additivism questions whether it’s possible to change the world without also changing ourselves, and what the implications are of taking a position.” [7]

“(…) We refigured the 3D Printer in a similar vein to Donna Haraway’s Cyborg (from her influential 1984 text, A Cyborg Manifesto). Our aim being to disrupt material, social, computational, and metaphysical realities through provocation, collaboration, and ‘weird’ / science fictional thinking.” [7]

Morehshin Allahyari - The 3D Additivist Manifesto - Mascot



# VILÉM FLUSSER RESIDENCY FOR ARTISTIC RESEARCH 2016

Vilém Flusser  
Residency for Artistic  
Research 2016:  
Morehshin Allahyari &  
Daniel Rourke

“For the Vilém Flusser  
Residency Program  
for Artistic Research  
2016, we are pleased

to announce that jury  
members Inke Arns,  
Kristoffer Gansing, and  
Daniel Irrgang have  
selected Morehshin  
Allahyari’s and Daniel  
Rourke’s project  
#Additivism.  
Morehshin Allahyari’s  
and Daniel Rourke’s

project #Additivism  
sets in motion a  
critical approach  
towards 3d-printing  
as a technology  
which is all too often  
subsumed into the  
hype factor of “maker  
culture”. The project of  
additivism is a timely  
response to the (post-)  
anthropocene age  
where the originary  
agency of human  
creation is being called  
into question both by  
machinic automation  
and environmental  
crisis. As a bastard  
methodology located  
somewhere between  
accelerationism and  
subversion, it brings  
together art, design,

and engineering in  
a radical mixture  
that aims at nothing  
less than writing  
the world anew.  
This approach that  
enables a concretion  
of the algorithmic  
abstraction of 3D  
printing resonates  
strongly with Vilém  
Flusser’s thinking on  
the technical image.”  
[8]

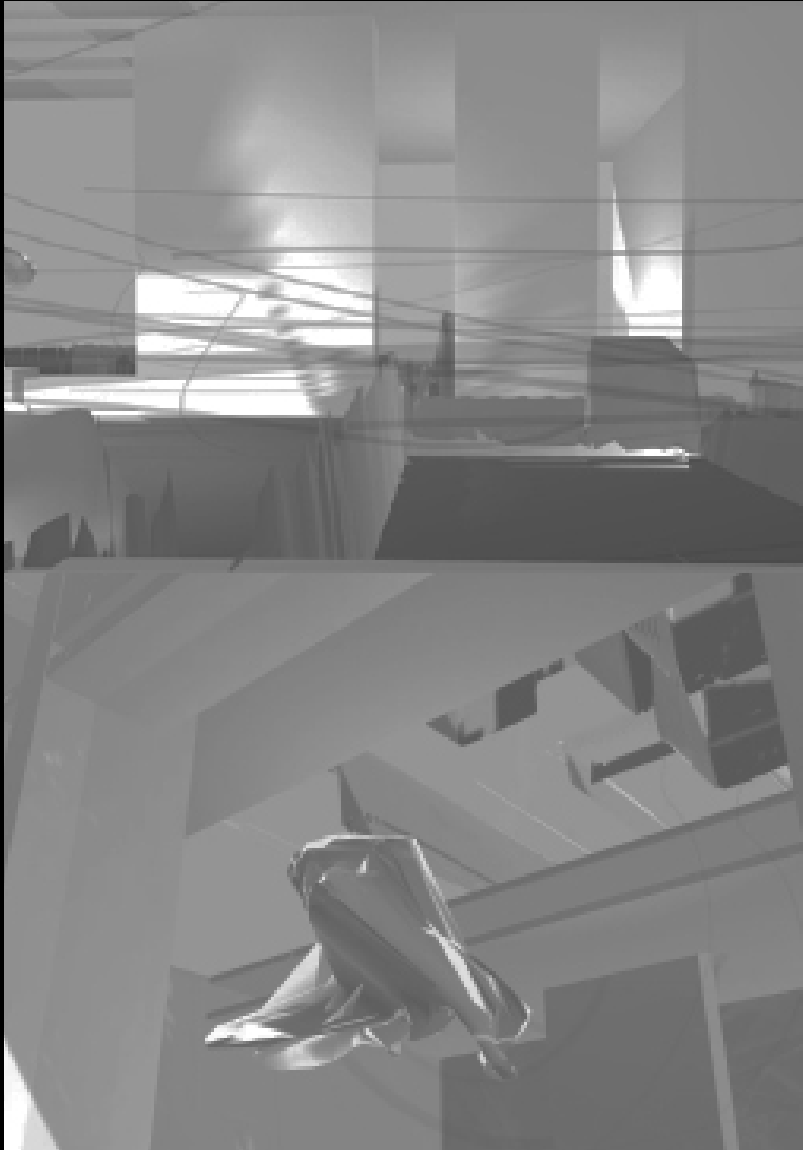
For Flusser, the  
capacity of the  
technical image, a  
central ontological  
concept of his  
media theory, is  
the “concretion of  
the algorithmic  
abstraction”. Unlike

traditional images, technical images do not represent the world. Due to processes of analysis, calculation, and computation, technical images are projections of abstract concepts. Flusser believed that one day there won't be a difference anymore, on a cognitive level, between concrete objects and so-called simulations: "If I define a hologram just as well as my nervous system defines this table, then there is no real technical reason anymore to state that this table is the original and the hologram is

a simulation, or vice versa. This would be metaphysics. If I define this hologram better than the nervous system does then suddenly this table becomes a simulation of the hologram. This is my argument against Baudrillard." At the same time Flusser believed that such new technologies which enable the creation of new worlds should be deployed as to promote liberation: to break out of the capitalist pre-determined structure of the program and to experimentally try out new possibilities; to not become a

"functionary" of the program but a creative "player" against its determinations." [8]

The Vilém Flusser Residency Program for Artistic Research 2016 will enable the artists to develop their project of #Additivism through a series of workshops and the completion of their ambitious 3D Additivist Cookbook that will both collect neighbouring projects and facilitate the further distribution of the #Additivist methodology." [8]



“A collaboration between Morehshin Allahyari and Andrew Blanton for Panther Modern curated by LaTurbo Avedon. Panther Modern is a file-based exhibition space, encouraging artists to create site-specific installations for the internet. Each project shown at Panther is given a unique structure in the format of a 3D model file, which built to engage the artist and their process of making. Given the variety of methods available to produce works in virtual space, the artist is able to choose the format in which they will share their installations. Completed rooms are added to the existing architecture, allowing the shape of Panther Modern to change with each project.” [9]

# 03

## POST DIGITAL CULTURES

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[10] Wardrip-Fruin, N., & Montfort, N. (2010). The New Media Reader. The GNU

Manifesto. In Richard Stallman. Cambridge, Mass.: MIT Press.

[11] Ulrik Andersen, C., Cox, G., & Papadopoulos, G. Postdigital Research [PDF]. What Is 'Post-digital'?. In Florian Cramer Retrieved from <https://aprra.net//issue/view/8400/893>

[12] Postdigital Aesthetics: Art, Computation And Design, Berry

[13] Mass Effect – Art and The Internet In The Twentynine, Lauren Cornell



# OPEN SOURCE, DIY (DO IT YOURSELF), MAKER

“From “The GNU Operating System and the Free Software Movement” by Richard Stallman: The term “free software” is sometimes misunderstood—it has nothing to do with price. It

is about freedom. Here, therefore, is the definition of free software: a program is free software, for you, a particular user, if: • You have the freedom to run the program, for any purpose. • You have the freedom to

modify the program to suit your needs. (To make this freedom effective in practice, you must have access to the source code, since making changes in a program without having the source code is exceedingly difficult.) • You have the freedom to redistribute copies, either gratis or for a fee. • You have the freedom to distribute modified versions of the program, so that the community can benefit from your improvements.” [10]

“GNU, which stands for Gnu’s Not Unix,

is the name for the complete Unix-compatible software system which I am writing so that I can give it away free to everyone who can use it.<sup>1</sup> Several other volunteers are helping me.” [10]



“In a project on Open Source culture organized by Aymeric Mansoux with Bachelorlevel students from the Willem de Kooning Academy in Rotterdam, it turned out that many students believed that website user account registration was a general feature and requirement of the internet.” [12]

“(...) “open source,” the term given to a technology that makes public the source code used in its creation.” [13]

“At the same time, new ethical and cultural conventions which became mainstream with Internet communities and Open Source culture are being retroactively applied to the making of non-digital and post-digital media products.” [8]



“These events, where people come together to collectively one between shrink-wrapped culture and do-it-yourself culture. The best example of this development (at least among mainstream media) is surely the magazine and website Make, published by O’Reilly since 2005, and instrumental for the foundation of the contemporary ‘maker movement’. Make covers 3D printing, Arduino hardware hacking, fab lab technology, as well as classical DIY and crafts, and hybrids

between various ‘new’ and ‘old’ technologies.” [8]

“When hacker-style and community-centric working methods are no longer specific to ‘digital’ culture (since they are now just as likely to be found at an ‘analog’ zine fair as in a ‘digital’ computer lab), then the established dichotomy of ‘old’ and ‘new’ media — as synonymous in practice with ‘analog’ and ‘digital’ — becomes obsolete, making way for a new differentiation: one between shrink-

wrapped culture and do-it-yourself culture. The best example of this development (at least among mainstream media) is surely the magazine and website Make, published by O'Reilly since 2005, and instrumental for the foundation of the contemporary 'maker movement'. Make covers 3D printing, Arduino hardware hacking, fab lab technology, as well as classical DIY and crafts, and hybrids between various 'new' and 'old' technologies.”

[8]

