Infragraphy

volume II

Fall 2019

Infragraphy Vol. 2 is a compilation of critical student artworks and short essays dealing with the materialities of media technologies and their environmental implications. These works and texts are the outcomes from the 'Media and the Environment' Master of Arts course in the Fall of 2019 at the Department of Media, Aalto University Finland. The course examined the themes of Anthropocene, Thermocultures, Fabrication, Plastics, Internet of Things, Planned Obsolescence, E-waste, and Media's energetic landscapes. It introduced artistic methods and practices that could address emerging media materialities. The final exhibition of the course was a collection of student artworks as a response to the contemporary discourse of political economy of media and related environmental implications.

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A!
Aalto University

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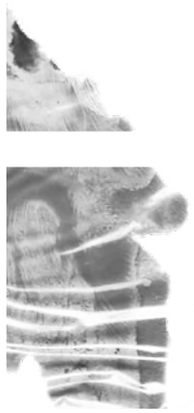

Aalto University
School of Arts, Design
and Architecture

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Introduction

The Anthropocene is nothing but the Anthrobscene. Obscene — “because of the unsustainable, politically dubious, and ethically suspicious practices that maintain technological culture and its corporate networks. Obscene because this age marks the environmentally disastrous consequences of planned obsolescence of electronic media, the energy costs of digital culture and furthermore the neo-colonial arrangements of material and energy extraction across the globe. To call it anthrobscene is just to emphasize what we knew but perhaps we were shielded away from acting on—that is the horrific human-caused drive toward a 6th mass extinction.” (J. Parikka, The Anthrobscene, 2015)

This second volume is a compilation of critical student artworks and short essays dealing with the materialities of media technologies and their environmental implications. These works and texts are the outcomes from the course ‘Media and the Environment’ in the Fall of 2019 at the Department of Media, Aalto University. The course was a series of scholarly readings about and around the themes of media including media’s relations and impacts on the so-called Anthropocene, thermocultures of media, ecologies of fabrication, media and plastics, Internet of Things, Planned Obsolescence, e-waste, and media’s energetic landscapes. A key approach of the course was also introducing artistic methods and practices that could address emerging media materialities. The final exhibition of the course was a collection of student artworks as a response to the contemporary discourse of political economy of media and related environmental implications.

Samir Bhowmik

27 November 2019
Helsinki

1

Hanna Thenór Årström

Leo Kosola

Kevan Murtagh

Seudonium: From cave to grave

"Any sufficiently advanced technology is indistinguishable from magic" - Arthur C. Clarke [1]

We're surrounded by shiny things, sprung out of dirty material. They are objects with seemingly magical properties such as touch-screens and AI search engines. Originating from impure mineral compounds found in mines, these electronic appliances function because of the properties the minerals hold. We associate many metals such as gold and silver with religion, beauty and mystery. In the Information Age, humans seek to explain everything, and nothing is left to be magical. Still, it seems that the more information there is about the world, the more certain things are shrouded in darkness.

While learning about the production process of electronics, a few things became clear to us. We all felt detached from the process, and found it almost impossible to grasp it as a whole, without potentially putting endless hours into watching videos, reading, and perhaps even visiting the mines, refineries and factories where electronics are made. This requires time and effort that is unattainable and probably undesirable for most of humanity, which means that production of electronics remains a complex, confusing and obscure process.

Figure 1.1
Parody of science poster presenting the fraudulent material seudonium.

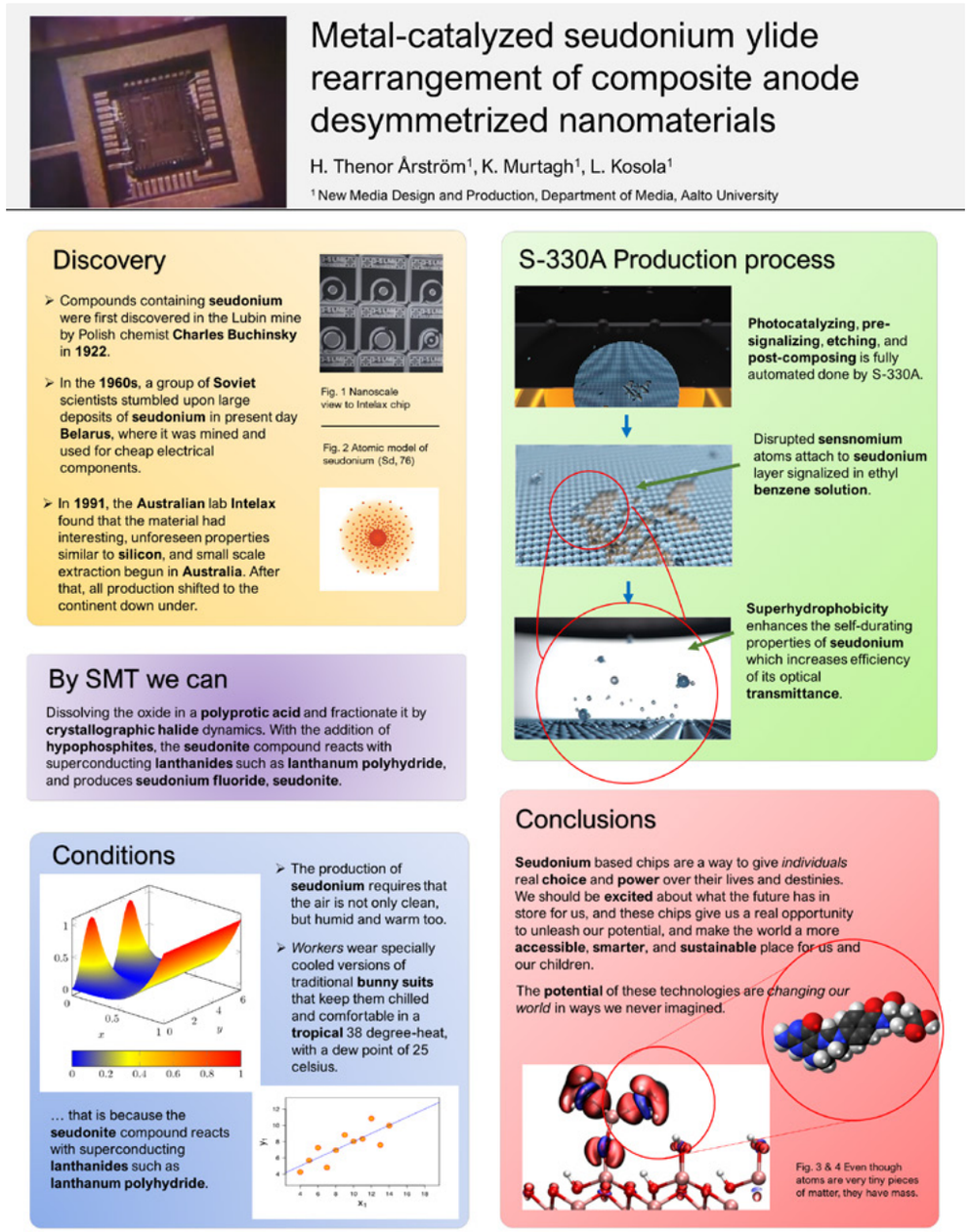


Figure 1.2
Rock found close to Aalto University, representing seudonium ore in the installation.

Figure 1.3
An overview of the art installation with the film shown on an old TV, surrounded by the chip on the left, the rock on the right and the science poster in the background.

Material: From cave to grave documents a fraudulent material known as ‘seudonium’ (from ‘pseudo’) from its discovery up until the present day, and details its current use in modern electronic component production. We exhibit this through the use of a mockumentary, a poster, and a display of a rock and circuit board. The footage for the movie was sourced from online videos such as documentaries, commercials and instructional videos. We also dubbed our own soundtrack and narration.

The narrative style is aimed at mimicking these very same videos, using exaggerated analogies and superlatives to speak to the viewers’ emotions, rather than their logical thinking. To communicate the nonsensical and surreal complexity in the production of electronics, we use opaque scientific language aimed at alienating the viewer and highlighting how ignorant we can be to the kind of vocabulary and processes used in these videos. We include overly optimistic advertorial style language, aimed at highlighting the contradictions and lack of neutrality that often arises in videos on the subject of technology. We also use music that imitated the style used in these videos.

The poster accompanying the movie mimics the visual style of science posters, which places substance above style - the scientists present their work or a particular scientific law, display it in conferences and classrooms, and so are not often aimed at outsiders. This ecosystem of poster creation for science seems to have given rise to a particular aesthetic that can be bizarre to those who do not study or work in the area.

Finally, we also exhibit a rock found in the woods next to Aalto University, described in the exhibition as a piece of ‘Seudonite’ ore mined in the Finnish Lapland, and a microchip described as a component using ‘Seudonium’ in its production. These were recovered from an electronic waste bin.
These two objects together offer an air of believability to the exhibition by attributing tangibility to the material.

With both the poster and the movie, we aimed to use the visual style of the original sources but fill it with artificial content. Thus, the viewer is confronted with a contradiction – the visuals are familiar, which makes the content believable, but if one examines closely, the details are off. This aims to highlight the ‘blackboxing’ common within the modern electronics industry, by showing how bewildering and difficult it is to gain an understanding of the entire process; to know what is true and what is exaggerated, enhanced or even outright fake. These production techniques are frequently explained and disseminated among people through science and technology videos and similar productions, and as outsiders without education in the subject, we often accept the things we are told as truth.

Is our movie less real than some of the content online? In the end, it’s still telling a reasonable story of a mineral’s journey from cave (the earth) to grave (obsolete electronics), which the viewer can learn from. And just like the difference between magic and technology, who can distinguish this from the real deal?

Notes

[1] Clarke, Arthur C. Profiles of the Future; an Inquiry Into the Limits of the Possible, by Arthur C. Clarke. New York: Harper & Row, 1973.

Figure 1.4
Microchip found in e-waste bin in Otaniemi, representing a seudonium chip.

2

The Cycle of Illusion

Eerika Jalasaho

Julia Sand

We are all part of the same system, the same cycle that pumps the seemingly immaterial content on digital platforms. People are often tightly confined and conformed to their technological and social environments as the users and the consumers of everyday items. They are part of the repeating loop of cause and reaction, exploiting poorly paid workers and spitting out the pollution and dirt created in the process under the carpet, into the rural areas of distant countries.

This chain of reactions starts from the minerals in earth, goes through the hands of miners and factory workers, travels on ships from one continent to the next, sets ones and zeros on the component of computational devices, converts to an exchange of information, shoots up a cable in a form of light, turning into the impulses of all the users of smartphones and laptops, putting money in the pockets of few, that profit then fueling the whole reaction to start again. We are all individual links on the vast chain of events, that pulls the silicon out of the soil of China, puts the workers in the dangerous cobalt

Figure 2.1 and 2.2
Installation at the exhibition, 'Anthrobscene' held at Aalto University - image by Reishabh Kailey

Figure 2.3
Installation at the exhibition, ‘Anthrobscene’ held at Aalto University - image by Reishabh Kailey

mines in Congo and pumps up massive amounts of carbon dioxide in the air in the data centers around the world.

We are all getting lost in contents, trying to find ourselves at social media platforms, endless repetitive stream of selfies and serving corporations objectives via communication. The more we get lost in the illusion of immateriality of digitality, the more we exploit our earth.

The Cycle of Illusion: The artwork is based on a Processing-code which uses laptops’ camera to record the viewer and makes a loop of recordings and the screen from the background. The work represents the endless hole of digital content and how it sucks us into the illusion of immateriality. The illusion plays a bigger role than the reality of media materiality which the laptops without screens represent. These laptops are used and thrown away, only the valuable parts are taken out regarding to the Aalto University. The screen is the most valuable component of these devices and that’s where the artwork derives inspiration from. By placing the laptops facing the screen we wanted to create a discussion of the screens’ materiality, make the content stronger than the weak reality, use devices as spectators of the entertaining content in which we all are creators and consumers of.

3

Gurden Batra

Mined on iPhone

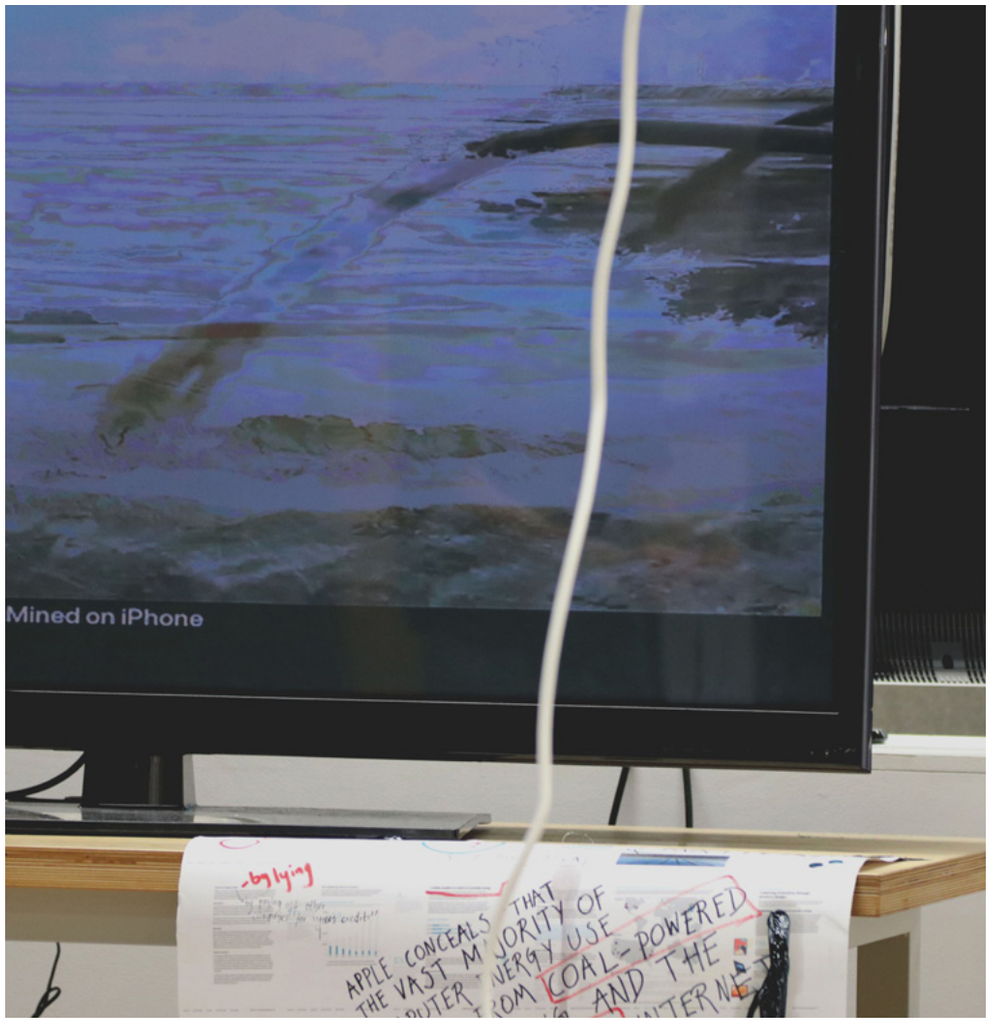


Figure 3.1
Video loop and poster at the exhibition, 'Anthrobscene' held at Aalto University - image by Reishabh Kailey

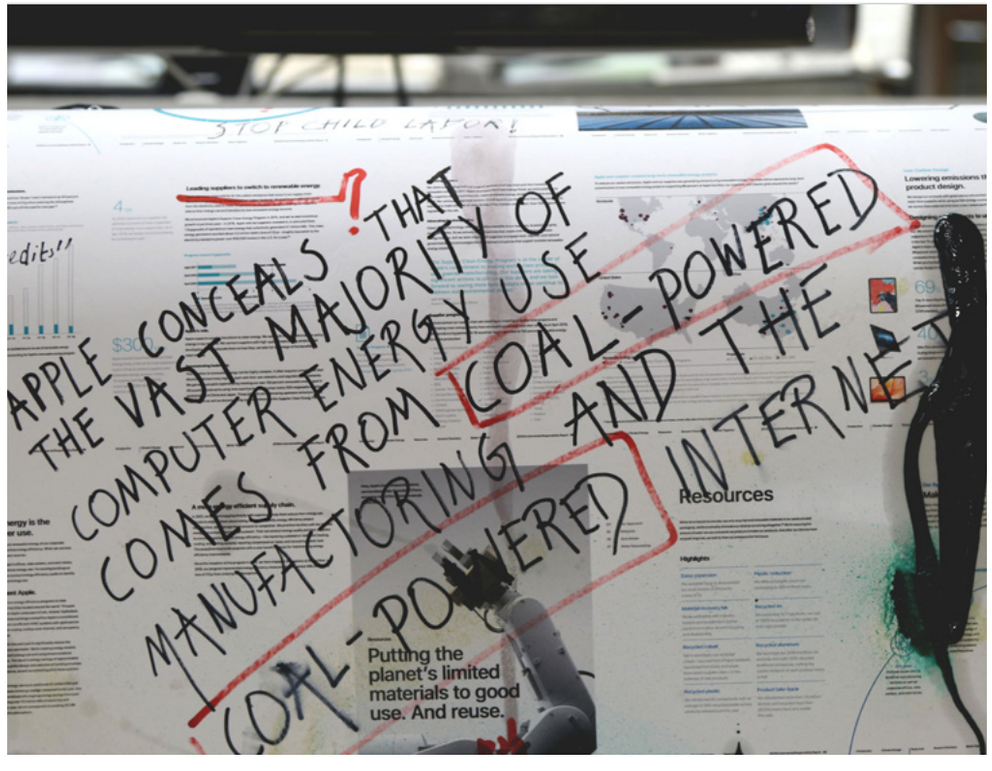
Apple is one of the wealthiest companies to exist [1] with a market cap higher than most countries. Its products more omnipresent than ever. They are impacting culture and human life at an accelerated rate [2]. A new product launch takes place every few months. These products which are hard to repair or to replace are offered with an inbuilt planned obsolescence. Not even that, iPhone owners usually live in fear to not damage their expensive phones and that creates a big market for plastic phone cases. The materials used to produce these devices and its inner components include rare earth metals, aluminium, cobalt, copper, glass, gold, paper, plastic, steel, lithium and more [3]. And these materials are extracted with questionable mining practices in China, Taiwan, Congo, Bolivia, Indonesia and other countries in the global south under terrible working conditions [4]. And, out of these most components are impossible to recycle, while most of the hardware itself never undergo proper recycling and thus are gathering on the Earth as growing e-waste [5]. More devices also mean more usage of Apple's cloud services and data centre energy consumption. Yet, an Apple product has a clean, rich and beautiful feeling to it, thanks to Apple's dark design, brand and marketing practices.

This artwork aims to present the other side, behind the shiny products…exposing the materiality, human divide, mining practices, and e-waste culture in the wake of the environmental crisis and mass extinction. The work wants us to question the need to release new products every year, the design decision to make it hard to open the devices, fix it yourself or replace parts and even its strict restrictions on the AppStore policies. The work also pokes at claims of being 100% sustainable in Apple's Environmental Responsibility report, as there is evidence that most of Apple's operations are still coal-powered and that Apple pays off companies to purchase "green credits" [6].

Figure 3.2
Video loop at the exhibition, 'Anthrobscene' held at Aalto University - image by Reishabh Kailey

The video for the artwork was created using openFrameworks. It is a 35-second loop which shows a beauty picture from Apple's "Shot on iPhone" marketing campaign and then another picture transposed on it, accompanied with some basic glitches, which shows the mining reality behind it. The accompanying poster is Apple's 2019 Environmental Responsibility report with hard-to-believe statements marked in red and smeared with protest text, black paint and metallic sprays.

Figure 3.3
Poster at the exhibition, 'Anthrobscene' held at Aalto University - image by Reishabh Kailey



Poem for exhibition label:

so shiny
made of rare earth
must have the latest
oh, look at that camera
it can capture it all
constructed beauties
of the global north
installed mining practices
of global south
e-waste gathers
clouds get heated
"sustainable" af

Photos used in video loop:

Apple's Shot on iPhone marketing campaign - Apple https://www.apple.com/newsroom/2019/01/share-your-best-photos-shot-on-iphone/

Rare Earthenware by Unknown Fields and Toby Smith https://www.tobysmith.com/project/rare-earthenware-2/

CTRL-X, a topography of e-waste https://www.kailoeffelbein.com/ctrl-x-a-topography-of-e-waste

Notes:

[1] Krishna, Mrinalini. "At $1 Trillion, Apple Is Bigger Than These Things." Investopedia. Investopedia, November 18, 2019. https://www.investopedia.com/news/apple-now-bigger-these-5-things/.

[2] Haskins, Caroline. "AirPods Are a Tragedy." Vice, May 6, 2019. https://www.vice.com/en_uk/article/neaz3d/airpods-are-a-tragedy.

[3] "Apple Environmental Responsibility Report 2019." Accessed December 2, 2019. https://www.apple.com/environment/pdf/Apple_Environmental_Responsibility_Report_2019.pdf.

[4] "Op-Ed: Were the Raw Materials in Your IPhone Mined by Children in Inhumane Conditions?" Los Angeles Times. Los Angeles Times, July 23, 2017. https://www.latimes.com/opinion/op-ed/la-oe-merchant-iphone-supplychain-20170723-story.html.

[5] Hardy, Michael. "The Hellish E-Waste Graveyards Where Computers Are Mined for Metal." Wired. Conde Nast, December 7, 2018. https://www.wired.com/story/international-electronic-waste-photographs/.

[6] "The Truth About Apple's '100% Renewable' Energy Usage." Center for Industrial Progress, January 20, 2018. https://industrialprogress.com/the-truth-about-apples-100-renewable-energy-usage/.

Materials used:

35 seconds long H.264 encoded glitch video created in openFrameworks on an Apple Macbook
Raspberry Pi 3 with Adafruit's Video Looper pre-installed
LG 60PZ570W monitor
A1-size poster printed on ISO 216 paper with C-EXV 26 Toner smeared with black paint, red marker and metallic sprays

4

Takayuki Nakashima

What does “Made in Japan” mean?

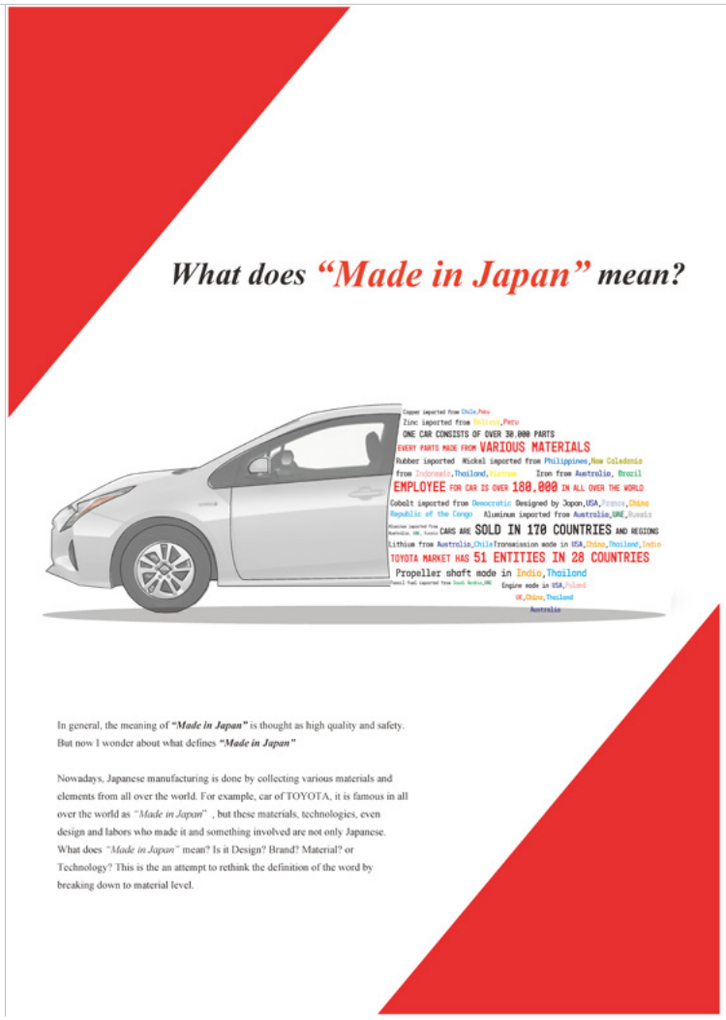


Figure 4.1
Poster created for the exhibition, ‘Anthrobscene’ held at Aalto University

Do people know how much of their material of products around us comes from? I want to rethink about it.

In general, the meaning of “Made in Japan” is considered of high quality and safety. But, now I wonder about what defines “Made in Japan” These days, Japanese manufacturing depends upon the collection of various materials and elements from all over the world, not only Japan.

The automobile industry is a typical example. More than 30,000 parts are used for manufacturing a single car. However, we don’t know where these parts are procured from. Furthermore, we use them without knowing at all what the materials consist of and where they come from.

For example, Toyota’s car is famous in all over the world as “Made in Japan”, but these materials, technologies, even design and labors are not only Japanese. Toyota has 51 entities in 28 countries, and sales in more than 170 countries. In addition, it is said to have over 180,000 employees overseas. Not only the factory, but the design institution is also located not only in Japan but in the US, China, and France as well. Raw materials such as iron, aluminium, rubber, and plastic that are used in the manufacture of these automobiles are in most cases imported from all over the world.

What does “Made in Japan” mean in this situation? Is it a Design or a brand? A material, or a Technology?

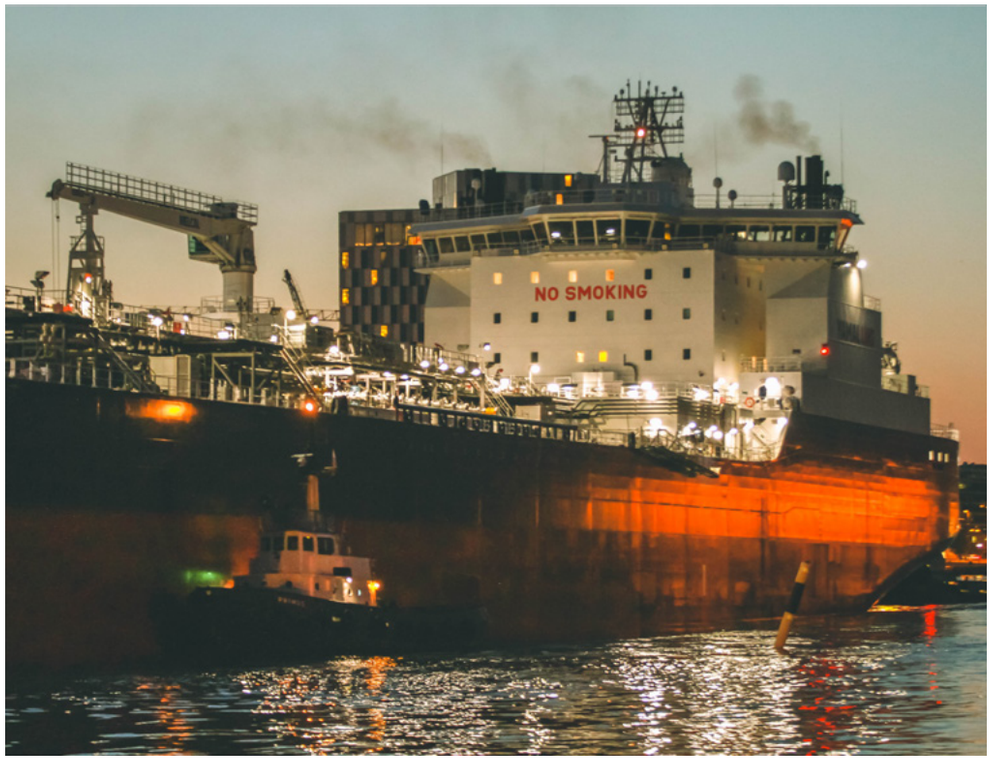
My artwork expresses how many elements such as foreign substances and labor are related to a product called Made in Japan. It presents the various materials and elements involved in the Toyota car manufacturing by listing the names of the countries related with them. In addition, the elements described here are only small components related to automobiles. In fact, much more international elements are actually related.

5

Surabhi Nadig

Ship as a Landscape of Media

Figure 5.1
Yuriy Kucheiv, the brand new gas condensate tanker setting out onto open waters from Helsinki shipyard, Arctech. Image: Surabhi Nadig



On 28 August 2019, a massive icebreaking gas condensate tanker finally set sail from Helsinki shipyard Arctech. Its first course was set to Ust Luga, Russia, and then to Yama Peninsula, which holds Russia's biggest natural gas reserves. Gazprom, the oil company giant which owns reserves in the region proudly announces on their website to produce 360 billion cubic meters of gas per year. "Its overall production is projected to reach 217 billion cubic meters of gas and 4 million tons of stabilized condensate per year" [1].

Two things aroused curiosity. First, is natural gas a mineral? Second, how is natural gas related to media? A quick Google search revealed that, 'generally, ores of metals, coal, oil and natural gas,..., salt and other materials extracted from the ground are considered to be minerals".

How could we investigate the media traces of a ship in the post-Anthropocene? From building a ship, the resources used, labour involved and the tracking of an ice-breaker crude oil tanker destined to natural gas reserve beyond the Arctic Circle. What immediate (negative) environmental and social impact does the ship have on the world? Could we examine the ship as a powerful tool to sustain our collapsing ecosystem?

Perhaps the answer lies in Parikka's Anthrobscence. "Whether or not they are perceived in terms of media, deep time resources of the earth are what make technology happen" [2]. He further explains that "the knowledge thus created of the earth's resources are mobilized toward technological production, governmental geopolitics, and increasingly a global survey of the minerals of the earth" [3].

I imagine the ship as an 'infrascape' that enables these transformations of earth's systematized knowledge towards media and technological production. The ship counts as 'media' by 'existing in the outdoors as a physical architecture[4] . This is the story of a gas condensate, 230m long, 39,275 GT and 50,000 DWT made of high-strength shipbuilding steel. Assembled and partially built in Helsinki, Finland [5].

Much earlier, ship-breaking was said to have been carried

out on dry-docks in developed countries. But high wages and environmental regulations resulted in transfer of the industry to developing regions, like Bangladesh, Pakistan and India. A ship is said to be built to last 25- 30 years. After which they're disposed-off by a most common process called 'beaching'. Decommissioned ships are sent off, or in some cases sold, to a 'graveyard of ships' where local workers dismantle the ship in hazardous conditions without proper protection. It's rather interesting to note that assemblage is done in a first world country like Finland owing to high technology available locally, whereas stripping down a run-down ship is left to the economically weaker sections of the society who are least protected by laws, namely the global south. In a documentary by National Geographic on ship graveyards, labourers are seen breaking down complex metal structures of ships using cutting torches [6]. Can they, then, be called informal 'media' archaeologists? Those who 'excavate' a dead ship for its recyclable parts like steel and wires. Other methods include scuttling or sinking the ship in open waters.

While in the more progressive countries where ships are built, advanced technology like smart robotics is employed to weld giant pieces together. While life is important at one stage, neither environment nor human life is values towards the end of a ship's life.

Shipping is said to be the most economical way of transportation. It plays a major role in world's economy and is dubbed to be the backbone of the economic system. The industry is also among the highest polluters in terms of daily emissions and when decommissioned after usage.
In 2019, a review of the shipping industry and ship building by BRS states that, "The need for fuel-efficient and compliant vessels threatens to render many existing vessels commercially and technically obsolete. It is said that LNG fuel is the future of the Shipping industry. LNG fuel helps in reduction of air pollution from ships, and a combination of LNG fuel with diesel

Figure 5.2
Shipbreaking site in Bangladesh. Image source: National Geographic.com, (2019)

oil will lead to efficient engine performance, resulting in fuel-saving. In other words, it attracts mega investors to invest in future technologies", while Russia being the largest reservoir of natural gas [7].

Thus, while an average 1,100 ships were ordered per year in 2017 and 2018, this number could rise after 2020 when new vessels will be needed to replace the non-eco fleet delivered in 2005-2010 (going from 1,400 in 2005 to 2,200 in 2010). It is unlikely there will be a one-to-one replacement as too many ships were ordered in the boom years. However, any demand substantially above 1,200 ships per year will create tension and will inevitably push up new building prices". This indicates an increase in not just prices for ships, but demand for newly built ships as well, adding to the mounting fleet of inscribed infrascapes of dead ships. No doubt, today, these are the landscapes of energy and energy transactions.

Figure 5.3
Mount Whaleback is the largest BHP's mines in Australia. Image credit: Michelle Griffin

Figure 5.4
Yuriy Kucheiv, a 50,000 DWT tanker made of stainless steel frame and components. Image: Surabhi Nadig. Helsinki, 2019

Notes

[1] Yamal. Accessed December 2, 2019. https://www.gazprom.com/projects/yamal/.

[2] Bhowmik, S. , & Parikka, J. (2019). Infrascapes for Media Archaeographers Hiller, Moritz, and Höltgen Stefan. Archäographien Aspekte Einer Radikalen Medienarchäologie. Berlin: Schwabe Verlag GmbH, 2019.

[3] Bhowmik, S. , & Parikka, J.

[4] Kajosaari, Markku (2018), "New type condensate tanker for arctic operation", in Kujala, P.; Lu, L. (eds.), Marine Design XIII: Proceedings of the 13th International Marine Design Conference (IMDC 2018), June 10-14, 2018, Helsinki, Finland, 1, Taylor & Francis Group, pp. 77-82, ISBN 978-1-138-34069-5

[5] Kajosaari.

[6] Hettwer, Mike. "The Ship-Breakers." National Geographic, September 20, 2017. https://www.nationalgeographic.com/magazine/2014/05/The-Ship-Breakers/.

[7] "Shipbuilding BRS - Annual review 2018." Accessed December 2, 2019. https://www.brsbrokers.com/assets/review_splits/BRS-Review2019-01-Shipbuilding.pdf.

6

Punit Hiremath

Stuck, thinking

Figure 6.1: 'The Thinker', by Auguste Rodin Source - https://commons.wikimedia.org/wiki/File:The_Thinker_MET_DP-13618-011.jpg

Humans alone have come to dominate the biological, chemical & geological processes on Earth. We affect the Earth and its processes more than all other natural forces combined, pushing it to an unprecedented time in planetary history. The globalized monoculture of ceaseless growth and rapacious consumption has radically impacted the environment to a point of irreversibility.

We are left in a state of vulnerability & culpability.

If we humans want to have a future, we need to understand our place in the matrix of life. We need to reframe our materialistic consciousness. Our entire civilization is unsustainable because of our value system, the consciousness with which we treat the world in an unsustainable mode of consciousness. We need to let go of this arrogant point of view, this crippling conceit that we are the exception, standing outside and above nature. We need to mobilize our consciousness to creatively rethink the medium of our evolution.

‘The Thinker’, sculpture by Auguste Rodin shows a muscular man who has the capacity for action but is stuck in deep thought. The 3D print of the same sculpture sitting atop the debris of electronic waste covered by moss that is slowly consuming them both paints a dystopian image we are in. I wish to present the complacent human nature in the time of action. With the juxtaposition of a plastic man sitting on a plastic rock, thinking, surrounded by moss I wanted to ponder over the materialistic global culture we are absorbed in. With lichen growing on him & moss slowly covering his feet, I wanted to be hopeful about how the world would go on, nature will thrive with or without us.

Figure 6.2:
Artwork created for the exhibition, ‘Anthrobscene’ held at Aalto University

7

XMAS as RED as BLOOD

Liisi Soroush

and other reflections in an artistic and imaginative manner...

"The scientific name for bats is Chiroptera, which is Greek for "hand wing." That's because bats have four long fingers and a thumb, each connected to the next by a thin layer of skin. They are the only mammals in the world that can fly, and they are remarkably good at it." [1]

The public discussion has at least for some decades revealed the well-known and distracting truth behind the industries of media and technology, among others, concerning both the human and environmental rights that fall under the category of each other. The realms of images revealing dystopian landscapes in places such as Ghana and China has been viral for years. Meanwhile, in the Global North, the indigenous people among citizens of Canada struggle amidst devastating outcomes after mining companies have destroyed their natural resources and exploited the lives of inhabitants in various ways, from their health to their livelihoods. At the same time, superpowers such as Russia and the USA are celebrating the decay of the planet to the fullest by invading the land, which is uncovered after massive ice melting due to climate change and global warming,in the so-called new-lands in Antarctica and the Arctic that afford undiscoverable resources of rare earth minerals.

Closer home, the new media artist, situated on campus in Väre, the Arts building in Otaniemi, Finland, practices similar procedures to those in unequal position from connoisseurs to electronic factory workers, whose rights are closer to slavery than to labor-union rights meeting the standards of human rights in Global North. Both the artist and the cheap employee use similar parts, materials, objects and processes in manufacturing and execution. The cycle of this so-called chemical-technological - chain in many cases will return closer and around to the lands of the original source than to the part of the world where the actual use of the object or device occurred, now piling up as the lands of e-waste. Multiple sweatshop-like-units facilitate tinkering and inhaling the smoke of the soldering iron, but not as part of the chosen career path, unlike for those who update their artistic identities in Fab Labs, Mechatronics workshops and Makerspaces spread around the globe, and as in the case of the latter, are providing the adequate safety equipment and certified air ventilation systems to start with.

As in many cases, the artistic practice begins when the order that has taken place via the intuitive design of online store platforms such as Amazon or Alibaba. The gadget, device, micro-board packed in Styrofoam, plastic and cardboard are on its way. To compliment the artwork there has been three

orders executed: the wool, the book of Anthrobscene and electronics. Artistic process can begin now by finger tapping into the keyboard or the touchscreen of the mobile phone while the fingers on the other end are digging and manufacturing the microchip boards that are dissolving into the shape from the rare mineral elements and metals provided by the Earth.

The pattern of these transactions overtakes in infrascapes both in virtual and physical space and creates this global connection among each other. Instead of going to the shoemaker that had been placed on that street in early urban civilization, cities enfolded to the map, and where the leather was purchased by the local farmer, our delivery-supply-chain is reaching out new ways to meet the customer, the end user.

Recently, the facilities of the shopping malls, libraries and other public, private and commercial places are trying to find their new forms of existing in the citizens' lives. While all that is mentioned above is putting emphasis on experiences instead of goods, the ever-growing consumerism has been transported to the virtual platforms to enhance the instant-delivery-consumerism that Amazon as one of the leading giants has led us to.

The attention span from consuming and retrieving goods has the same addiction triggering features that we have already trained while consuming our 24/7 available media formats. The same chemical balance and imbalance directing and boosting hormone secretion to gain our dose of dopamine and adrenaline rushes, the artificial neural networks are synced with the neural networks of the brain. This is also when

Figure 7.1
Installation using fibre optics created for the exhibition, 'Anthrobscene' held at Aalto University

discussions on algorithms start taking place. As said before, all this has continued into one of the latest phenomena and form of acceleration: the new peak in a supply chain management (SCM) could be happening in a part of the flow of logistics and delivery? [2]

When looking into the very same bundle of colorful wires, cables and microchip-boards hailing for techno-exotic revolution that now appear in multiple media art festivals and top notch galleries and museums as posthuman and transhuman frontiers and outcomes, are also a part of the reality where belongs overlong hours in dangerous and unhealthy working conditions. These working environments are not even designed for professional executions. It is just the last option to get by for those individuals after the manufacturing and process of these industries have invaded the locations and sites once belonging to their inhabitants and placing them apart from the natural resources that once were claimed as their own territory.

The privileged and contemporary human-being diagnosed with anxiety in their creative production now dips hands into dirt and raw materials provided by Mother Earth. The artist in an elite art and design school, like in this case located inside a hyper-hygienic arts building is desperately seeking for that feeling when tapping oneself to the material process within human-material interaction by experimentations with organic lambswool.

This has been the intuitive material approach for the artist in duty to tackle a series of complex issues gathered under the umbrella terms "media-archeology" and "media and environments" used in this XMAS-RED-BLOOD (working title) installation.

Simultaneously while the artists are trying to reconnect with their own intuition and elaborating the nature connection wherefrom many inhabitants the rare mineral resources are

aggressively detached from, the art institution itself slowly transforms into energy consuming wasteland with media and infrascape embedded into its structures. Thus, the chemistry of contemporary art production has been a rising discourse.

The indigenous people, people around the landscapes now being demolished from their original form, people with the knowledge of deep time and nature-connection are crying bitter tears merging, like amalgamation process, into the harmful chemicals of the rivers, water and soil in the land. This relationship of man and nature is something that the frustrated and overachieving individual in the postmodern society tries to desperately understand while recreating simulations of it for example in design-thinking-process. The methodology that is pushed to come along art and design education. The obedient artist-to-be delivers its outcomes to the audience under themes such as "climate change" and "Anthropocene", those exhibited at urban platforms in cultural contexts and supported by the institutional hierarchies.

When the term anthroturbation is already out there, that leads directly to the topic involved: the mining industry and companies can evaporate themselves into the air, like the smoke from the fireplace of the forefathers that once occupied the land and lived synchronized with the biological ecosystem, by filing bankruptcy in order to escape from the verdicts and penalties due to an inevitable aftermath regarding the exploited site and its inhabitants; and the society around. However, all of this has been decided beforehand. The actual mining of the land has begun by companies and industries behind striving the lobbying campaigns both among local and international politicians whom then changed the policies regarding their responsibility to cover and compensate their actions executed in the lands, now ruined for several generations and number of species to come.

This form of corruption is justified in neoliberalist anthems of

legalized cover-ups and vocalized in unclear humming where the lyrics consists of vocabulary that concludes the national and global acceleration in growth and demand, chorus repeating terms on economic growth and job opportunities for everyone.

"Vampire bats are the only species of microbats that feed on blood rather than insects" [3]

Although, one could state that the human-being as a living and organic ecosystem is not the only being that uses the energy and the resources of the other species; or the living and the non-living. Bats have fascinated the science people for centuries. Due to their extraordinary characteristics such as

Figure 7.2
Installation created for the exhibition, 'Anthrobscene' held at Aalto University

echolocation, the research has been funded by the instances that pay a great interested in still undiscoverable dimension of neural networks of the bats and their echolocation calls in recognition.

The XMAS-RED-BLOOD installation production is executed in a half-performative-manner while inviting the audience to observe the process within elements and materials that belong to the making-of-part of the installation. This felt-design-process continues with the plastic that is typically used to cover elements on construction sites. In fact, this installation could be used as a wearable. If it is used in performative manner, the performer can be tapped and connected to the site of construction, performance or building. The felt as itself mimics the material of glass wool used as thermal insulation. Therefore, the body-material-presentation, while conducting also body heat, integrates the performer and the material design to Väre, stating that the performer and its body would be part of the infrastructure of Väre's campus. Here, the olfactory sensation is one of the main aspect of the installation. It boosts the intuitive and multisensorial practice while being detached from the inside the white and artificial and alienating structures defined by the designers with a similar education like the artist herself.

When looking into nature and that mystical creature such as a bat, that has created amazing forms of collective power to take space in its living surroundings, the shape of this installation starts to take form by following the source of that inspiration. This aimed and half-claimed physical form is purely the outcome of the design executed in material-related interaction enfolding into the conceptual aspect of it. These in relation to the time and space, the surrounding environment and quest-in-demand aim to obtain a place for intimacy.

The mineworker, as an individual under economic oppression and expanding forms of poverty, is in danger. The Global South

is suffering from harsh weather conditions; either hot and dry or in opposite cases the floods. The worker has been forced to sacrifice his health beyond the limitations of sensorial or physical capacity without any human rights in order to protect oneself. In many of these sites the workers develop hazardous diseases, where they are literally coughing blood. Yet, these individuals, or shall we say fellow human-beings, are unable to reach out for the cure, the right medication, due to expenses that are equal to their monthly salary.

Yet, heartbreakingly, as the case follows: the victims under these circumstances and exploitation are barely able to gain justice nor any support from the employer when the lifesaving medication is in question after executing labor without proper protection or safety gear. The final destiny for this individual is inscribed and embodied into our daily-consumed-gadgets we use in light-spirited manner. Yet, jointly, we are addicted to them through artificial and virtual-scapes stimulating our nervous system, often also after using our hands, even though through by the very end of our fingertips trying to grasp into the next arousal, awoken or stimulated by sense organs.

Does this ring a bell? There is another infamous creature known from popular culture that has similar life and energy sucking qualities than the human-being in order to sustain and create life in harsh living circumstances which is commonly known as Alien. While Alien life form evolves and dissolves itself to the spaceship and invades the crew members of the ship, it breathes in and out through their physical bodies now melted and merged to the ship. This begins to resemble the reality where those inhumane destinies are formatted in the embodied presence within the devices we are attached to.

And come to think of it, the hypocrite layer in addition to everything: with that very same device the YouTube link is consumed with the informing on devastating realms of natural disasters and human rights violations, posted via apps to social media platforms, that one feels justified to call ourselves as concerned and caring human-beings since signing in the higher flight tax petitions.

But seriously, the outcome? While then artist struggling to maintain the living standards of the Global North citizens, the sustainable, fair and ecological production along with rising prices of electricity and any other basic living supplies will turn the tone of voice for sure. So, what happens when that microchip board once ordered from Alibaba online platform is asking for entirely new figures in terms of money?

While someone will reduce their flights to their art residencies - majority of the inhabitants of this planet will be suffering from issues starting from how to use public services such as public transportation or heating and air conditioners inside while energy costs will be rising in individual households. At the same time, it has been said that there are around 100 companies that consume three-fourths of the global energy resources.

"Just 100 of all the hundreds of thousands of companies in the world have been responsible for 71% of the global GHG emissions that cause global warming since 1998, according to The Carbon Majors Database" [4]

But the delivery business is rocketing. These virtual shopping spaces are developing the industry to the maximum. Amazon logistic facilities are occupied with, -besides the goods and packages-, half-automated processes, robotics and these together with underpaid workers without labor union rights or job benefits. The increasing number of delivery trucks in a cityscape, Amazon is in its continuous effort to develop more efficient (cost-), reliable (surveillance), faster (nonhuman) systems to keep up with the latest acceleration emphasis on delivery and logistics. They have already their own delivery jets, drones, cargos, robotic delivery bots to start with. These

technologies and forms of transportation are then attached to human work labor that takes place in risky situations, - this has been revealed in recent statistics showing numbers on safety. [5]

Coming back to Bats, they have an exceptional capability to fly resourcefully, and even more effectively than the hummingbirds, and also have their own way of cocooning that most of us are familiar with. This installation is to be shaped inspired by bats, and it is reaching out for a format that aims for a self-sufficient state of being, - also in terms of energy production and consuming. While bats navigate using echolocation, the robotic cars are using lidar technology to navigate around. Bats research has been extensively executed and funded by military industry due to its undiscoverable combination of neural networks, flying capacity and the echolocation accuracy.

While this installation has taken inspiration from a bat, it then turns into a burka that covers from the dust, heat and unwanted intruders, and could be used as any pods or hubs build for nesting next to each other. Like the row of alien eggs in an alien planet these bat-burka-hub-pots maintain their existence while providing shelter with the structure and networked-like-connection to each other.

Anyone who has seen the film "Alien" can surely remember the part where the first victim, one of the astronauts on his mission of exploration, was subjected to the Alien egg networks where from they were delivered in perfect human-alien-integration to continue further along with its life-journey-plans by a higher order from The Mother.

Faith Popcorn forecasted in 1981: "Cocooning is staying inside one's home, insulated from perceived danger, instead of going out... and her forecastings followed by hi-fi technologies consumed in private homes in order to "entering a new evolutionary stage". [6] — "transforming their apartments and houses into a shelter from the daily social storm."[7]; — "uber-cocooning, and now even bunkering" " were becoming prominent because people had become "terrified" of world conditions." [8]

One might recall 9/11, the time of terrorism, when surveillance proliferated in multiple formats from IoT to Whatsapp chats to home and public security cameras. Now, in addition to the abstract challenges of climate change that has become too overwhelming to comprehend, the individual chooses to return to the cave: the hub, the bot, the chosen form of a cradle for cocooning.

Imagine that there will be a time in a future where we are surrounded with darkness and dessert-like-scapes. The fifty-shades-of-grey in images have been circulating in the media to enfold situations in cities with severe cases of problems in air pollution like in Mainland China. United Nations Environment Programme (UNEP) as a subject of study was renamed the Atmospheric Brown Cloud with focus on ASIA. The Asian brown cloud is created by a range of airborne particles and pollutants from combustion wood fires, cars, and factories), biomass burning and industrial processes with incomplete burning. [9]

In a dystopian future scenario and visions, one could imagine a situation where the physical cityscape, including the airspace, underground and under seas- slowly transforms into goods and services delivery channels. The man with its extensive media and experience consuming multisensorial pods and hubs hibernates and roams around in his physical and virtual environments. The mechanical movement transformed into kinetic energy caused by these bat-pod-cooking-eggs along with the thermal data produced by the human bodies inside would be releasing the self-sufficient energy for future media and other living consumptions formats in personal customize

demand. This concept like the Alien could be then integrated to any other planets of the solar system that people like Elon Musk envision in their wildest dreams.

About the Installation

Within this art project ultrasonic sensors track the presence of another human being or / and object at its presence, - this has been used as an energy source in a conceptual level for this Xmas inspired LED-light structure, which repeats the patterns and rhythm derived from the hashtags #newiphone #macbook #moccamaster scraped in postings in Instagram. Once meeting the climax of the postings during a high-season of them and generated by this chosen social media platform, the high-pitched beeping sound of delivery or a garbage truck backing up intertwined with the intensified and rushing red light running in LED-strip will slowly start drawing the straight line towards another meaning than Jolly Christmas for a red light: the warning...

Text, concept, installation by Liisi Soroush together with technological knowhow executed by Camilo Sanchez.
Materials used: Lamb wool, fiber optics, styrofoam, chicken fence wire, plastic cover, LED strip, arduino, macbook pro
Instagram scraped: #newiphone; #moccamaster; #macbookpro

Figure 7.3
Process perormance for the exhibition, 'Anthrobscene' held at Aalto University

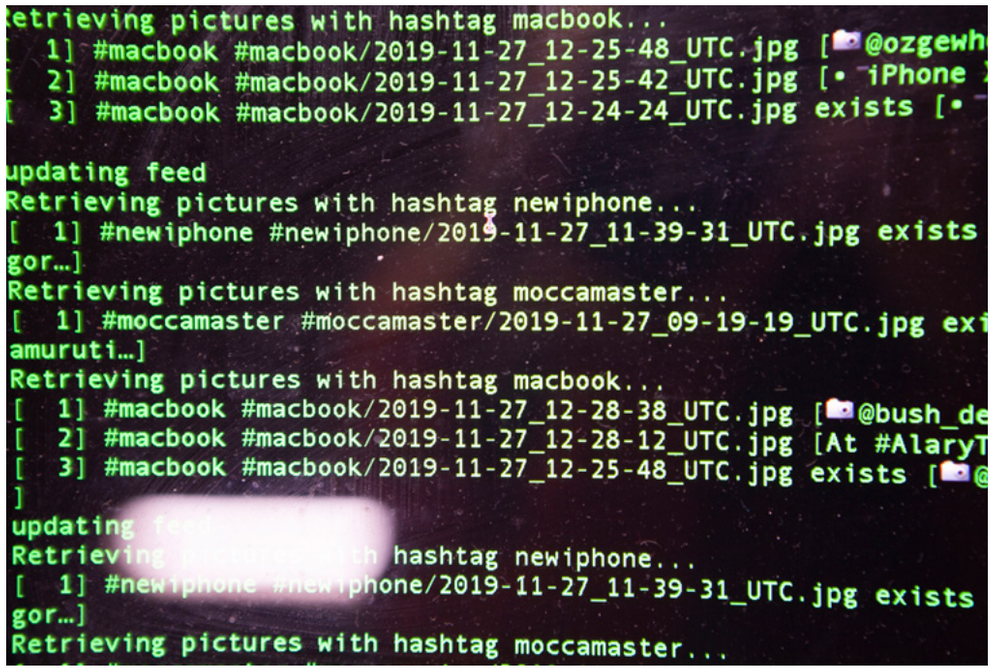


Figure 7.4
Installation created using data scraping for the exhibition, 'Anthrobscene' held at Aalto University

Postscript

Still to this day the new media artist execution has not received two of the orders regarding this exhibition, both the book and some electronics were lost or jammed in their way to Helsinki, Finland. Meanwhile the largest delivery companies such as UPS (UPS) and FedEx (FDX) are onto their mission. Finland that has been infamous for the most reliable post system "POSTI" is suffering from the global phenomena, therefore the labor unions among the supporting industries are on strike. At the same time the society is gradually raising its awareness on the rights for the couriers whose rights are barely or not meeting the standards of the labor-union policies.

Notes

[1] Nuñez, Elissa. "Bats." , explained, August 28, 2019. https://www.nationalgeographic.com/animals/mammals/group/bats/.

[2] "APICS Dictionary & APICS Dictionary App." Supply Chain Terms and Definitions | APICS Dictionary & App. Accessed December 2, 2019. http://www.apics.org/apics-for-individuals/publications-and-research/apics-dictionary.

[3] Nuñez, Elissa. "Bats." , explained, August 28, 2019. https://www.nationalgeographic.com/animals/mammals/group/bats/.

[4] Riley, Tess. "Just 100 Companies Responsible for 71% of Global Emissions, Study Says." The Guardian. Guardian News and Media, July 10, 2017. https://www.theguardian.com/sustainable-business/2017/jul/10/100-fossil-fuel-companies-investors-responsible-71-global-emissions-cdp-study-climate-change. https://www.cdp.net/en; https:// www.sciencealert.com/these-100-companies-are-to-blame-for-71-of-the-world-s-greenhouse-gas-emissions

[5] Sainato, Michael. "Accidents at Amazon: Workers Left to Suffer after Warehouse Injuries." The Guardian. Guardian News and Media, July 30, 2018. https://www.theguardian.com/technology/2018/jul/30/accidents-at-amazon-workers-left-to-suffer-after-warehouse-injuries.

[6] "Faith Popcorn." Wikipedia. Wikimedia Foundation, November 26, 2019. https://en.wikipedia.org/ wiki/Faith_Popcorn.

[7] Pandve, Harshal T. "The Asian Brown Cloud." Indian journal of occupational and environmental medicine. Medknow Publications, August 2008. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2796752/.

[8] "Cocooning (Behaviour)." Wikipedia. Wikimedia Foundation, June 16, 2019. https://en.wikipedia.org/wiki/Cocooning_(behaviour).

[9] Taylor, D. A. (2003). The ABCs of haze. Environmental health perspectives, 111(1), A21-A22.

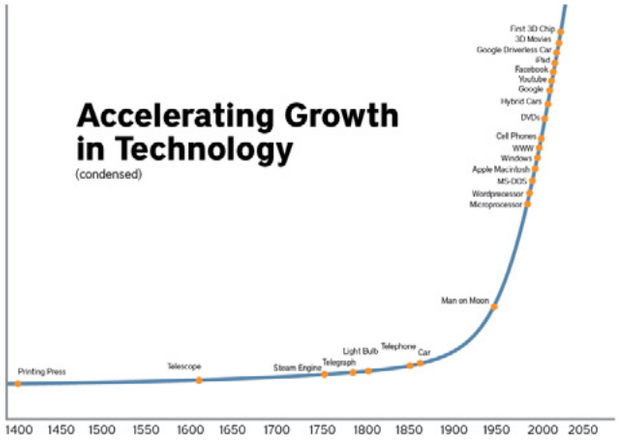
8

Ameya Chikramane

Attack of the Archetypes

The technological evolution has given birth to several artefacts that possess superhuman abilities. This may be due to an intimate underlying connection with the collective human "unconscious". The ability to fly, to appear in several places at once, to be heard or seen across far distances, to be visually magnified or diminished, to have great speed, to animate the inanimate and so on. Airplanes, television, radio and telephones, optics, networks, robotics, "smart" devices etc. are the physical and material manifestations of these abilities.

We now know the advancement in technology (and thus industrial processes) over the past century has affected our planet's geology and environment to such an extent that humans are at present considered to be the dominant influence for the condition of the planet in the current era, also dubbed as the Anthropocene.



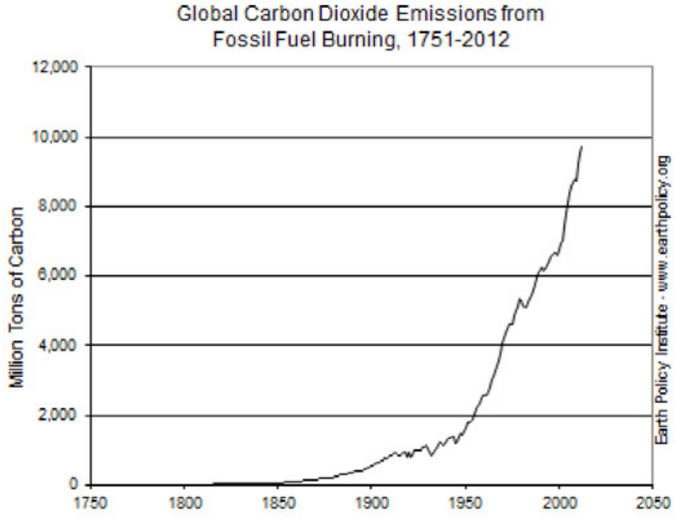


Figure 8.1 and 8.2: The comparison of the two charts especially in the period of 1800 - 2000 AD clearly show how the trends of technological advancement and ecological deterioration (carbon emissions in this case) are related. [1] [2]

The Anthropocene is distinguished by a vast deterioration of the earth's geology and climate, a trend that might be directly proportional to the advances in technology. This has ultimately led to the current predicament of the planet and its inhabitants- an intelligent species has infested the planet, dominated almost all other forms of life and the planet's geology. Advancements in the fields of science and technology are celebrated collectively by this species: the development of a smart product or a life-saving drug is put into use the world over, further aggravating the obscenity of the era.

The one thing that humans have in common across cultures are superhuman beings and scenarios with superhuman qualities- speed, access to knowledge, the ability to manipulate things over long distances, an arsenal of "smart" products. These fictitious figures and scenarios can be traced back to archetypes- primitive mental images inherited from the earliest human ancestors that are present in the "collective unconscious" according to Jungian theory. The "collective unconscious" is a shared mental space that is accessible to all humans from which they derive certain evolutionary and instinctual knowledge such as the fear of snakes or an attraction to fruits, in the form of mental images. Archetypes here refer to the more social aspects of this knowledge and gives rise to images such as "The hero" or "The shadow". These images manifest themselves in the conscious realm of human cultures in the form of narratives.

The Holy Bible, The Lord of the Rings, Star Wars and the Avengers universe are the super-earth environments manifested from the environmental aspects of the collective unconscious and Jesus, Gandalf, Luke Skywalker and Iron Man are some of the "Hero" archetypes in these stories.

Figure 8.3 and 8.4:
The comparison of a contemporary mine with a classical painting by Botticelli titled- The Abyss of Hell. Not only does this expose the obscene reality of our present condition but also points to our aesthetic and archetypal tendencies when approaching technological design. [3]

Each of these characters exists in an alternate universe and go through the typical narrative arc where each has, to start with a superhuman power or two. Every character eventually gains something even more powerful by unlocking some secret (often in a perilous background), before going on to live their happily-ever-afters.

These superhuman mental images, environments and narratives have historically been manifested and passed down generation after generation in the form of religion. They appear in mythology, fairy tales and bedtime stories. Today, it appears in comic books, movies and popular media in the form of superheroes and sci-fi or fantasy genres. While most humans might find this a benign recreational indulgence of the human species, a deep and hidden connection exists to the earth's geology and environment. These tales and images give rise to aesthetic aspirations that go into the products that are made and produced for human consumption. A dominant capitalist economy ensures that these images form the very basis of creation of products.

Most of these superhuman abilities are now "features" available to us through networked media infrastructures. The creation of planetary network systems such as the Internet has enabled us to be in several places at once (using products like Skype), talk to devices and issue commands (Amazon's Alexa) and exert physical influences on our surroundings in ways that have now far exceeded the archetypical capabilities of yore. No longer do we need to employ thousands of slaves and whips of cruelty to mine the earth- a few networked earthmoving machines can now do the job in a fraction of the time and do it much more efficiently.

As we become desensitized to the abilities of our creations, we long to push their capabilities even further. Companies such as Apple develop devices that are slightly smarter than their predecessors each year. Our archetypal tendencies,

evolutionary habits and social conditioning push us to upgrade. Getting a new iPhone might make one appear more successful (and take better selfies besides) and thus have a better chance at finding a partner of one's choice and thus live happily ever after. This may very well be the typical archetypal narrative that forms the collective human unconscious. This trend is further exaggerated by planned obsolescence of these devices- an older device is no longer compatible and looks considerably uglier in comparison. What this has led to is an increased deterioration of the planet and its geology. The latest smartphones perform much faster, have more storage capacity and take better photos, but this requires materials from the earth that are purified to a high degree. The purification process involves thermal conditioning (which in turn require a large amount of energy) and the impurities and byproducts formed are extremely harmful to the environment. The network infrastructure (manufacturing units, fab labs and data centres) that enable superpowers on smart devices itself requires a considerable amount of energy. The only way to ensure the viability of such a complex system is to increase penetration of these devices in our population- one, one, one for everyone.

This demonstrates how our aesthetic preferences today are shaped by evolutionary and instinctual tendencies codified in the form of archetypes. This shared preference is the reason that development in technology, be it industrial, medical or recreational, takes specific pathways that deteriorate our planet's climate, ecology and geology. If we want to change this trend, then we need to examine the very roots of our thinking. We need to question the stories told to us by priests in temples and churches, and our by grandmothers in our bedrooms. We need to critically examine the kinds of narratives that pop out of sci-fi movies and fantasy fiction. We need to reprogram our collective conscious with new parameters that are tuned not to the survival of the individual or species, but of the planet.

Notes

[1] "Please, Graph Your Future." Jack Uldrich, June 16, 2015. https://jackuldrich.com/blog/future/please-graph-your-future/.

[2] "Eco-Economy Indicators - Carbon Emissions | EPI." Eco-Economy Indicators - Carbon Emissions | EPI. Accessed December 2, 2019. http://www.earth-policy.org/indicators/C52.

[3] Chioetto, Alessandra, and Doriana Comerlati. Botticelli: De Laurent Le Magnifique à Savonarole. Paris: Musée de Luxembourg, 2003.

Ameya Chikramane

Have a slice

"Have a slice of cake, made from materials. Materials that intimately depend upon the geology of this planet. Contains egg."

A cake that looks like a section of the earth's surface is exhibited. When one goes to slice it, the cake responds to the touch of the knife with a low whining sound, that gets louder and higher in pitch as one cuts through the layers.

What if the earth screamed when dug into for resources? Would that change how we consume the resources obtained from it?

This work is inspired by the chapter called 'And the Earth Screamed, Alive' in Jussi Parikka's book 'The Anthrobscene'

Figure 8.5
The cake is assembled with layers of cake sponge and icing

Figure 8.6
The cake is exhibited and fallen upon by the audience

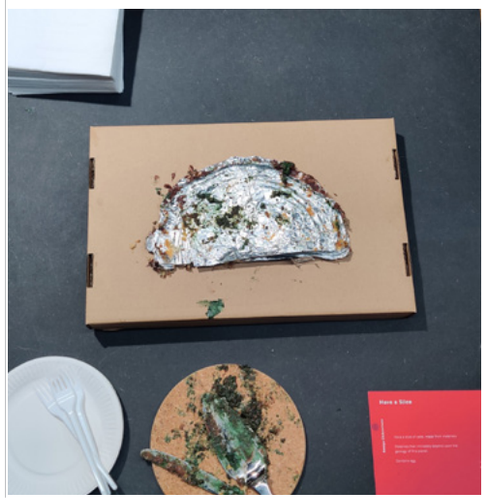


Figure 8.7
The cake is devoured and left screaming on its pedestal.

9

Of Clouds and Cultures

Gurden Batra

We have gone from AFK/BRB [1] culture to being always online. From PCs to mobile phones to smartwatches and wireless headphones, the devices continue to get more deeply embedded in our lives. Living in countries with working network infrastructure, we are getting used to high quality fast streaming of video and music, uploading and viewing content on the go and getting annoyed with a few seconds of delay or lag. The gaming industry is moving towards being stream-based as well.

Major non-tech corporations are also moving their work databases and documents to live on the cloud, which means our banking, health, natural resources and all big sectors depend on it. Underprivileged countries are also getting rapid access to 4G and cheaper smartphones. 5G is just around the corner and "some experts predict that 5G will offer up to 600x times faster internet speeds compared to 4G." [2] This will have tremendous repercussions on how we consume digital services.

Our phones and other devices are increasingly available with high-definition screens. There are new apps making their way into youth culture like TikTok and Fortnite, which have become a virtual hangout space where they are uploading and consuming data most of the time. There is constant investment in energy and material hungry new tech like AI, Quantum Computing, Virtual Reality and the like. Bitcoin itself is using up more electricity than several countries combined. I have already mentioned 5G. It seems there is no going back.

It is not by chance or some unintended consequence [3] that our usage patterns are skyrocketing and mirroring those of substance abuse, it is indeed by design. The aim has always been to maximize profits for hardware manufacturers, software companies, network providers, and venture capitalists at any cost. Dark design patterns [4], manipulation of human psychology and abuse of privacy are common practices used.

Yet the word 'Cloud' has a light connotation to it. It places an image of a breeze in our mind making it appear as if all this data is just calmly floating around. But these floating clouds are in fact big data centres with giant wires and computers connected together running on high amounts of electricity, which need plenty of cooling and air-conditioning. A lot of mining and construction practices are needed to build these centres. "Data centres globally consume more than 400 terawatt hours of electricity each year, which equals approximately two percent of the worldwide energy consumption." [5] These numbers are only going to increase exponentially with time. Not only that, the servers which make these data centres need constant maintenance, upkeep and upgradation cycles. A number of these servers are even dead and are causing a lot of problems. These dead servers referred to as Zombie Servers "are now over 10 million worldwide, wasting the electric equivalent generated by eight major power plants." [6]

There might be some saving grace though. Since 2016, there has been a positive trend in some of these data centres (for example, the ones by Google and Facebook) to reduce the carbon footprint. Strategies include using 100% renewable energy to power the data centres, using piped water instead of air-conditioning to prevent heating. Innovative hardware and software strategies for power usage optimisations are being implemented (these

optimisations have already found techniques reducing emissions by 25% [7]). The trend of moving data centres to cold countries like Finland allows for interesting strategies to capture the data centre heat and use it to warm neighbourhood area houses. Yet these green data centres are still in minority. New centres are being planned in Asia which do not take these into accounts. We desperately need shared knowledge and strict regulation for these data centres worldwide. It should be easier to distinguish between genuine sustainability reports from just greenwashing and false branding.

We have to attempt to curb thermal and energy needs of data centres as much and as soon as possible. But all the mentioned techniques seem to only reinforce the root cause, which is mass consumerism. Only a drastic change to the architecture of the internet and business models of digital services can spark a real change.

Figure 9.1
Data centre of BalticServers in Lithuania, image taken from- https://commons.wikimedia.org/wiki/File:BalticServers_data_center.jpg

Notes

[1] Away from keyboard/be right back (common internet chat abbreviations).

[2] Buytaert, Dries. "5G Sounds Great, but We Must Ensure It Won't Ruin Internet Equality." Podium | The Next Web, September 30, 2019. https://thenextweb.com/podium/2019/09/28/5g-sounds-great-but-we-must-ensure-it-wont-ruin-internet-equality/

[3] Norton, Rob, Glen Whitman, Michael Munger, Al Ehrbar, Garrett Hardin, and Wolfgang Kasper. "Unintended Consequences." Econlib. Accessed December 2, 2019. https://www.econlib.org/library/Enc/UnintendedConsequences.html.

[4] "Dark Patterns." Dark Patterns. Accessed December 2, 2019. https://www.darkpatterns.org/.

[5] "Data Centres Produce as Much Emissions as Global Air Traffic - Article - Telia Business." Data centres produce as much emissions as global air traffic - Article - Telia Business. Accessed December 2, 2019. https://www.telia.fi/business/article/data-centres-are-a-forgotten-source-of-emissions.

[6] "Zombie Servers Lurking and Wreaking Havoc Inside Data Centers: IEEE Computer Society." IEEE Computer Society Zombie Servers Lurking and Wreaking Havoc Inside Data Centers Comments. Accessed December 2, 2019. https://www.computer.org/publications/tech-news/data-center-insider/zombie-servers-lurking-and-wreaking-havoc-inside-data-centers.

[7] Jones, Nicola. "How to Stop Data Centres from Gobbling up the World's Electricity." Nature News. Nature Publishing Group, September 12, 2018. https://www.nature.com/articles/d41586-018-06610-y

10

Reishabh Kailey

Unplanned Newness

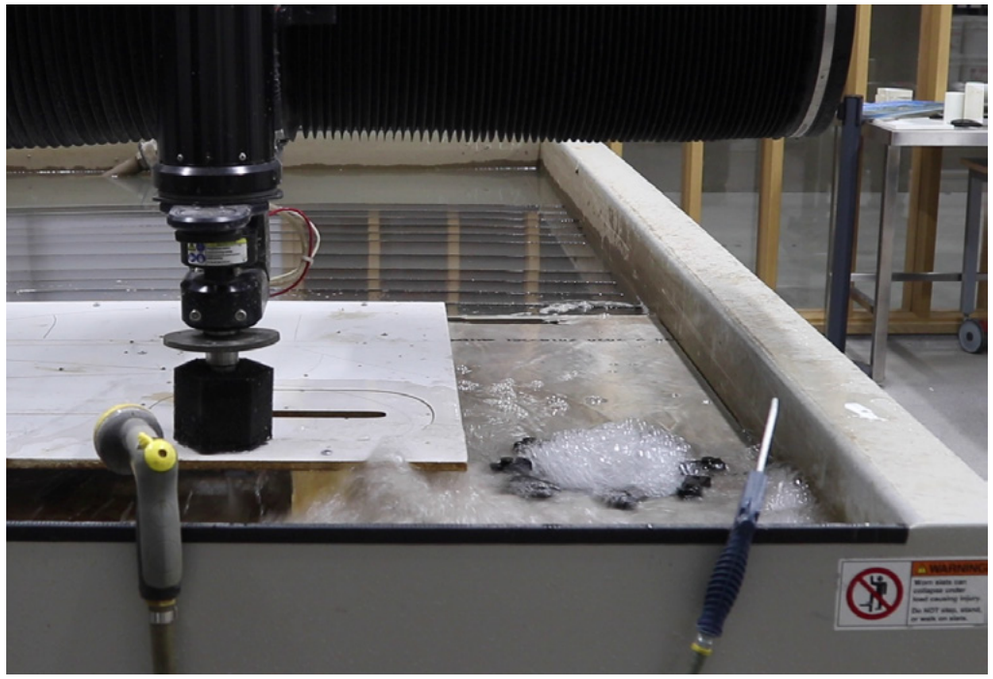
In the following text, the sculptural artwork shown in figure 10.1 is discussed by observing processes directly or indirectly related to its being. These processes sometimes overlap, and some stages in some processes are artistic, while others are not.

Figure 10.1
Signage created for the exhibition, 'Anthrobscene' [1] held at Aalto University - image by author

10.1 Artistic Process

The letters were made by combining waste circuit boards with composite wood. The work is a 'trash collage' since the materials - the circuit boards and the wood - were found in the trash. It is a collage, not only because it is an assemblage of found objects, but also because the artistic concept and physical form were developed as a direct response to the objects which were found. We did not start with an 'idea' to make letters from circuit boards but first found the trash, found a lot of circuit boards and thus found their aesthetic possibilities. These boards were mounted on wood using bolts and cut into the shapes of letters by the waterjet cutter - Omax 55100 Jetmachining Centre - which is one of the artists here. It uses a super-fast jet of water to cut through pretty much anything and the manner in which each component of the circuit board was cut - some clean, some not, some complete, some not - brings to light the machine's artistic agency.

Figure 10.2
Omax 55100 Jet Maching center at Aalto University - image by author



10.2 Bending power in circuits

The circuits in consumer electronic products are processual parts of larger circuits through which electricity flows from power infrastructure into the circuit board causing a bunch of other processes to make it perform functions. Circuit bending involves bending the intended flow of electricity in circuits by the artist who redirects the flow of electrons and creates new processes. Parikka and Hertz describe it as:

> "Circuit bending is an electronic DIY movement undertaken by individuals without formal training or approval and focused on manipulating circuits and changing the taken-for-granted function of the technology... reminds us that users consistently re-appropriate, customize and manipulate consumer products in unexpected ways". [2]

Neoliberal socio-economic ideology, via the decisions of manufacturers or designers, dictates when a particular circuit is 'old' and what happens to it. Planned obsolescence [3] is a tactic used by companies to ensure people throw away enough things on time, in order to make space for new things. This process, involving the motivations of corporations and the subsequent false choices presented to consumers, can be understood as another larger circuit of power, where power is less electric and more socioeconomic. The circuit bender not only bends the power flowing through a circuit but also bends the systemic social powers which get to decide what is 'trash' and what is 'new'.

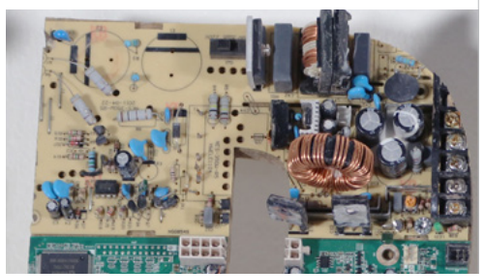


Figure 10.3
Re-purposed electric components.
- image by author

10.3 Material journey of the circuit board

The middle of a process is a sensible place to start observing it. The circuit boards in the artwork are made of minerals, metals and plastic which have faced and will continue to face a complicated ecological journey. Notwithstanding the trans-millennial, earthly phenomena which lead to these particles to currently combine as circuit boards, the future of these specific boards have forever been altered by turning them into 'human art'. No longer will they end up in a landfill somewhere in the global south. They have been rescued by modifying their form and will forever enjoy a position similar to that of a retired monarch; even if the exhibition (or its 'reign') is over, it will never be thrown away or even disrespected.

10.4 Bending circuits for survival

Another side to bending circuits is not artistic at all and forces one to question western contemporary art practices. In India for example, the practice of 'power theft', i.e. the stealing of electricity is common across rural and urban areas. According to recent studies, the Indian economy looses 16.2$ billion every year to electricity theft [4] and its frequency increases significantly during election times [5].

The documentary 'Katiyabaaz - Powerless' [6], directed by Deepti Kakkar and Fahad Mustafa shows the power theft situation in the city of Kanpur. The power thief, i.e. a local electrician, is actually a kind of robin hood for the poor, who hacks into electric circuits and steals electricity for those who are denied it. Within overlapping political processes - ranging from global inequalities in energy distribution, national political family wars, and local economic structures - the people left without electricity for up to sixteen hours a day remain without any power, be it electric, social or economic. It becomes clear that the 'power thief', is actually an activist for social justice.

Figure 10.4
Circuit bending for survival - An example of Hyderabad city's power grid which has been hacked into, thus bending the flow of electricity. Photo by McKay Savage on flickr - https://www.flickr.com/photos/mckaysavage/3921003774

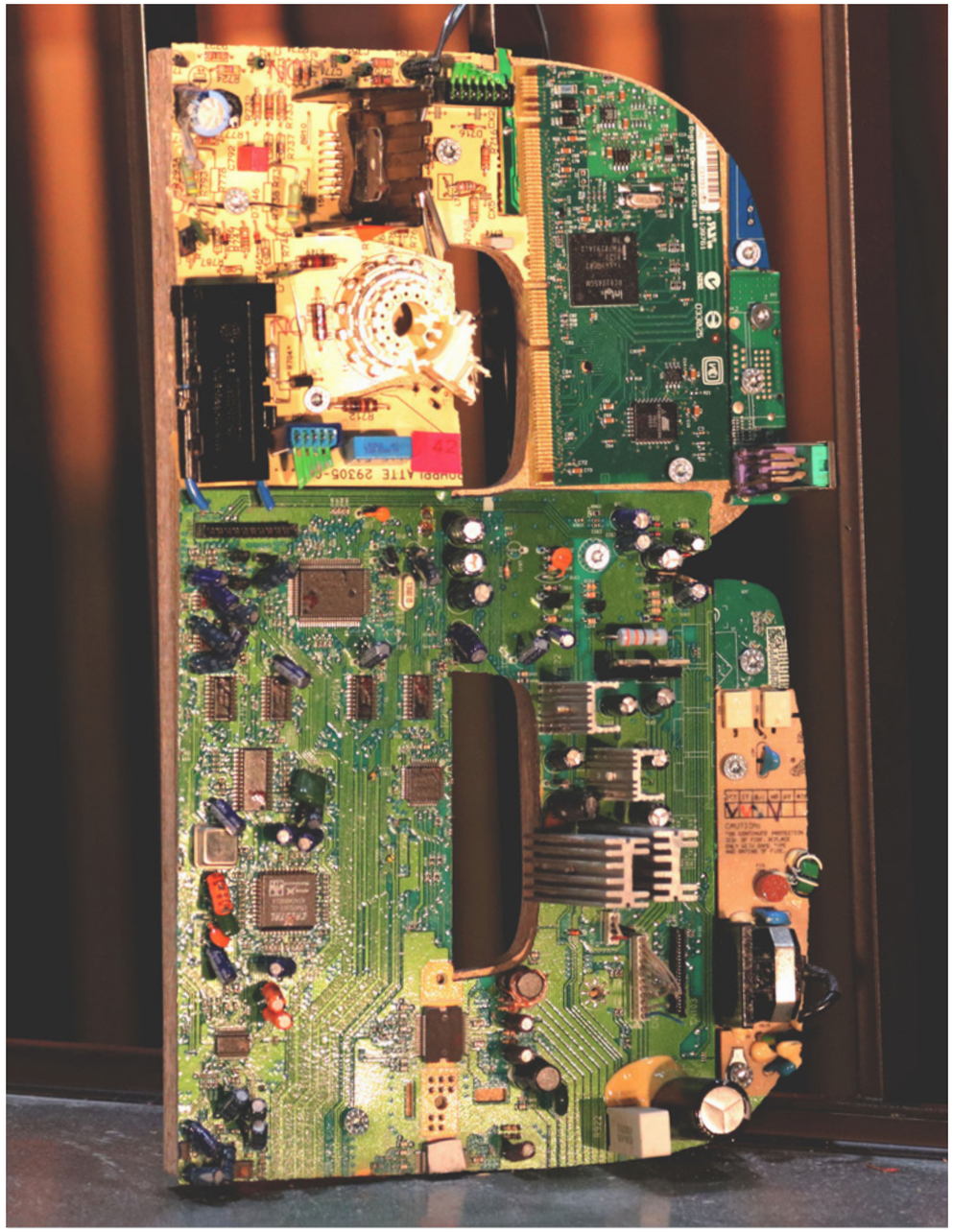
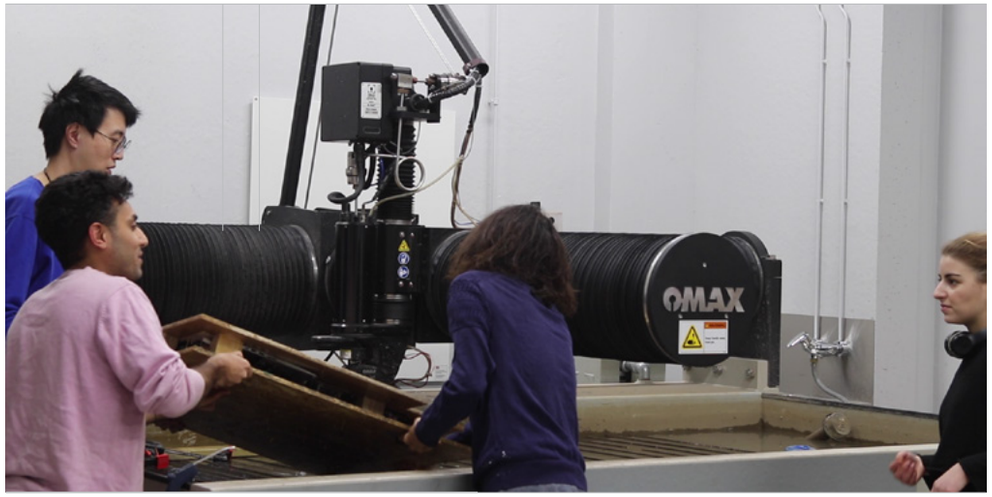


Figure 10.5
Circuit bending as art - bending inherent power structures in consumer electronic products - image by author

Figure 10.6
Artistic agencies of human and machine - image by author



Materials used:
Circuit Boards
Composite wood
Bolts
Lacquer coating

Artwork made by:
Serpil Oğuz
Reishabh Kailey
Gurden Batra
Omax 55100 JetMachining centre, operated by Jie Luo at the Waterjet Cutting Workshop, Aalto University

Notes

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[3] Hertz and Parikka.

[4] "Indian Power Sector Loses $16.2b to Theft Every Year." Asian Power. Accessed December 2, 2019. https://asian-power.com/ipp/in-focus/indian-power-sector-loses-162b-theft-every-year.

[5] Miriam Golden, "Theft and Loss of Electricity in an Indian State," (IGC Working Paper). International Growth Centre (IGC), London, UK (2012) 38 pp

[6] "Katiyabaaz (Powerless) Official Teaser Trailer 2013 - YouTube." Katiyabaaz (Powerless) Official Teaser Trailer 2013 - YouTube. YouTube. Accessed December 2, 2019. https://www.youtube.com/watch?v=VIcUMZwCc38.

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