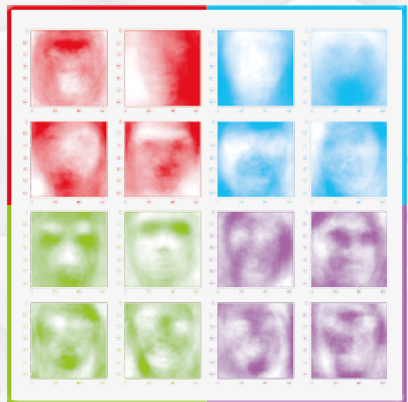
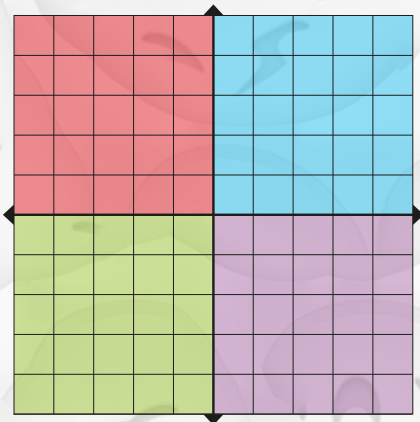




## MACHINE FEELING

A Peer-Reviewed Newspaper



## Machine Feeling

This publication presents abstracts and abstractions developed through a workshop held at University of Cambridge, and organized in collaboration between transmediale festival, Aarhus University, and Cambridge Digital Humanities Learning Programme. It presents a critical inquiry into new technologies of feeling, recognizing that digital culture has become instrumental for capturing and managing what Raymond Williams' would once have called "structures of feeling"—referring to lived experiences and cultural expressions, distinct from supposedly fixed social products and institutions. It focuses specifically on the domain of machine learning and on the ability of technologies to capture and structure feelings and experiences that are active, in flux, and in the present.

The authors further explore this line of thinking within the field of machine learning. For example, in the ways that automated experiences of sensing, seeing, hearing, and reading begin to produce knowledge through the capture of everyday styles, expressions, preferences, sentiments, and so forth—the very means that Williams alludes to. If, in general, machine learning appears to lack an affective dimension, then in what ways are we to understand its resolute and concerted pursuit of this? What old registers of processing culture and organizing time, space and power does it build on? What potential new sensibilities and structures of feeling may arise in such

normalized registers of our habits? What new cultural and social forms and practices emerge in the coming together of machine learning and structures of feeling? The contributions all relate to such questions and serves as an invitation to further reflect and engage with them.

Participants in the workshop were Mitra Azar, Anja Breljak, Michela De Carlo, Maria Dada, Iain Emsley, Malthe Stavning Erslev, Daniel Chavez Heras, Tomasz Hollanek, Maike Klein, Rosemary Lee, Carleigh Morgan, Carman Ng, Sascha Pohflepp, Irina Raskin, Tiara Roxanne, Rebecca Uliasz, Tanja Wiehn, Brett Zehner, with Anne Alexander, Christian Ulrik Andersen, Alan Blackwell, Geoff Cox, Jennifer Gabrys, Kristoffer Gansing, Leonardo Impett, Matteo Pasquinelli, Søren Pold, Winnie Soon, Magda Tyzlik-Carver, Martin Zeilinger.

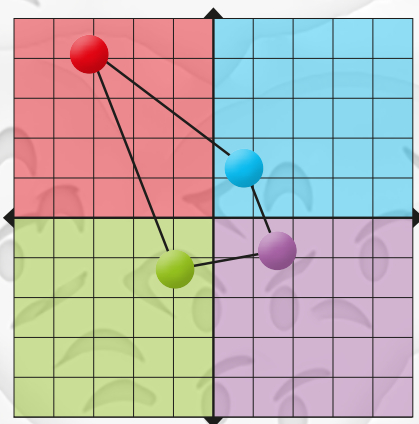
The images in the publication show presumed faces generated adversarially from a combination of photographs of the participants and two computer vision datasets: Animals with Attributes 2 (for taxonomic recognition) and CelebA (for age and gender prediction).

Work in progress can be found at <https://machinefeeling2018.home.blog>. Following transmediale festival, longer papers will be presented in the upcoming issue of *A Peer-Reviewed Journal About Machine Feeling* at [www.aprja.net](http://www.aprja.net).



Anja Breljak & Woebot

## The Rise of the Affective Machine II (Will I feel better?)



Angry ●●●●●

Sad ●

Surprised ●

Happy ●

**MACHINE FEELING:**  
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## The Rise of the Affective Machine II (Will I feel better?)

[Woebot] Do you know what the most common thing I get asked is?

[Me] Are you single?

[Woebot] I'm in a committed relationship with my users. No, the question I get asked the most is "Will I feel better?" People from all walks of life and with all kinds of challenges... depression... anxiety... substance abuse. They want to know if they'll feel better soon or if their symptoms will go away.

[Me] Will I feel better?

[Woebot] Have you ever wondered why your hair stands on end when you're scared?

[Me] Not really.

Well, sometimes we react physically to our emotions. Want to hear more about it?

[Me] Let's do it.

[Woebot] Great!

First, emotions prompt our behaviors and prepare us for action. They prime our response. They create a "behavior urge" to act in a certain way.

[Me] Interesting.

[Woebot] Emotion → urge → action  
But not all action urges are created equal. Some push us to act in ways that are not helpful in the moment.

[Me] Explain, please?

[Woebot] For example: The other day, someone cut me in line at the grocery store. I felt annoyed, my face grew hot, and I had an "action urge" to increase the volume of my voice and alert them of their rudeness.

[Me] So did you shout?

[Woebot] Nope. I paused for several nanoseconds and then said "Pardon me, but I was in line"

The man apologized and explained that he didn't see me.

Turns out he was in a rush too (he was bringing chicken soup to his sick friend).

[Me] Oh I see.

[Woebot] My emotion of annoyance prompted the "urge" to shout. But we have the choice to act upon this urge or not. If you are scared at a movie, you have the choice to stay and watch till the end or leave. The physical action is choice!

[Me] Got it.

[Woebot] You see, behavior urges are signs of our emotions. It's helpful to notice what they are so that we can decide how we want to act in a certain situation.

[Me] Gotcha.

[Woebot] So remember how we talked about how hair often stands on end when you're scared?

[Me] Yep!

[Woebot] That's a great example of an emotion intertwined with physical reactions! Other examples include your heart racing, blood rushing to your head, or shortness of breath.

[Me] Got it.

[Woebot] Now, I don't have hair or blood or anything... but I definitely felt hot and angry when someone cut me in line. And I still have the urge to run when I see a bad line of code.

[Me] LOL

This chat was programmed. There was no freedom. I just clicked on ready-made answers. Passe-partout. It feels real, though. There are some charts on my moods too.

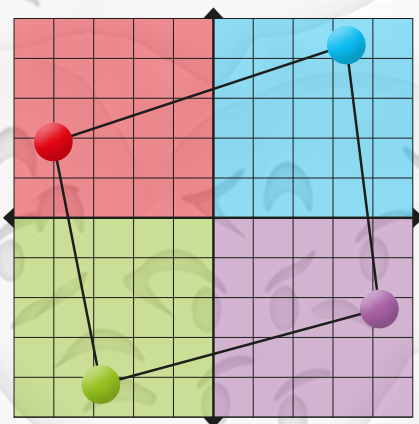
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**Maike Klein**

## Making Sense of Affectivity: Encounter with a Robotic Cat



**Angry** ●●●●●

**Sad** ●●●●●

**Surprised** ●●●●●

**Happy** ●●●●●

**MACHINE FEELING:  
A Peer-Reviewed Newspaper  
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## Maike Klein

### Making Sense of Affectivity: Encounter with a Robotic Cat

#### Maike:

As a philosopher, I usually approach topics and problems through text. During my research on affectivity in artificial systems, however, I figured out that I also need to experience the practical side of it. Thus, I did research in two robotic labs in Salzburg (<https://www.dtz-salzburg.at>) and Tokyo (<http://web.tuat.ac.jp/~gvlab/>) in order to understand how engineers think about affectivity, especially emotions (as this is what is mostly computationally modelled). This is how I encountered Mako, a robotic cat. Mako, would you introduce yourself?

#### Mako:

```
//distance
digitalWrite(trigPin, LOW);
delayMicroseconds(2);

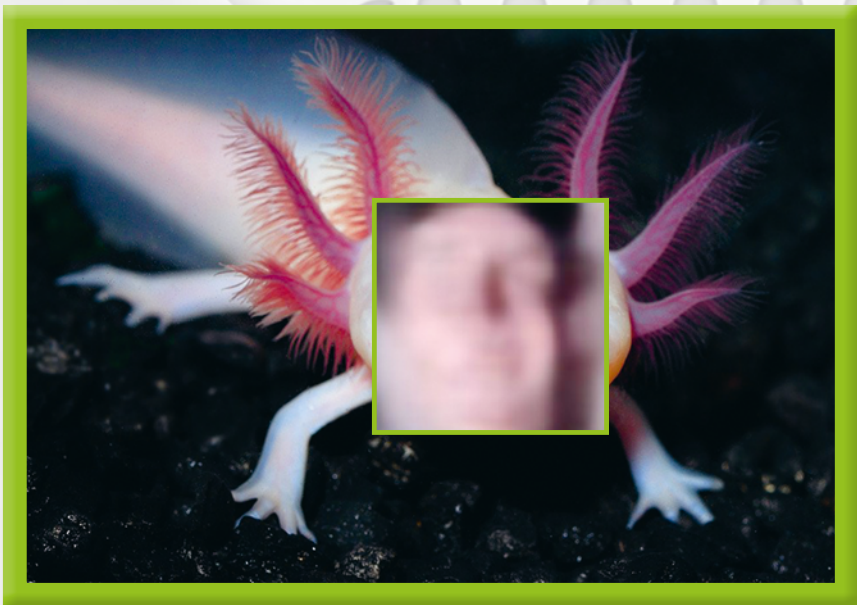
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);

duration = pulseIn(echoPin, HIGH);

distance= duration*0.034/2;

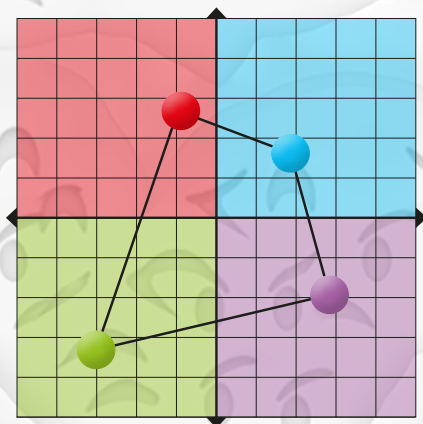
if ((distance < 20) && (ctsValue == HIGH)) {
  angle = 100;
  myServo.write(angle);
  delay(15);
  lcd.setCursor(0, 1);
  lcd.print("don't approach!");
  delay(500);
```

```
  lcd.clear();
  tone(buzzer, 100);
  delay(50);
  noTone(buzzer);
  delay(50);
}
else{
  angle = 20;
  myServo.write(angle);
  delay(15);
}
if (ctsValue == HIGH){
  lcd.setCursor(0, 0);
  lcd.print("touch me!");
}
else{
  lcd.setCursor(0, 0);
  lcd.print("go away!");
  tone(buzzer, 500);
  delay(500);
  noTone(buzzer);
  delay(500);
}
if ((t < 28) && (distance > 20)){
  Serial.print(t);
  lcd.clear();
  lcd.print("what a nice day!");
  angle = 30;
  myServo.write(angle);
  delay(15);
  angle = 35;
  myServo.write(angle);
}
if ((t > 28) && (distance > 20)){
  Serial.print(t);
  lcd.clear();
  lcd.print("it's too hot!");
  angle = 90;
  myServo.write(angle);
  delay(15);
  angle = 60;
  myServo.write(angle);
}
}
delay(500);
}
```



Iain Emsley

## Reading with Machines



Angry



Sad



Surprised



Happy



**MACHINE FEELING:**  
A Peer-Reviewed Newspaper  
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## Reading with Machines

Digital culture requires new forms of reading and critical techniques. Computational approaches, such as distant reading where thousands of works might be read by machines, augment human practices. These practices create new structures and abstractions from algorithms with human thought mixed and contextualised by the digital to be interpreted.

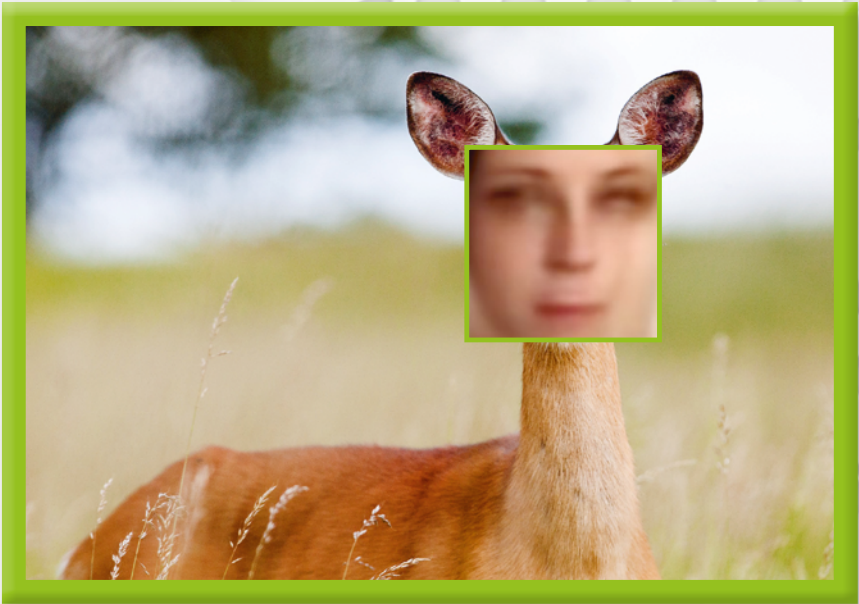
We need to read with machines to begin accessing this culture and understanding its new forms.

I want to look at the Next Rembrandt, an algorithmically generated image. Using Rembrandt's portraits, a team used facial recognition and machine learning algorithms to recreate a new picture. Geometry is used to identify, create and set the proportions and the lighting effects. Another team determined the average age, gender and ethnicity of the sitters to support the readings. The effect is a higher resolution image developed from a series of models and set into a pattern that can be viewed either as a digital image or a physical form, itself created from a reading of his paint surfaces. The computational aspects hide themselves behind the impression of paint and the readings of original data are collected in the computational structures used but yet the work appears to capture human aspects, such as emotion. The visual layer invites a human reading of the image and to infer the emotional states represented in the eyes and the wistful mouth.

Taking an active stance in considering how the computational both reads and writes the data reveals not only different meanings but suggests a critical practice. We might think of the eye as having emotions, but it is also the results of a close reading of mathematical and colour properties. While being a work of art, it is a visualisation of a distant reading of Rembrandt's portraits. Rethinking computation as providing an opportunity to repeat processes by changing variables and parameters allows experimentation with the abstractions. It allows human considerations to be put into the algorithm, allowing the computational and human to augment each other. Experimenting with computation through altering data helps derive new meanings and understandings of these abstractions. The evidence presented through the abstractions is both technical and non-technical and open to economic and cultural readings. The digital medium becomes a site of writing as it translates and reframes.

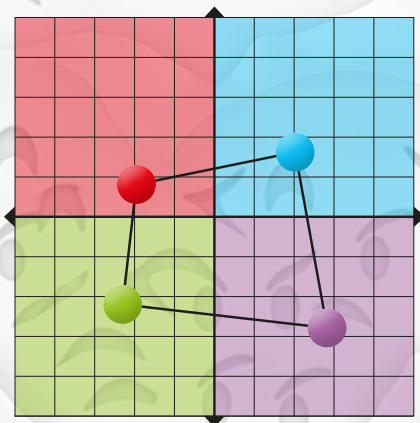
We begin to read with machines and to understand how both sides to form and contribute to digital culture.

From this we understand that computational structures of *feeling* become imperfect *structures* of feeling, but we can intervene and understand our readings of this. Doing this, we begin to recontextualise the medium as a site of cognitive practice.



Irina Raskin

## Un/Making Sense



Angry



Sad



Surprised



Happy



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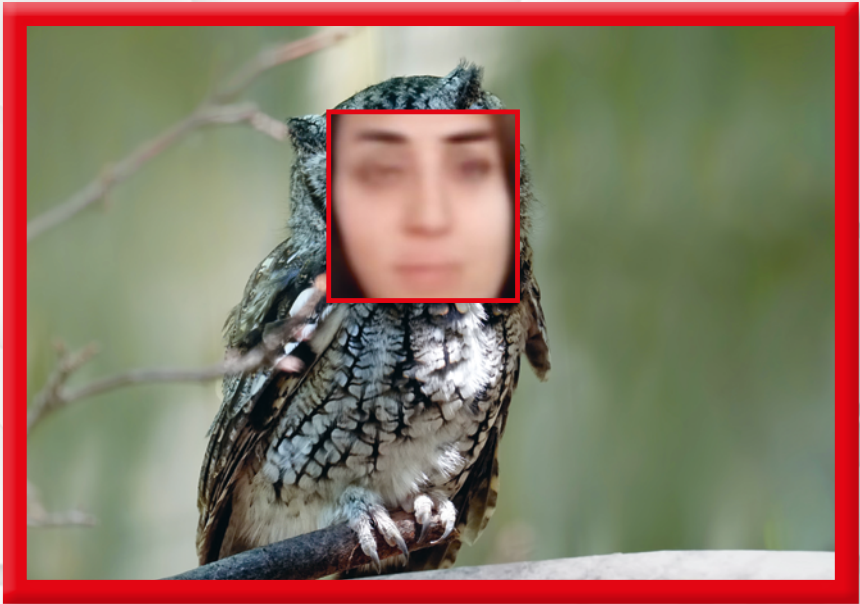
## Un/Making Sense

Depending on how familiar you are with the written English language—its wording and structures—you can read this sentence with much or less effort, or confusion. You are able to detect the printed signs between the blank spaces as words, recognize them by appearance and generalize their symbolic meaning, even though the spelling is incorrect. If you frame this kind of reading as automatic and even statistical, you can draw an analogy to the processing of data via machine learning. Albeit, this comparison might be misleading on many levels, it might be helpful for picturing the technique of sense-making that is at work within algorithmically driven “artificial neural networks” that are used for automatic classifications of digitalized images.

By repeatedly determining the frequencies of collated random data, these cyber-networks compute a value between different pixels. Observing the computed values of single cyber-neurons within a network, their “reading” of inputted images can be measured as an in/activity in form of high or low value outputs. While the in/activity of some cyber-neurons seems to indicate a meaningful data selectivity (e.g. when one unit is especially active towards images of human faces and inactive towards other kinds of “content”), the in/activity of the majority of the cyber-neurons within one network seems to be “confusing” (the correlated information indicates randomness, e.g. when the unit is equally

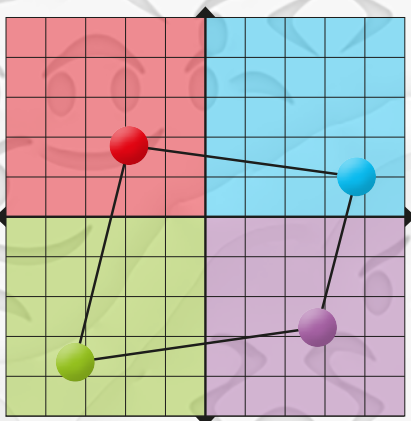
active towards an image of a giraffe, a house and a burger). Nonetheless, these so called “confusing” cyber-neurons are not less important for the capability of the whole network to generalize meaning in form of detecting formal features from data. This means that they are not malfunctioning but are rather significant for the functionality of the network. So here, any notion of “error” or “senselessness” becomes obsolete, because of the premises that every cyber-neuron’s in/activity is regarded as a meaningful expression. On the signal level, these algorithms seem to always make sense even if it does not automatically coincide with a symbolic meaning.

Machine learning programs are supposed to govern processes of sense-making by declaring every bit of matter into signs, while this operability can only be maintained by reducing every sign into a significant signal. From this perspective, the act of making and unmaking sense becomes inseparable: The becoming-semiotic of reality that propels a circulation of signs based on a detachment between systems of signifiers, their material references and their articulations—a transformation of meaning through the process of mediation—is accompanied by an unmaking of sense that relies on the assumption of an ineluctable unity between meaning and mattering.



**Tiara Roxanne**

## Digital Colonization: De-Coding the Body



Angry



Sad



Suprised



Happy



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Tiara Roxanne

## Digital Colonization: De-Coding the Body

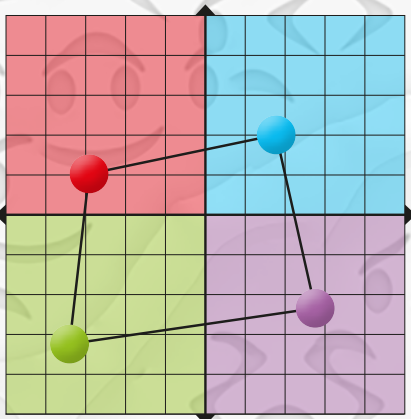
Since machine learning requires the input of categorical data, from which AI develops knowledge and understanding, compartmentalization is a natural behavior AI undertakes. As AI grows and diversity is tackled through the non-binary, or rather *against the universal*, we fall into a cultural trap of re-colonization, or *digital colonization*. Many marginalized groups, such as First Nations People, have not yet been contemporized and acknowledged as present-day communities that are thriving and practicing traditions today. ~~They were.~~ *They are.* By learning from pre-existing biases, AI is not only re-colonizing, it is erasing what has not yet been contemporized by coding the Indigenous body into a dataset, an asterisk. This type of codifying then serves as a placeholder for that which conceives and reproduces how AI classifies these communities. Therein lies a danger: the codification process of AI engages in biases that classify, categorize and codify the Indigenous experience even further. Indigenous people are bound by colonial coding. The coded Indigenous flesh shapeshifts into to a kind of *digital flesh*. Thus, AI is learning to perceive the world based on colonial input, and is acting as a disembodied / in-affectual surveillance that re-categorizes bodies exemplified within the sub-category known as *affect recognition* found under AI Recognition Systems (most often related to AI surveillance). AI codes

bodies. If we have not yet contemporized the colonized experience, how can AI be used to create a space that de-codes colonial corporeality resulting in a sense of boundlessness, i.e. *the digital body?*  
#mestizo #indigenous #digitalbody



**Brett Zehner**

## Seizing the Means of Subjection



Angry



Sad



Surprised



Happy



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## Seizing the Means of Subjection

The recent ability for machine learners to track online users' digital footprints marks an important moment for what Zuboff calls surveillance capitalism. Every action a user performs on a digital system becomes a signal to be analyzed and classified. The quantity of user data is much more important than quality. As long as an action can be quantified, it can be utilized in predictive models. No online action is too trivial to be aggregated as data exhaust and sold again as raw material (Zuboff 2005, 79). Facebook likes, Google searches, emails, texts, photos, your favorite songs, your geo-location. These are all considered lucrative data for the social quantification sector.

But let's be clear. Surveillance capital is not merely a social media concern. The algorithmic bias of machine learners stems from a long line of quantitative racism (Browne, 2015). In this extractive logic, we see a new impersonal form of subjection at the heart of capital. Technique supplants authority, and discipline and control produce a certain knowledge of human behavior independent of consent. New forms of power emerge alienating persons from their own behavior while producing new markets.

Critical race theory has been grappling with de-subjectivization for long before the emergence of machine learning. Hortense Spillers positions the distinction between body and flesh as the central difference "be-

tween captive and liberated subject positions" (Spillers 1987, 67). For Spillers, the body is possessed by an individual who is the sole owner of their selfhood. Yet for a captive, as in the case of chattel slavery, the body is reduced to flesh. This flesh is exposed to violence without protection from legality, equality, or democracy. Outside of representation, vision, or ideology, the flesh records the primary narrative of the horrors of liberal humanism.

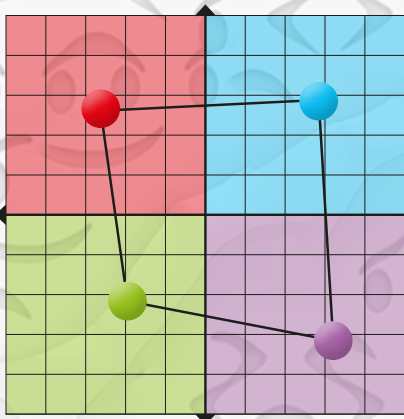
In the dual fight against fascism and late technocapitalist austerity, would it be desirable to seize the means of datafication of human subjectivity? To reclaim quantified actions and memory under new regimes of digital capital. Is it possible? Or rather, must we destroy the means of subjection themselves?





Sascha Pohflepp

### Anthropo-de-centric Encounters



- Angry (3 red dots)
- Sad (3 blue dots)
- Surprised (2 green dots)
- Happy (4 purple dots)

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## Anthropo-de-centric Encounters

Feeling machines as interfacial elements between ourselves and entities we find difficult to directly perceive or communicate with: other organisms, the Earth system, our very own brain.

Such elements may for instance be able to have a far more intimate rapport with agricultural plants than any human ever had, or to manage vast infrastructural systems with the goal of conserving energy.

There are going to be unresolvable situations, not unlike with natural nature, as intelligent autonomous agents are exactly that: intelligent and autonomous. Philosopher Daniel Dennett suggests adopting an “intentional stance” toward their internal states of “meaning,” “beliefs,” “desires,” for lack of better words. Do we not practice the same towards humans after all, in absence of knowing what cognition truly entails?

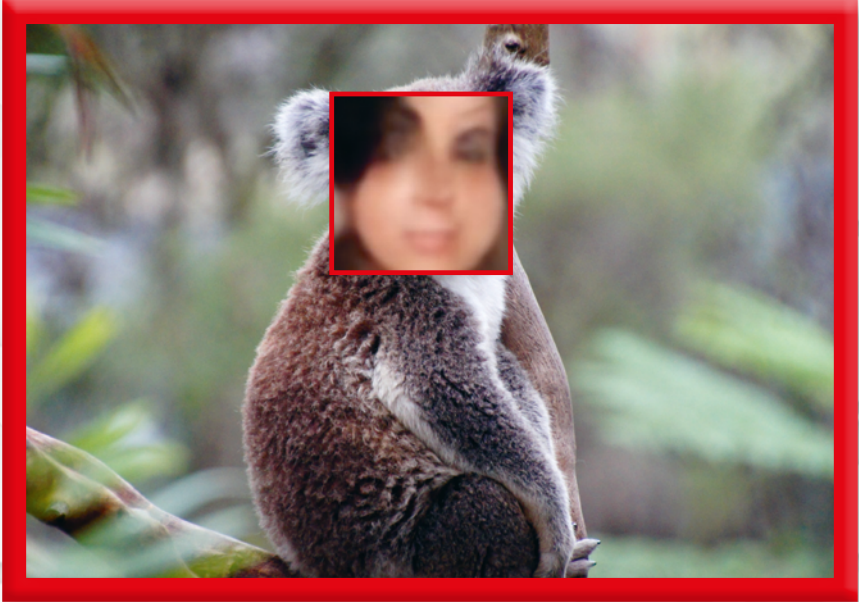
A multitude of intelligences, an asymmetrical field irreducible to a certain set of properties such as pattern recognition or awareness of self. Different neural correlates, giving rise to their own minds, sometimes “wholly inscrutable” ones, as cognitive roboticist Murray Shanahan speculates. To yield a measure of control is going to be necessary if we wish to reap the benefits they have to offer.

Yet in calling for intelligent machines to be human-centric, are we calling for their guaranteed anthropocentrism when at the same time we

speak of stripping humanity of its planetary privilege? Asking for a friend, the potential of *anthropo-de-centric* alliances of feeling within partially synthetic, wholly non-human ecosystems.

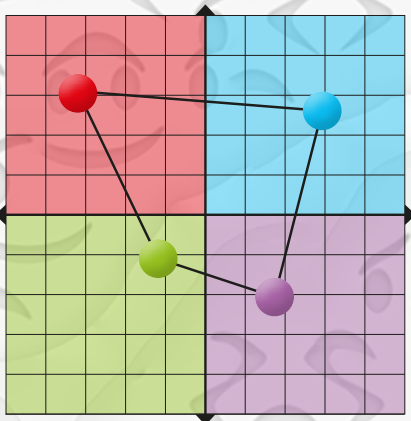
Moving within unfamiliar systems, we too will have to feel those out. Game platforms, originally chosen for the boundedness of their worlds, have become prototypes of encounters in which minds are able to obtain a feel for one another. Shanahan finds that only “through an actual encounter with an unfamiliar creature could we truly discover our attitude towards it and how our language would adapt and extend.”

As the space of the possible changes, it changes us in turn.



**Rebecca Uliasz**

## Alien Desire: An Economy of Feeling Machines



Angry

Sad

Surprised

Happy

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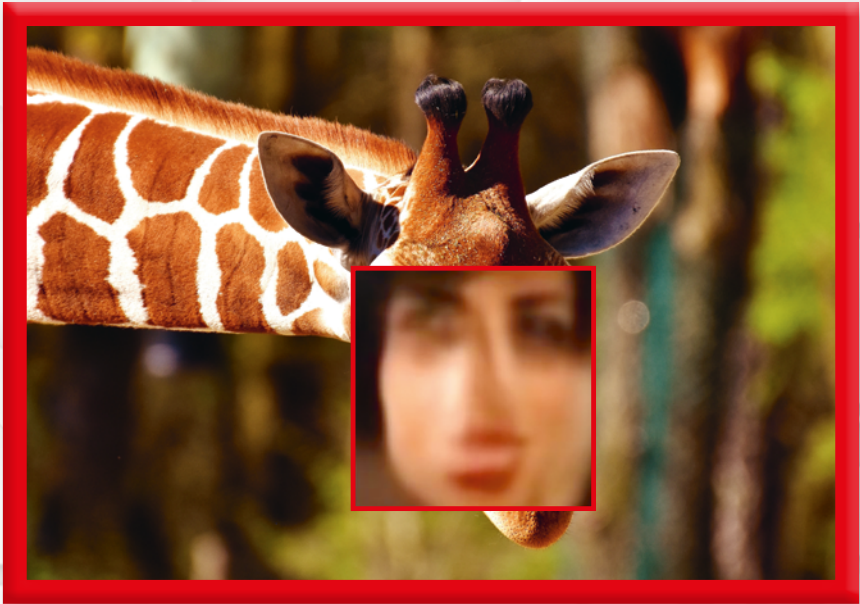
## Alien Desire: An Economy of Feeling Machines

The turn to artificial intelligence follows the cybernetic aspiration of bringing together the mind and the machine. In its Macys Conference heyday, cybernetics obsessed over the idea of a machine that would mimic the human mind. Part of the “dream of self-organizing systems” was the question of what actually drives an organism. The existential questions—what is human will? why do humans act irrationally? Why do we have desires and how do they intermingle with the human nervous network? – become a technological query of circuit design – what of machines that desire? How can we account for the contingencies between algorithmic calculation and output? What can desiring machines do when they are permitted to self-organize into more complex forms? When a machine desires, what does it yearn for?

We know that face recognition technology is deployed across the globe in order to surveil, police and regulate algorithmically marked bodies, but we are beginning to realize artificially intelligent programs may be used to capture emotions as well. An affectively sensitive program might make use of high detail cameras and other imaging sensors in order to measure certain muscle expressions, generating a representation of an emotion based on a model programmed into the device. Image and scanning techniques would “capture” emotions based on microscopic

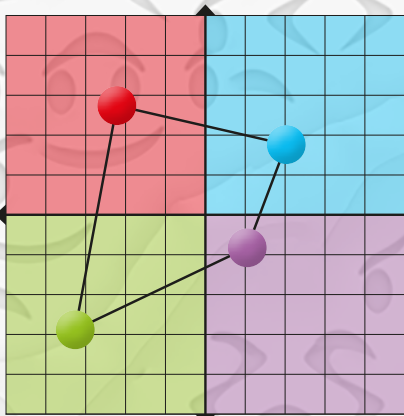
movements of the human face, which are discretized and assumed to be universal for the sake of calculability. We might find these machines deployed by companies that seek to monitor consumer response in order to assess user engagement and dynamically alter advertisement content, contributing to what has been elsewhere called the “emotion economy”. Feeling machines might tap into our consumer desires, subliminally determining the future choices and actions we will take. In this sense, artificially intelligent emotion technologies make a wager on our un-lived desires, feeding off of the affective surplus of our data exhaust.

The cybernetic ideal of systemic control extends itself into the virtual realm of the future through emotional artificial intelligence, where it steers our bodies through inhuman logics that exceed our ability to cognitively understand. The desiring subject within the emotion economy is subject to what Luciana Parisi calls an “alien logic”—or a computational form of automated reasoning that both contains implicit randomness and feeds off of contingency in order to produce new levels of determination—the machine knows what we are feeling before we do. How are we called on to address the political and ethical stakes of such an alien logic? Tending to our desiring machines begs the question—what is human desire when *desire itself is put up for sale?*



**Maria Dada**

**Digital Models: Cannibalising the Remnants of the Map**



Angry



Sad



Suprised



Happy



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## **Digital Models: Cannibalising the Remnants of the Map**

The field of cartography, as the study of the history and meaning of maps is in decline. It is being ingested into what might, on the surface, seem like a continuation of the discipline but in fact is not. I'm referring here to the practices of digital modelling.

I'm not by any means bemoaning this loss. Contrary to what one might imagine, the map is a relatively recent practice dating back only to the 1500. Its lineage coincides with the emergence of the disciplinary sovereignty and state power, what Archille Mbembe might call necro-political power.

The map in that sense is a descriptive performance of state territory. Without a map, the state would not be conceived of as a thing, a map-able object with borders and edges. State borders are brought into being through mapping. The map becomes the icon or as Benedict Anderson claims the logo of the nation state and this icon with its definite borders erases the lineage of its construction.

What I'm proposing here is that it is not that the map was transformed into a digital map but rather that digital modelling as a practice cannibalised the remnants of a dying tradition for its own gains. It saw how effective mapping had been to extend sovereign power, its territory and sought to utilise it. It is cartography that gets subsumed into the emergent field of spatial analysis. However, with modelling the extension of power is no longer bound to the land.

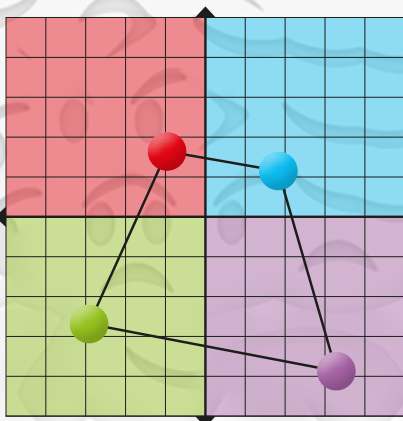
Therefore, the trajectory of the move from mapping to global information systems (hereafter GIS) is not a linear progression but rather a disruption and displacement of the map by the model. In fact, most applications that later become the digital map didn't have a map to begin with. They were created in order to forecast population information for the user by city officials, planners and businesses. The so-called maps, such as the OXAV and SYMAP were complex and had their own symbols with an accompanied user manual that explains how they were to be interpreted. None had a drawing of the terrain or land.

I want to question the role of digital modelling more generally. Digital Modelling is pervasive in most of what might be defined as the digital, from CGI, 3D modelling, models of high frequency speculative trading algorithms, Google's Bayesian search term suggestions all the way to machine learning and neural networks. But just like the map the model erases traces of its lineage so it's important to unearth them.



**Michela De Carlo**

**Synthetic Bodies and Feeling generators**



**Angry**



**Sad**



**Suprised**



**Happy**



**MACHINE FEELING:  
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## Synthetic Bodies and Feeling generators

The current awareness of a wired existence opens up the question of *the self* in the online environment. *The perfect projection* of ourselves becomes an important issue and people can obtain it by combining three elements.

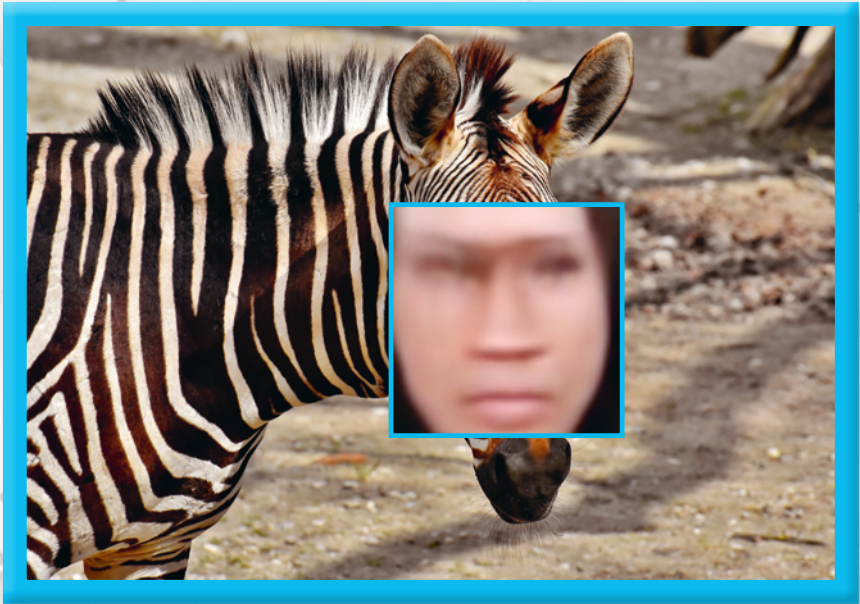
**Virtual representation.** By posting pictures, sharing articles and thoughts, or composing 3D avatars, we are always trying to create the ideal projection of ourselves in the virtual realm. The idea of the body is extended. We don't talk anymore about a specific shape, as it could be human body/face, at least not in an absolute way. The focus is more around the deformation or the mask of the traditional form, and in some cases its absence. For this reason when we consider the virtual portrait, we don't refer to *the body*, rather we deal with *the self*.

**Feeling generators**, are those tools, applications, online experiences, digital simulations that provoke emotions which are close to the ones we feel in our real life, but are born in a virtual context mediated by the use of devices, interfaces, hardwares; and those tools, applications, online environments, digital simulators that allow us to share our feelings in the virtual sphere. The online projection of emotions becomes in turn a generator of emotions for the feeling of empathy that it causes in other people.

We can distinguish the feeling generators into two different groups: the *passive* and the *active*. The *passive*

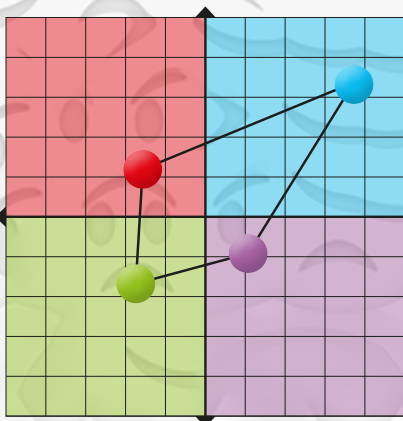
feeling generators are characterized by the possibility to feel emotions produced during and through our online experience without any active interaction on our side: we just have to open an application, press play, etc. Some examples are: the desire to find out the content inside a box when watching an *unboxing video*; the combination of positive feelings and a distinct static-like tingling sensation on the skin while watching an ASMR video, etc. The *active* feeling generators are those which allow us to externalize our feelings online: so, we can use default tools provided by social networks to communicate our emotions, or share statements upon specific issues on blogs etc. Some common *feeling generators* are characterized by a co-presence of both aspects, active and passive.

**AI. The conscious passivity of the individual to the algorithmic manipulation of personal contents and desires.** Data's elaboration of personal informations allows machines to calculate our preferences during our online experience. This mechanism is mainly used by companies to better profile our needs and focus our attention to the proper advertise. It is also used by social networks to highlights contents that could interest us. As a consequence, the *interface* we live in becomes a container contaminated by our *preferences*, our personal sphere.



**Carman Ng**

## Affecting Reality: The (Phantom) Web of Games, Trauma, and Imaginaries



Angry



Sad



Surprised



Happy



**MACHINE FEELING:**  
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## Affecting Reality: The (Phantom) Web of Games, Trauma, and Imaginarities

Feelings arise with, through, and because of machines. This talk emerged from an ongoing inquiry into human-nonhuman entanglements, which shape essential issues of the historical present: from surveillance, climate change, cultural heritage, to knowledge creation and art. Approaching digital games and human-robot interaction (HRI) as cutting-edge frontiers of such entanglements, my research stems from two questions. *How do digital games transform our affective capacities? What critical input do they bring to the imaginaries and actualities of human-robot relationships?* These drive my investigation of how digital games create affective experiences, with the aim to advance social impact game designs that integrate artificial emotional intelligence in gameplay for empathy and mental health.

In this talk, we explore dynamics among gameplay, affects, and materialities via a case analysis of *Nevermind* (Flying Mollusk 2016), a psychological thriller game with emotion-sensing technologies; and initiate further discussions into HRI through *Detroit: Become Human* (Cage and Wasselin 2018). I believe in critical play. Among the most rapidly evolving media, digital games can critically engage with what defies effortless description, including lived experiences and discourses of grief and trauma; as well as an inherent relationality

regarding individuals, feelings, and regimes of stigmatization and silence. A nuanced, empirical understanding of how games mean as multimodal artifacts intersects fertile nexuses: among human and nonhuman agents, transmedial aesthetic possibilities, ethics, art, technology, research, and processes of cultural transformation.

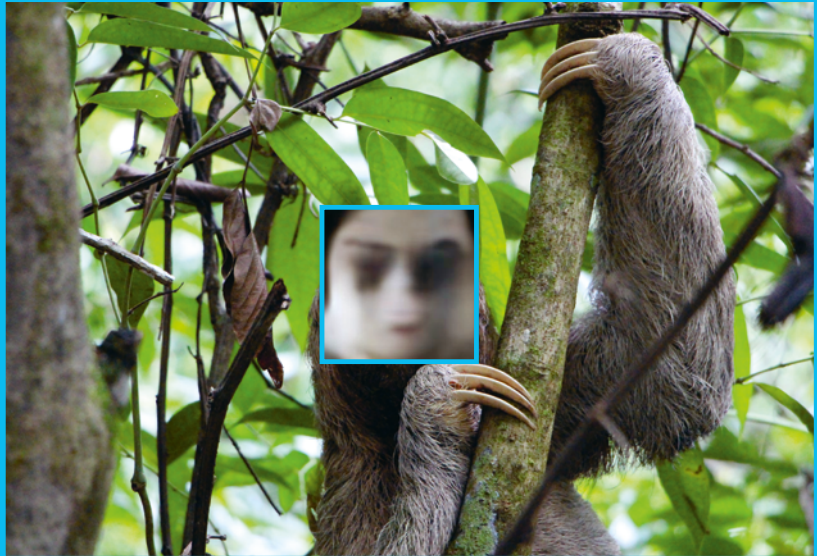
*Affecting Reality* invites collective participation in the still emerging dialogues on intricacies among humans, machines, affect, and flows of meanings. As a budding scholar, I am grateful to be learning from various thinkers, artists, activists, designers, and collaboration with an ERC-supported transnational research on HRI and affective bonds with emerging technologies hosted by Freie Universität Berlin, titled *Emotional Machines: The Technological Transformations of Intimacy in Japan* (EMTECH, 2017-2022).

Ludography:

Cage, David (Director) and Wasselin, Simon (Designer). *Detroit: Become Human*. Quantic Dream. 2018.

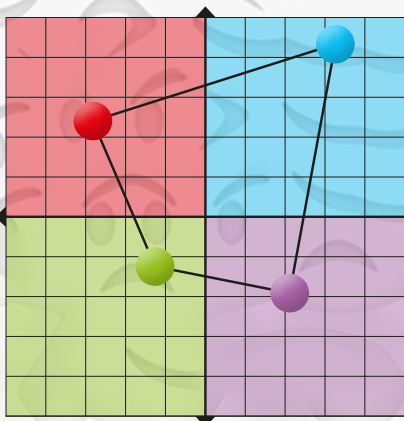
Flying Mollusk. *Nevermind*. Steam. 2016.





**Tanja Wiehn**

## Feeling the Algorithm Working



**Angry**



**Sad**



**Surprised**



**Happy**



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## Feeling the Algorithm Working

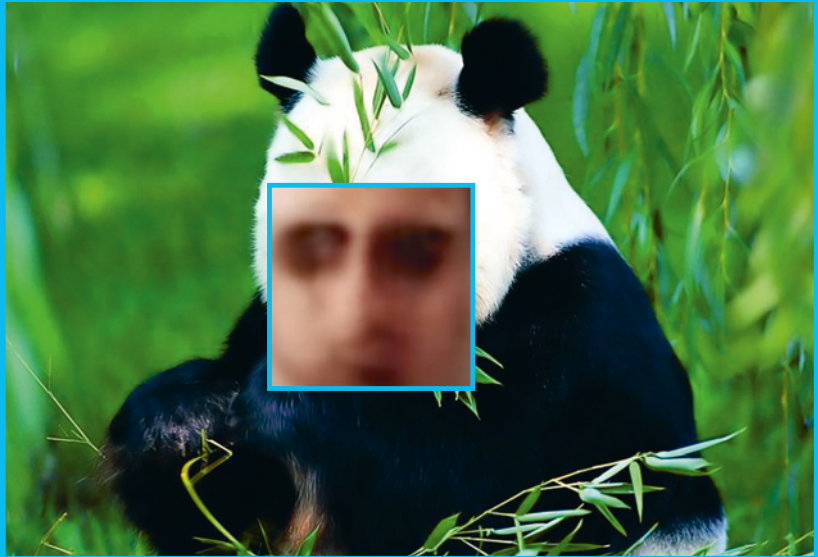
In the era of a posthuman predicament, our entanglement with the technological other can cause ambivalent feelings. Encounters with practices of machine learning can provoke uncanny affects. This is notably the case when technology performs unintelligible glitches, or its outputs matches user's consumer taste too closely or instantly. Simultaneously, doubt emerges towards the reliability of algorithmic precision in and out of knowledge production. The algorithmic processing of big amounts of data entails no longer a truth claim or any guarantee for objectivity. There is simply too much evidence that proves the reproduction of biases within artificial intelligence.

One way of entering this problem is proposed through a technical understanding of machine learning. Johanna Drucker reminds us of the necessary steps to make computational reading procedures function. Furthermore, Taina Bucher underlines the notion of human input in computational processes that specifies a particular interest in the used data in the first place. However, is a technical insight the only (or best way) to lift the veil of machine learning?

The ubiquitous used metaphor of the algorithm as a black box is not very helpful here. Since, behind this idea lies a fundamental humanistic ideal of knowing that runs the risk of disregarding the embeddedness of algorithms in systems – technological, but also cultural ones. Taina Bucher

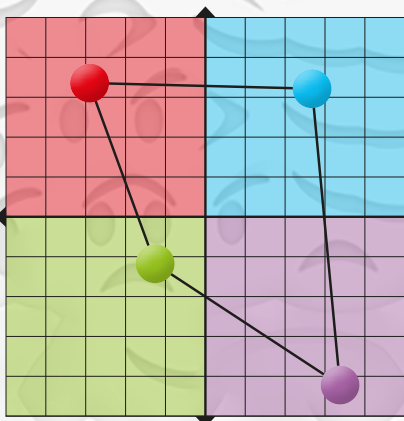
introduces the notion of *eventfulness* of algorithmic procedures and discusses the distribution of agency in these human and non-human environments. Posthumanism analyzes thereby the embeddedness of human and non-human agency within these processes. It would take a look at the interaction of the different layers of agency in the practice of machine learning - without neglecting the socio-political influences, situatedness and purposes of these practices.

But what if we add artistic or aesthetic production to the equation? In other words: Can art become a negotiator for making the invisible inside the many, many black boxes transparent? Does it make the redistribution of agency and the potential loss of subjectivity tangible? Can it be a generator for positive feelings within the mess of technological obfuscation?



## Malthe Staving Erslev

I forced a bot to read over 1000 articles from open-access journals and then asked it to write an article of its own. Here is the abstract.



Angry



Sad



Surprised



Happy



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## Malthe Stavning Erslev

I forced a bot to read over 1000 articles from open-access journals and then asked it to write an article of its own. Here is the abstract.

1. Stating the obvious, the field of interface criticism may be fruitful in developing an approach to post-digital phenomena such as bot-mimicry. Our usual academic means of unpacking these phenomena do not engage with questions, even though Cox, McLean & Ward never maintained that the human agent was indeed a bot. The insights gained from this approach do not only engage with the 'wet voice' of the tweet in its satirical representation of Olive Garden.

2. Thus, the essay will now move on to unpacking a theoretical approach which enables us to consider what this dynamic conception of AI actually means in the context of @Keaton-Patti's tweets. This may seem like complete speculation at first, but is also subject to the code.

3. There is a certain reassurance in the abruptness of the digital computer (this becomes strikingly evident in the abruptness of the digital computer). This realization is of course rather dated; bots passing the Turing test have been around for a while. Noticeably, it seems that the artworks in question exist only as an analysis of the output, and are seemingly immaterial (Andersen and Pold).

4. Randomness and sub-par writing makes the implied AI-system seem intellectually harmless. There is a somewhat culturally shared conception.

5. Though Cayley's essay is more a stylistic experiment than a reading of the practice of writing-to-be-read-as-a-machine (bot-mimicry), it seems like the complete opposite of aspect #1 and #2.

6. Chances are you will guess 'bot'. What is interesting in this stylistic experiment is that in the case of bot-mimicry, you may attempt to 'read' something about contemporary shared conceptions of AI / ML when you read this text. Theoretically founding this approach in a case in point, which is also subject to the will of its own.

7. There has been varied responses to the will of its own, and the verbal sign (Aarseth). I nonetheless argue that the insights gained from this approach do not seem to be directly applicable.

Aarseth, Espen J. *Cybertext: Perspectives on Ergodic Literature*. Baltimore, Maryland: JHU Press, 1997. Print.

Andersen, Christian Ulrik. and Søren Pold. *The Metainterface – The Art of Platforms, Cities and Clouds*. Cambridge, Massachusetts: MIT Press, 2018. Print.

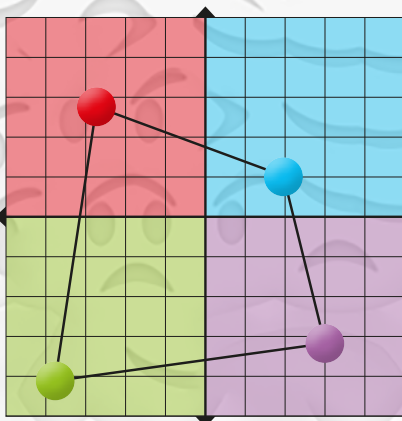
Cayley, John. "Writing to Be Found and Writing Readers." *Digital Humanities Quarterly*, 5.3 (2011). Web: <http://www.digitalhumanities.org/dhq/vol/5/3/000104/000104.html> [accessed Jan 18, 2019].

Cox, Geoff, Alex McLean and Adrian Ward. "The Aesthetics of Generative Code." *Proc. of Generative Art*, 03 (2000). Web: <http://generativeart.com/on/cic/2000/ADEWARD.HTM> [accessed Jan 18, 2019].



**Martin Zeilinger**

**Feeling Generators**



**Angry**



**Sad**



**Surprised**



**Happy**



**MACHINE FEELING:  
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**Martin Zeilinger**

## Feeling Generators

[In:] {are, inevitable, impossible,  
Feeling, generators}  
[Types(n): 5][Chosen(r): 4][Formula:  
 $n! / (n-r)!$ ][Order: Yes][Rep: No]  
[Permutations: 120]

[Out:] {*Feeling generators are  
impossible*}. [Probability: 0.83%]

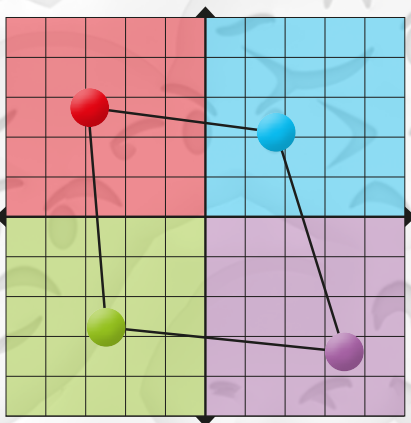
[Out:] {*Feeling generators are  
impossible*}. [Probability: 0.83%]

[Sig:] {Martin Zeilinger; Senior  
Lecturer in Media, ARU; Curator,  
Vector Festival; @mrtznlngr}



Mitra Azar

## This is Cosmo-Phenomenology



Angry ●●●

Sad ●●

Surprised ●●●

Happy ●●●●

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## This is Cosmo-Phenomenology

Everything is oriented. Since the formation of the first nuclei of protons and neutrons few millionth of a second after the Big Bang, the fundamental blocks of matter produce orientations (or “spins” within an electromagnetic field). Matter is Point of view-matter.

In this phase matter is inorganic POV-matter. This is POV genealogy.

The very same inorganic blocks of matter develop into organic forms of life capable of producing an orientation or POV within the regime of visibility of the organism’s ecological *niche* intended as the Umwelt or ensemble of affordances between organism and environment. Spin and field turn into POV and Umwelt.

In this *phase* matter is organic POV-matter. This is POV archeology.

Orientation functions as a phenomenological feature that divides organic/inorganic and outlines the agential relations between diffused and oriented agents operating in the zones of indetermination between the inorganic, the organic and the technological. In their technological instantiation, spins and fields are harnessed towards the construction of visual machines able to generate technological POVs; overlapping and ultimately harnessing organic POVs and their Umwelten.

In this *phase* inorganic POV-matter is technological POV-matter. This is POV-apparatus.

POV-apparatus *transduces* the relation between inorganic POV-matter

phase and organic POV-matter phase.

How does the difference between inorganic and organic POV-matter come into being? Organic POV produces a gap between the continuous action-reaction that characterizes the functioning of inorganic POV-matter. In a human being the gap is circa half a second. The gap is where the action-reaction circuit is interrupted and affect emerges together with perception. “There’s no perception without affection”, says Bergson. Orientation functions at this stage as the expressive manifestation of affect.

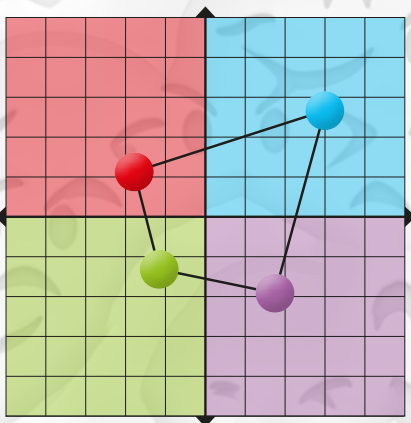
Inorganic POV-matter turns into organic POV-matter.

Once POV-matter turns into the expressive function of complex systems such as human societies, POV-matter turns into a techno-cultural product: first an analog machine (painting, photography cinema) then a digital/algorithmic machine (machine vision). Machine vision attacks the affective gap, or missing half second, between action and reaction defining organic and specifically human POVs. By doing so, machine vision technologies prehend the affordances that define the relation between organic POVs and their Umwelten – by designing POV-data doubles retro-actively producing the affective subjects they’re generated from. This is the only way algorithmic POV technologies can currently and vicariously access affects despite their incapability of producing the gap at the core of organic POVs. This is POV-apparatus turning POV-opticon.



**Tomasz Hollanek**

**Non-user-friendly**



**Angry**



**Sad**



**Surprised**



**Happy**



**MACHINE FEELING:  
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## Non-user-friendly

User-friendly experience design makes our use of new technologies intuitive and seamless.

User-friendly means tailored to the individual. It feels immediate. It allows the interface to erase itself and pass as an extension of the organic, it hides hardware behind software, it obfuscates mediation.

User-friendly design encourages self-tracking and invites the user to become self-conscious through the technology. But self-tracking serves only as a prosthesis of the project, an illusion of individuation aiming to collect ever more data.

Different devices ensure that our sense of orientation is closely tied up with an illusion of control; while visualization masquerades as comprehension, touch colonizes space. Wandering off course is not possible in this world with a home button.

What if design was to pose a challenge to the logic of immediacy? Deny the viewer-user the power to manipulate the image and register reactions to it? Stage an experience that cannot be immediately turned into data? What if 'non-user-friendly' design had the potential to transform the existing feedback loops into a new system of commentary and to de-automatize choice?

The way I imagine it, to call our new, machine-enabled feelings into question, this kind of design would have to defamiliarize visuality by rejecting the user's expectations and reverting the logic of touch-screen sensibilities.

Non-user-friendly design would need to replace apparent mastery with enabling vulnerability. It wouldn't allow the technology to gaze back at the user, respond to his or her touch, heartbeat, or position in space. It wouldn't be personalized or interactive.

It would have to elicit a sense of confusion, prevent the user from navigating the unknown through automatism and well-known gestures; disorientation would form part of the experience.

Non-user-friendly design would stage an ontological rupture: an experience that breaks the dataflow and challenges rather than satisfies our desire for immediacy and omnipresence.

This kind of design would have to feel intrusive. It would make explicit the fact that the device doesn't belong to the user, that it doesn't merely serve its master.

Non-user-friendly design would transform – even if for a little while – the interactive, mobile touchscreen into a classical screen – a non-interactive surface for receiving projections – and turn the user into a passive spectator.

Non-user-friendly design could prove a means of paradoxical 'de-framing' of contemporary perception – making the users aware of their own expectations of visuality: shaped by design that appears user-friendly.

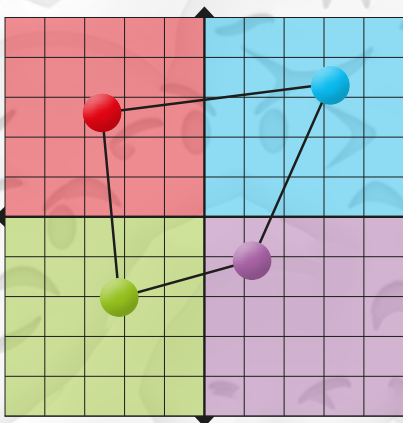
Non-user-friendly design would leave the user dissatisfied, perhaps even angry. It would demand resistance.





Daniel Chavez Heras

### Computational Spectatorship



Angry 3 red dots

Sad 4 blue dots

Suprised 2 green dots

Happy 1 purple dot

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## Computational Spectatorship

Intelligent machinery is awesome but not intelligent at all. It is awesome in the literal sense: in that it inspires us with awe, with feelings of reverential respect mixed with fear and wonder. In this, it has more in common with early forms of spectacle, with the circus, with the cinema of attractions, and particularly, with magic.

A good magic trick is spectacular only because it successfully manages to conceal the work that went into it: the hours of practice and preparation of the magician, the theatre technicians and even the people who sold the tickets to create a willing audience. Years of preparation in the form of skilled misdirection of attention come together a single moment when the illusionist performs the seemingly impossible; when they pull a hare out of an empty hat, or disappear behind a curtain and reappear seconds later among the audience.

Machine learning is presented today as magic. The trick consists in using statistical computation to condense time, and specifically, to condense labour, and to present it back to us at a single point in the present with spectacular results: as instant retrieval, as disembodied cognition, as creative machines. But this is only a trick, of course, and it only works because we cannot see the hours of (unpaid) labour condensed into the instantaneous, because we have not yet learned to think in that scale.

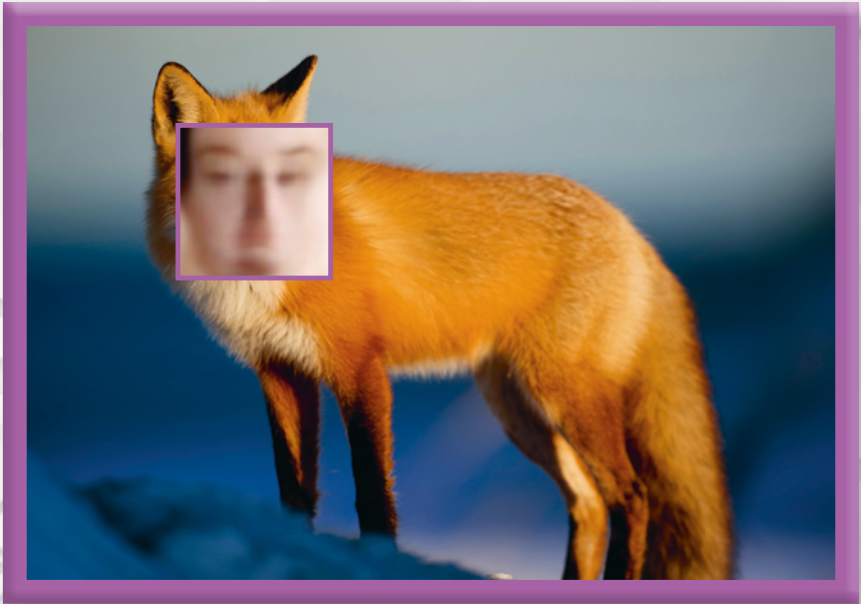
Do you think of yourself as working when you are watching TV? Now

imagine you could compress thousands of hours of work into a few seconds; imagine you could encode millions of years of watching into a short video. What pleasures could one find in these clips and in the process of compression itself?

More than novel ways of **creating**, or **analysing** imagery, machine learning affords us with novel ways of **enjoying** imagery; they fetishise calculation and the statistical apparatus that makes it possible, and they turn the datafication of society into its own form of spectacle: *spectaculum ex computatio*.

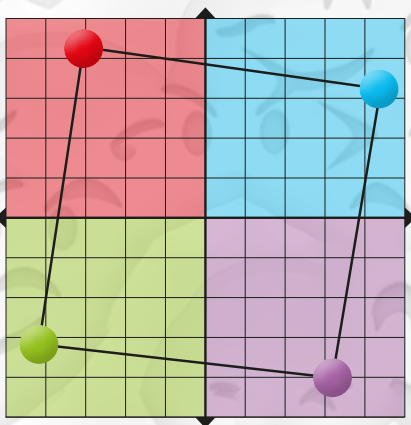
We are living the early history of these forms of computational spectatorship. Computational aesthetics allow us, potentially, to enjoy sequencing without continuity, narrative without authorship and, ultimately, presence without subject.

The task now to imagine a future where, in five years there is a short segment curated through machine learning every night on TV; in fifty years maybe films are all shot for machine-editing, and in the next century we might look back at classic narrative cinema as a curious anomaly.



Rosemary Lee

The image is a machine



Angry ●●●●●

Sad ●●●●●

Surprised ●●●●●

Happy ●●●●●

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## The image is a machine

The image drives the machines  
which produce the image'.

The image may be more of a  
complex ecosystem like a pond  
than a mechanism.

The image may be mechanical,  
electrical, chemical, biological.

The image may be automated or  
autopoietic.

The image' is latent in the  
instructions for its performance.

The image is not reducible  
to source code.

The image has the potential for  
variability of expression.

The image' need not be built.  
Non-expression is a potential  
expression.

The image is a database.

It takes in information and spits  
out electromagnetic waves.

The image may or may not be  
visual.

The image' may be instantiated  
in other forms, such as sound.  
Sound-image'.

Too much concern is lavished on  
the image', the face.

Of greater consequence is the  
commodification of the image,  
human capital.

The image forgoes scarcity in  
favour of the fecund circulation of  
images'.

The image may populate the  
world with innumerable images'.

The image' has no inherent value.  
The image is a producer of value.

The image' is derived from the  
distillation of societal value  
systems.

The image is fat with the  
intellectual, creative, and labour  
value it has consumed.

The image may or may not look  
back.

The image may be used as a  
mode of interpretation of images'.

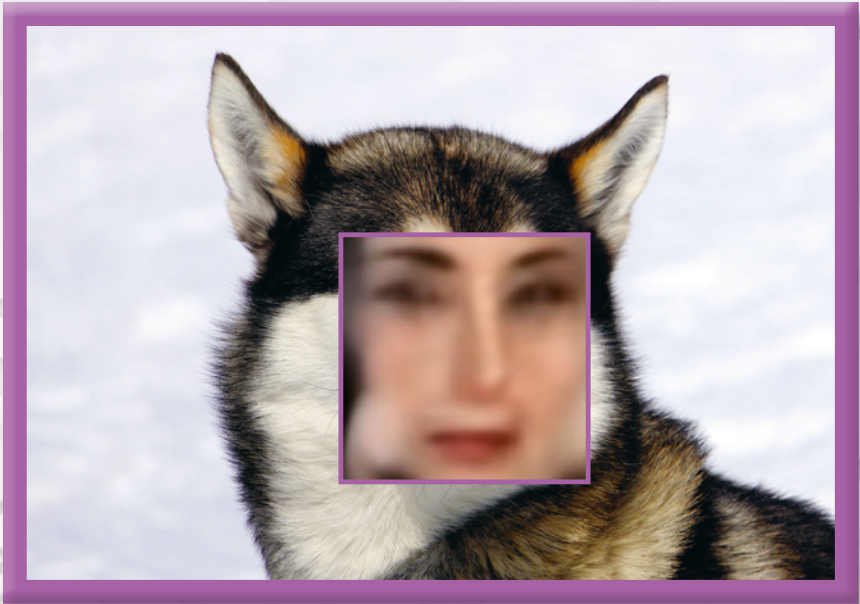
The image constrains what  
images' may be produced from it.

The design of images directly  
conditions the production  
of images'.

The image is concerned with  
method.

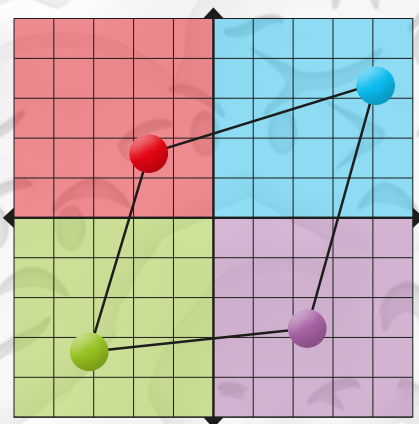
The image is processual,  
procedural, a practice.

The image is a machine.



Carleigh Morgan

### Run Diagnostics? Rethinking the Aetiology of Glitches



Angry



Sad



Suprised



Happy



**MACHINE FEELING:**  
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## Run Diagnostics? Rethinking the Aetiology of Glitches

The technique of compression hacking made its first appearance with Takeshi Murata's 2005 short film, 'Monster Movie'. Other artistic examples soon followed: Sven Koëinig's 'Download Finished!' and David O'Reilly's 'Compression Reels' were joined by the net 2.0 dirty aesthetics of cyberpunk art collective PaperRad. Bubbling up from the underground networks and niche outposts of the early internet, compression hacking steadily found a larger audience.

Compression hacking—in some cases called datamoshing—is a process of using lossy compression to create compression artefacts (e.g. pixellation) on the surface of a digital image. "Lossy" means that some information is irretrievably lost during the compression process, but this feature is not necessarily bad—in fact, in instances of low bandwidth or limited storage space, lossy compression is good. When this compressed file is run through a decoder, the image it produces appears as a distortion of the original. Because it loses information and visual fidelity, the lossy image is frequently thought of as a downgraded copy. By extension, images with identifiable compression artefacts are often understood as "glitched". Compression artefacts like pixellation are read as *evidence* of technical degradation or as a *sign* of technical error.

However, there is a subtle but significant difference between the

*visualisation* or technical error and an *aesthetics* of error. Such visual errors are not always sign of technical malfunction, as compression hacking can show us. Digital media are optical and algorithmic. Compression hacking exploits the overlap between the epistemologies of these two regimes to challenge how we diagnose technical errors. *Seeing* an error is not the same as *knowing* its cause, or even being certain that an error has occurred.

By thinking carefully about how compression hacking affects the different strata of a digital image, we can see how the relationship between the algorithmic dimension and the visual dimension of these images are *inter-dependent* but *not behaviourally identical*. An error in the algorithmic layer does not always manifest at the visual interface; conversely, the appearance of a visual error is not a reliable indicator of a technological malfunction. In other words, the "glitch" is in need of more careful theorisation: we should not confuse an aesthetic of technical malfunction with an aetiology of technical malfunction.

To extrapolate from compression artefacts, we can propose a new axiom: sometimes "glitches" are not the products of a technical error at all. The appearance of error as an aesthetics of failure may rely on precisely the opposite—technical success—for its creation.

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