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Critical re-modelling of algorithm-driven intelligence as commonist media practice

2020-07-06

https://doi.org/10.25969/mediarep/14309

Veröffentlichungsversion / published version
Zeitschriftenartikel / journal article

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Abstract

In order to understand artificial intelligence an approach called critical re-modelling operating within commonist media practice might be useful. Critical re-modelling builds on media archaeology, cognitive mapping, countervisuality, and critical theory; while commonist media practise is framed as a cyborgian approach à la Donna Haraway, critically inquiring and applying computational models. Selected works of art by *Rybn*, *Algolit*, and *Tactical Tech* provide concrete examples of critical re-modelling. The article concludes by arguing that the wider educational implications in humanities-driven scholarship of media cultures need to be reconsidered, in case commonist media practice seriously want to participate in the coming societal transformations of this decade.

Keywords: Activism, algorithm, algorithms, cognitive mapping, critical coding, intelligence, modelling

Artificial intelligence and machine learning – or, more concretely, the manifold ways of algorithm-driven analysis, decision making, governance and information production – have profound effects not merely on the media industry (cinema, television, gaming, news, popular music, pod- and videocasts) and other forms of cultural production (dance, art or design), but in the age of the so-called Capitalocene[1] even on all matters of everyday human life. With the triumphant rise of social networks, smartphones, and mobile broadband operated by now powerful conglomerates of information technology companies such as Facebook in alliance with fulfilment companies like Amazon and platform companies such as Apple or Google, not merely

labour, cognition, or leisure but 'our sociality, our common and ordinary life together' is commodified.[2] Referring to the Italian Marxist Franco Bifo Berardi who described the reformatting of our spheres of knowledge, culture, and politics by 'the algorithm' as a suffocation of breathing and a freezing of poetry which is the 'excess that contains new imaginations and new possibilities',[3] it is now incredibly urgent to resist the freezing and stiffening powers of artificial intelligence effectuated on us, and to consequently start de-freezing, re-imaging, and exploring what poetry as a form of rhythmic expression in our age could do. This article therefore inquires as to modes of media practices as a more recent derivative of what was once called poetry.

Commonist media practice attempts to critically understand algorithm-driven profit-making applied by globally acting companies such as Amazon, Facebook, Google, and Uber or by powerful agents in the financial markets. In the following the concept of 'critical re-modelling' is proposed, and from this conceptual framework the work of three artistic or activist collectives – *Rybn*, *Algolit*, and *Tactical Tech* – is described. Critical re-modelling is a methodical extension of both 'mapping not tracing'[4] and the diagrammatic realisations of what Fredric Jameson called cognitive mapping.[5] As an approach it not merely works with diagrams, maps, films, and more, but as I will argue with computational models and simulations. In order to understand the inner workings of automated, software-based systems as forms of governance, control, and exploitation based on algorithms it is necessary to run them in time, since their processuality is accessible only while unfolding, sometimes even in not-intended, unforeseeable ways.[6] In order to put commonist media practice in a broader context, the article introduces first the concept of commoning both as an alternative form of living often critical of technology and a more techno-optimistic way of cultural production. Then it describes the necessity for a cyborgian approach in order to bridge this gap.[7] In a second step it will explain the implications, context, and ethics of critical re-modelling as an activity and counteralgorhythmicity as a principle of a commonist media practice, which is described more concretely and in detail through the works of *Rybn*, *Algolit*, and *Tactical Tech*. The article then concludes by addressing the wider educational implications of commonist media practice that we[8] need to consider for the coming decade, such as a closer entanglement of theory and practices in media studies and in parallel the popularisation of commonist media practices.

Commoning as an alternative mode of being and living

Commoning signifies a non-profit-oriented, solidarity-based, self-organised approach to sharing, maintaining, and producing experience, knowledge, and resources such as energy, material goods, or knowledge.[9] Such ways of living in solidarity are often aiming an ecological sustainability attempt to regain self-determination and independence from unwanted forms and logistical chains of profit-making and environmental destruction. They are often linked with a general scepticism towards information technological applications paired with a tendency to avoid engaging with or even to disentangle completely from them. Commoning in such contexts is deeply anti-technologically inclined. Nevertheless, in the context of the Free-/Libre Open-Source-Software (F/LOSS) movement, digital commons are also generated, organised, processed, and shared by an open community of individuals and/or collectives. This form of activity is therefore also a form of commoning, but one which implies an openness towards information technology. A common ground of these two seemingly contrasting cultures of commoning is their interest in resistance: while most digital resources are usually owned – or at least controlled – by closed, exploitative, profit-oriented corporate or quasi-corporate entities, digital commons similar to the more general idea of commons of resources such as food or energy are working against this sort of profit-oriented capture or theft. In the realm of digital materiality stealing, copying, and reproducing is much easier. Referring to an aspect formulated by Dmitry Kleiner, author of the *Telekommunist Manifesto*,[10] the activist-scholar Max Haiven noted that the F/LOSS movement often has been 'oddly embraced and in some cases co-opted by corporate interests keen to harness the voluntary labour of thousands of collaborative coders, designers and others'.[11] It is therefore crucial to secure and protect digital commons and open source projects from re-commercialisation with appropriate non-permissive licensing that prevents their commercial exploitation.

Recognising the inevitableness of technology in non-profit-oriented, solidarity-based activities and attempting to synthesise the contrasting practices of commoning builds the basis for commonist media practice.[12] Therefore, I argue to intertwine the incompatible aspects of commoning and to keep their conflicting potential as a way of living inspired by Donna Haraway's concept of the Cyborg, which suggests 'a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves[...]' and which furthermore implies practices of 'both building and destroying machines,

identities, categories, relationships, space stories'.[13] Building stories involves the power of poetry enabling excess, breaking limits and escaping captures,[14] but also creating interferences of mind, breath, language, bodies, and world.[15] The idea of a Cyborg emphasises that our bodies and tools, including algorithms and smartphones, form complicated entanglements of natureculture,[16] or as media scholar Jussi Parikka would formulate: medianature.[17] By recognising the cyborgian condition of living in the Capitalocene and the ecological devastation that goes along with the use of media technologies the commonist media practitioner can recognise not only the oppressive powers of the algorithmic platform economy mentioned earlier, but also the potentials for change and transformation.

Counteralgorhythmicity as critical re-modelling

As a diffractive practice[18] critical re-modelling is an extension of mapping in its simplest meaning as a practice creating drawings and diagrams of the spatial relations of subjects, objects, buildings, ecosystems, landscapes, or geographies; of stocks and flows, and even of immaterial things, like energies, processes, and networks. Such an extension is aimed towards a more dynamic, operative, timing-oriented and processual mode of interactive-representation based at least partly on code, algorithms, and software in run-time. Mapping here is defined as 'not tracing',[19] meaning that it is not a direct copy of the matter to map like high-resolution photography, but a sort of abstraction in order to gain orientation of a field of relations, subjects, and possibilities. Cognitive mapping as coined in the late 1980s by Marxist political theorist Fredric Jameson is about mapping out the socio-political environment, world, and situation; others called it the sociality that the mapper finds themself[20] to be part of. Therefore, it also builds a first step to transform it, when undesired relations are made visible. He notes that 'the incapacity to map socially is as crippling to political experience as the analogous incapacity to map spatially is for urban experience'.[21] Today you could similarly express: the incapacity to re-model, code, and program socially is as paralysing to our techno-political agency in the age of digital capitalism as the respective incapacity to program is for a more insightful experience of algorithmic machinery. Therefore I suggest that the commonist media practitioner, having a horizon[22] as I have described earlier, once they[23] have learned and are capable to re-model socially, they will be able to model how

discrimination, profiling, optimisation, and prediction algorithms work and therefore will set an orientation and opinion about how we could change them and transform our sociality and solidarity.

Critical re-modelling furthermore works with computational processuality similar to a visually-oriented activist works with countervisuality, as visual culture theorist Nicholas Mirzoeff would frame it.[24] Countervisuality according to him is countering the visuality: the visual 'reality' created by authority or the powerful. It seeks to resituate, remap, and counter the visualities imposed on us by terms, discourses, and frameworks on which 'reality is to be understood'.[25] Countering this visuality is pursued not merely by copying the lived experience of the oppressed, exploited, and weak, but creating a visuality that 'depicts existing realities and counters them with a different realism'.[26] Following his terminology critical re-modelling surely is also countermodelling. Still, solely relying on countervisuality is not enough. Applying algorithms to understand algorithms, coding computational models and their processuality implies not only visual metaphors and approaches, but furthermore sonic, if not signal-based, epistemologies and a basic curiosity for the technosciences, engineering, but also mathematics. Algorithms and information technologies operate emphatically in time as they embody time, therefore they create their rhythms, timings, and signals. As the Marxist philosopher Walter Benjamin has put it in his essay *On the Concept of History* from 1939-40, the activist historian working with a 'constructive principle' needs to approach a chain of past processes, a rhythm – Benjamin calls it 'historical object' – as a 'crystallization', halting, and silencing of 'happening' and as 'a revolutionary chance in the fight for the oppressed past'.[27] I interpret this approach as a sort of ethico-aesthetics countering Fascism inspired by the new possibilities of film. This poetic activity of construction as embedded in the Ancient Greek meaning of poetry as poiesis, surely also meant similarly by Berardi, wants to counter the prevailing reality and its history as contingent and written by the powerful. Poetry, Berardi argues, inspires social imagination and political discourse.[28] Coming back to Benjamin's ethico-aesthetic constructive activism implied in *On the Concept of History*, the link to technology, which seems to be Benjamin's blind spot, is provided in *The Work of Art in the Age of Reproducibility*, where he uses the metaphor of the 'dynamite of the split second' and argues that film, especially the technique of 'slow motion', brings light to entirely 'new structures of matter' and leads to the discovery of the 'optical unconscious'.[29]

Classical analogue film discretised optical impressions into frames, recorded or stored on a photochemical medium. Film, from its beginnings, allowed us to perform visual time axis manipulation. Halting and crystallising past processes in the digital realm of algorithm-driven analysis is likewise still a crucial step in critical re-modelling. Without data or some sort of input structure algorithms and computational models will not operate, run, and generate output. But once the data of a process is copied an algorithm can transform, modulate, and generate new iterations of that process as such. Here the criticality of re-modelling becomes poignant. The re-modelling is critical since it allows not only to separate out and distinguish variations of the object and process of analysis, but moreover gives hints to the critical moments, where such processes are constituted so that they inevitably become those processes and not others.

Criticality, therefore is an active learning process. Re-modelling is not merely about copying a process, like a film camera would do, but furthermore is about generating new maps by slightly changing some parameters and relations entangled with such a process. A model is therefore a sort of map-maker, a machine able to generate many variations of the process or rhythm under study which creates signals in order to understand signals, or algorhythms in order to understand algorhythms.[30] Counteralgorhythmicity becomes integral for countermodelling, which encompasses not only technical signals, rhythms, and patterns, but even tactility or things moving. The ultimate horizon of critical re-modelling therefore is to create forms of counteralgorhythmicity, which similar to countervisuality would allow to propose unfoldings of realities, which not only reveal the inner workings of algorithmic power, governance, control, and their services, but counter them to show and learn about alternatives. To use the term intelligence here, counteralgorhythmicity proposes alternative forms of intelligence, which are not merely in service of the powerful and the authorities, but which offer different visions you can select, as the etymological root of intelligence as *interlegere*, meaning to read between or pick-out between different options, would suggest. Counteralgorhythmicity therefore is also an approach in the vein of a sort of critical pedagogy. Furthermore, in alliance with critical theory as formulated for the first time in 1937 by Max Horkheimer, critical re-modelling is aware of the reciprocity between tools and humans, or even their organs.[31] Second, it is led by a 'concern for the abolition of social injustice',[32] and third believes that the 'presentation of societal contradictions is not merely an expression of the concrete historical situation but also a force

within it to stimulate change'.[33] Finally it emphasises that transformation is influenced by theory, but also reflects back on it.[34] The latter is highly crucial, since modelling as such is indeed already an algorithmisation of theory wanting to feed back into social transformation, which again would then feed back into a new model. Critical re-modelling is therefore recursively looped into such fractal entanglements. This sort of 'experimental' attitude furthermore is also inspired by Michel Foucault's notions of critique and 'enlightenment',[35] which is synthesising a technical-materialist way of analysing practices he called archaeology with a more socio-political-materialist approach to practices he called genealogy.

Three concretisations

The following section concretises some aspects, perspectives, and diffractions of critical re-modelling along the works of *Rybn*, *Algolit*, and *Tactical Tech*, which I will unfold in the following. Active since 1999, *Rybn* is an artistic collective based in Paris. Their installations, performances, and interfaces shown mostly in the (media) art context result from pluridisciplinary inquiries into codified and algorithmic systems, transversally touching aspects of geopolitics, socioeconomics, sensorial perception, and cognition. Amongst them two series of works – *Human Computers/ AAI Chess* (2016-)[36] and *ADM XI* (2015-)[37] – are pertinent for critical re-modelling. *ADM XI* builds on an older series of works called *Antidatamining* (2006-15).[38] While *Human Computers* is about the relationship between the history of computing and the visualisation, quantification, valorisation, discretisation, and optimisation of labour, *ADM XI* and the whole *Antidatamining* bundle on the other side focuses on the topic of algorithmic trading as a form of profit-making in the realm of financial markets. *Human Computers* is a thought provoking artistic and Foucauldian archaeology-genealogy of labour in the age of gig economies; it starts with the beginnings of the division of labour, Wolfgang von Kempelen, the famous Mechanical Turk chess player and Gaspard de Prony's idea of manufacturing logarithmic tables by human computers in the eighteenth century, continuing with the work of Charles Babbage, psychophysics, motions studies in the context of Taylorism, human computers until 1950, cybernetics, and finally ending with current aspects of artificial intelligence, smart services, and gig economies. The last topic is deepened with *AAI Chess*, which is a subproject and research on *Amazon Mechanical Turk (MTurk)*, a

crowdsourcing online platform where so-called 'requesters' can hire remotely located 'crowdworkers' or simply 'workers' to conduct on-demand (micro)-tasks that computers are currently unable to carry out according to Amazon. Building supply-demand relations, 'requesters' and 'workers' create a market. *Human Computers* as an installation exhibits the whole historical material, sometimes with mixed media (printed copies of articles, books, screens, and other objects) or in other ways combined with a set-up of *AAI Chess* either showing ongoing live activities linked directly in real-time and by an online connection with *MTurk* or performing past interactions with it.

While the topic of gig economies has been critically described passively from different perspectives[39] Rybn's approach is more operative and practice-oriented, since it synthesises literature reading, auto-ethnographic observations, and investigative inquiries about the *MTurk* platform by also coding a system that allows them to re-enact, test, explore and probe the platform – an approach I call critical re-modelling. This 'speculative system', as they call it, to comprehend the inner workings of *MTurk* and its market structure is conducted via an algorithmic system, a computational model they coded by themselves, which is *AAI Chess*. AAI stands for artificial artificial intelligence, a direct reference to terminology used and coined by Amazon. *AAI Chess* then is an artistic persiflage of *MTurk* as it also refers to the historical eighteenth century Mechanical Turk chess player Amazon is somewhat playfully quoting. The point of *AAI Chess*, in my interpretation, is then to question this playful connotation and show more concrete unfoldings of the labour process involved. Instructed by an algorithm (see Fig. 1) *AAI Chess* is enacting a whole chain of actions that creates a system, which is linked through an online connection with *MTurk* and requests registered online workers to conduct the next move of a chess game displayed visually to them on their browser. A chess move in *AAI Chess* is always done by another worker, thus each remote worker sitting in front of their computer or smartphone gets paid only for one chess move, prices ranging between one and ten US cents. The longer the requested task is pending the more value it gets. Durations for one move range from 30 seconds to fifteen minutes or even several hours. Analysed sequentially these moves create different rhythms of algorithm-driven microwork. *AAI Chess* provokes the visitor to reflect upon the future effects gig economy profiteers such as Amazon will have on the daily rhythms of work by creating new exploitative forms of chrononormativity. Chrononormativity is usually imposed on us by powerful companies and organisations and turns historically contingent time regimes 'into seemingly

ordinary bodily tempos and routines'.[40] Furthermore, the exploitative mechanisms of *MTurk* forces workers to organise themselves on online forums such as *turkerview* to form solidarity-based alliances and exchange information about requesters. There *Rybn* was reviewed as a generous 'requester'[41] due to the fact that their prices besides their correlation to waiting time seemed not to be based on some sort of performance metric.
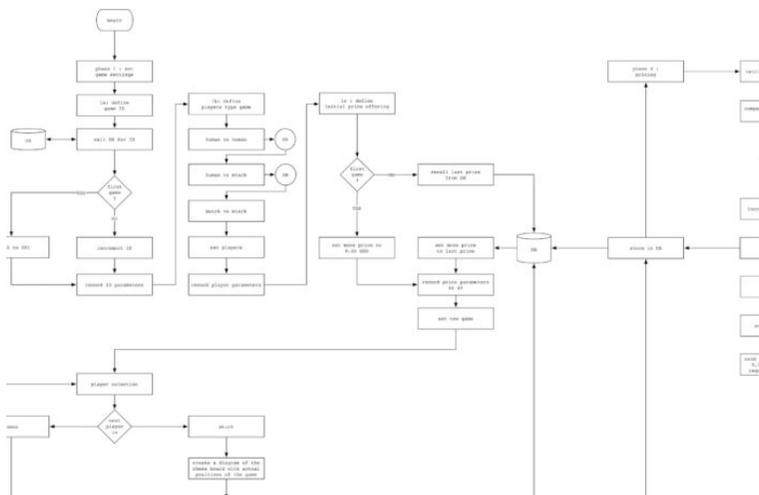
Fig. 1: AAI Chess, excerpt from flowchart of algorithm CC BY-NC-ND 4.0 by Rybn.

Another series of works by *Rybn* is *Antidatamining*, particularly *ADM XI* and *X* as the last chapters of this project, which seems to resonate with critical remodelling. Based on almost ten years of experimentation ADM XI and X are inquiring mechanisms of algorithmic trading in financial markets. Algorithmic trading is a way to make orders within a financial market such as the *New York Stock Exchange* using automated pre-programmed trading instructions based on variables such as time, price, and volume of a financial product such as a stock or bond.[42] Similar to *AAI Chess* the work relies on self-coded systems, or bots to use another terminology, to explore an algorithm-driven network. While *ADM XI* is based on algorithms, which result from collaboratively created artistic speculations and which are 'heretic' and 'irrational', in the formulations of *Rybn*, *ADM X* involves historical algorithms and methods they found during their literature research, which are dubious or at least unconventional, such as: the *WebBot* from 1997 first predicting stock market trends, but then claimed to forecast trends on WWW; and the *Twitter (Mood) Prediction Algorithm* described in a 2011 paper;[43] also the *Wall Street Journal* Dartboard contest from around 1990, where the method used to randomly select stocks by throwing darts on a chart has proven to be more profitable

that human expertise;[44] and finally the zero intelligence algorithm.[45] All four methods or algorithms were re-modelled as trading algorithms as appropriate as possible and then tested in the work *The Anti Trading Agent Contest*, a simulated financial market, which was done at least since the 1990s in academic research, but here for the purpose of artistic inquiry. ADM X was then exhibited as part of the *Algorithmic Trading Freakshow*, which not only displayed the results of the re-modelling as done in ADM X, but also flowcharts of other strange algorithms such as the so-called sniper algorithm (see Fig. 2) and a playful situation to re-enact the dart throwing mentioned above. ADM XI also works with the format of the algorithmic trading contest. This time it is not merely a reprogramming and re-modelling of existing algorithms, but in collaboration with further artists, activists, and coders[46] – indeed actually a form of countermodelling, yet not aimed for commoning, but for artistic purposes.
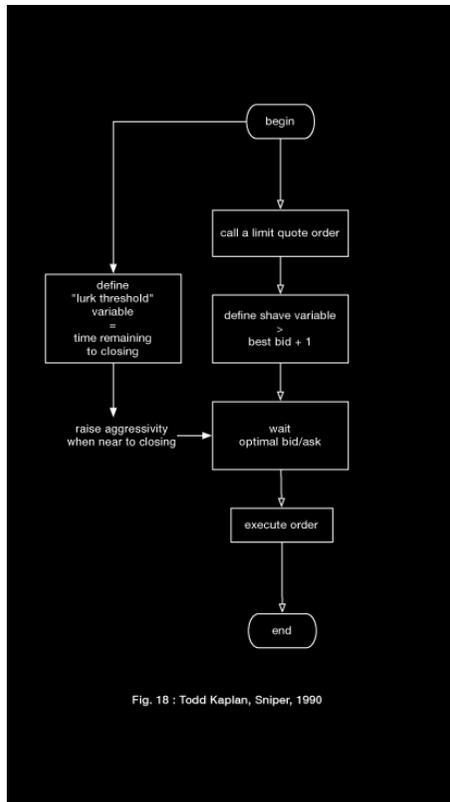

Fig. 2: Sniper algorithm CC BY-NC-ND 4.0 by Rybn.

All trading algorithms follow their own non mercantile and obsessive logic: some attempt to produce a total and irreversible chaos, while others try to influence the market prices to make it look like a given geometrical shape, while others try do saturate the market with non human affects.[47] Those algorithms and countermodels are no longer profit-oriented, but rather inspired by the workings of living organisms (soil, plants, bacteria), by supraterrestrial rules (astrological, astrophysical, biological), by forbidden ancient knowledges (esoteric, magic, geomancy) or randomness.[48] These alternative forms of knowledge are surely also informative for commonist counter-modelling.

Algolit, the second group whose works resonate with the concepts of critical re-modelling, has been initiated in 2012 by *Constant*, a non-profit, feminist, F/LOSS-artist collective based in Brussels since 1997. Inspired by *Oulipo*[49] and the concept of 'algoliterary' in short, *Algolit* the collective produces text and code-based materials from the point of view of an algorithm. Their approach seeks to make visible conventions, structures, and mechanisms not of literature or its market, nor the format or the page, but those of bits, bytes, servers, services, and 'corporate algorithmic models, for which the whole world works by clicking links, distributing hearts and likes [...]'.[50] *Algolit* writes poetry recursively intertwined, as algorithms are coded in letters, and they often program them to create letters. Poetry generates poetry. Concerned with the polarisation and inequality growth of the last decade, the collective aims at giving algorithms a voice and enables interested persons to have negotiations and conversations with them, thus to make their audience more algorithm-literate. The machine, the bot, and automat are conceived as 'narrators of the world'.[51] They observe that by working more in-depth with algorithms, they become sometimes difficult to control and their objective, neutral character turns out to be an illusion. *Algolit* also questions the modes of co-living and symbiosis with algorithmic systems and try to tackle that with sense-making, as production of literature and poetry. *Algolit* is based on regular meetings, where members[52] have developed ways to understand the code of existing models and where they try out scripts, research their programmers, or play with input/ output. This is all part of a learning and collaboration process involving also dissections of machine learning models, explorations of data sets, transformations of words into numbers, and adapting the code scripts to their interests and fine-tuning the tools. *Algolit* mainly works with NLP (Natural Language Processing). In the early

phase they also learned about simple algorithms like Quicksort, distance metrics, Markov Chains, and other sorts of algorithms.

Compared to *Rybn*, *Algolit* has more members, therefore their works are more heterogeneous, much more focused on co-learning and collections of small-scale, but still highly thought-provoking experiments using formats such as installation, poster, print, vinyl sound recording, podcast or card game. Also, it seems that the group has an academically informed activist agenda, meaning they want to raise the critical algo-literacy of interested persons taking part in their workshops and exhibitions. *Algolit* is a pedagogical project. Critical re-modelling here is crucial, since algorithms and models here are run and operated as productive means to raise criticality. A pertinent series is *Data Workers* (2019), which is divided into subcategories structuring the exhibition and denoting different categories of data work such as writers, predictors (oracles), readers, learners, and informers consisting not merely of artistic works, but also of contextual explanations and more general aspects of data work. *The Algoliterator* was part of 'oracles' and is based on a so-called recurrent neural network trained on the full text corpus of Belgian writer Felix Timmermans (1886-1947) in a first version, and for a second version of *Data Workers* on archived text sources, which are part of The Mundaneum archive centre in Mons, with texts by Paul Otlet (1868-1944), one of the so-called fathers of information management. The model allows the visitor to write a text in the trained style according to different parameters tuning the performance of the text generator. In one variation of the installation a robot spoke out parts of the generated text. As a welcomed side effect, *The Algoliterator* highlights misshapes, biases, and errors inherent in those text corpora, but also those of the recurrent neural network algorithms getting trained through them.
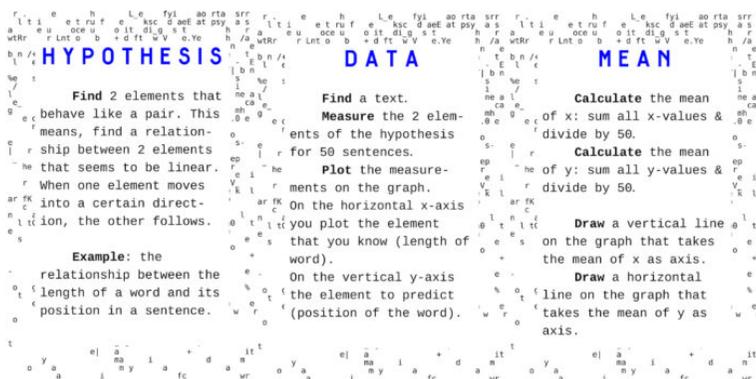
Fig. 3: First three game cards of linear regression Free Art License 1.3 by Algolit.

Another installation also part of 'oracles' is *Words in Space*, operating with so-called 'word embeddings', which is a language modelling technique in NLP (Natural Language Processing) which through multiple mathematical operations of counting and ordering maps words of a text into a multi-dimensional vector space. The resulting mathematical objects can be multiplied, divided, added, or subtracted, which offers multiple, simultaneous ways of ordering. Using Gensim, an open-source library for unsupervised NLP, using modern statistical machine learning, the visitor of the installation could explore certain text corpora such as a dataset consisting of works by the Swiss structuralist linguist Ferdinand de Saussure (1857-1913), and predict for example the next word or sentence of a partial sentence you typed in respecting the trained style or language derived from a text corpora or dataset. Finally, two sets of game cards: being part of 'learners' with instructions to literally perform algorithms and models such as linear regression (see Fig. 3), or Naive Bayes, strongly in resonance with critical re-modelling, although here it is not a computer which is executing the algorithm but the visitors themselves. So here the unfolding of a model is performed by humans. While Naive Bayes is a probabilistic classifier that is widely applied for spam filtering,[53] linear regression is a more simple machine learning technique looking for the relation between two parameters and used in NLP (Natural Language Processing) to conduct text sentiment analysis for example where the score is not merely positive or negative but predicts a grade of sentiment.[54] Naive Bayes classification and linear regression are often learned together. Currently *Algolit* is following this path on NLP and critically inquires more complex systems of models and algorithms such as BERT, a pre-training technique developed by Google, CamemBERT, the French version of BERT, and

GPT2 a language model developed by *OpenAI*, a large research company supported by Microsoft and Elon Musk among others.

The last concretisation to explore is the organisation *Tactical Tech* founded in 2003 by Stephanie Hankey and Marek Tuszynski in Amsterdam, since 2012 based in Berlin. *Tactical Tech* is organised as an international NGO that engages with citizens and civil-society organisations to explore, mitigate, and reflect the impacts of technology on society. With a team of more than 20 members and large-scale projects including the curation of exhibitions such as *The Glass Room*,[55] only two projects, *Our Data Our Selves* and *Exposing the Invisible*, might resonate more concretely with critical re-modelling. *Our Data Our Selves* consists of three subprojects: *Data and Activism*, *Data and Politics*, and *Data and You*. The project is mainly a collection of online essays providing useful information about how data is used in the age of digital capitalism. In the subproject *Data and Politics* extractive practices, such as psychometric profiling, are reframed as tools of the influence industry. Here the essays authored by Varoon Bashyakarla, a researcher and data scientist of the *Tactical Tech*, are most pertinent. He refers to specific cases such as the Facebook-Cambridge Analytica data scandal, for example. A key principle of psychometric profiling is the so-called 'OCEAN Model', the 'Five-Factor' or 'Big-Five-Model', where openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism are these five factors. Here Bashyakarla designed the software application and exhibition work *A Drop in the OCEAN: Your Personality Predicted*,[56] which is part of the earlier mentioned *The Glass Room* exhibition (see Fig. 4). I interpret *A Drop in the OCEAN* as a critical re-modelling of different OCEAN models as parts of libraries, scripts, and academic papers. The software lets the visitor interactively fill out a questionnaire with 25 questions, also called a personality test, and playfully follow what kind of answers lead to what sort of profiles and what sort of political advertisements these profiles would see. Experiencing *A Drop in the OCEAN* provokes new reflections about seemingly innocent personality tests a social media friend has reposted, other sorts of game-apps, or even about a visitor's interactions in social media as such. It surely does not need much paranoia to imagine that certain sponsored posts on Facebook directly act as questionnaires linked to a secret profiling machine running in the background.
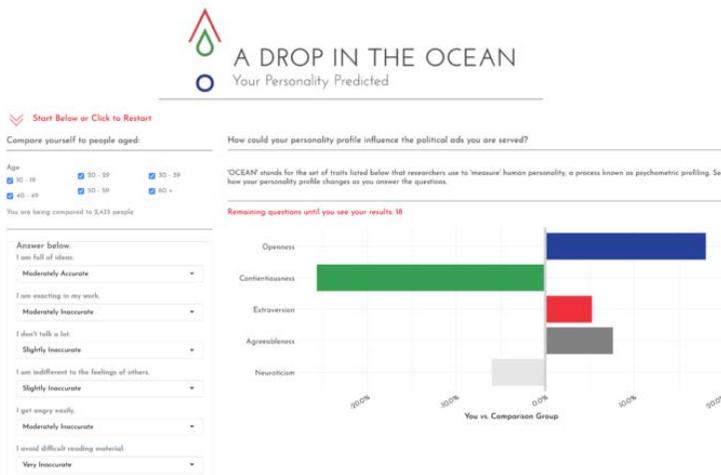
Fig. 4: Screenshot from A Drop in the OCEAN CC BY-NC-ND 4.0 by Tactical Tech / Varoon Bashyakarla.

Another related project by *Tactical Tech* is *Exposing the Invisible*, a vast online collection of short films, video interviews (featuring the work of artists/activists like James Bridle, or Mediengruppe Bitnik, or activist scholars such as Ingrid Burrington), guides, resources, and a kit[57] looking at different techniques and tools for what they call the 'new frontiers of investigation'. *Exposing the Invisible – The Kit* provides information on how to self-deterministically change the one-sided extraction and start to collect data for non-profitable aims and social justice. Re-modelling here is not explicitly described, but not out of reach, since once the data is collected a model, a hypothesis, and algorithm to analyse the data is required.

Further implications for the coming decade

By arguing for and describing an approach called critical re-modelling operating within commonist media practice as I have so far suggested, that in order to critically inquire our age of artificial, algorithm-driven intelligence, a cyborgian approach based on media archaeology, cognitive mapping, countervisuality, and critical theory is necessary. Furthermore I emphasised the importance of literacy in algorithms, which I called counteralgorhythmicity. Here countering is meant as a form of resistance against normative, authoritarian, exploitative, anti-democratic, neoliberal forms of control, surveil-

lance, and service we are confronted with. This has been exemplified alongside selected works by *Rybn*, *Algolit*, and *Tactical Tech*. The wider implications for a humanities-driven scholarship of media cultures have not been addressed so far. Media studies could attempt an oscillatory wandering movement between those fields which are more technologically-inclined and those which are critical, not to forget the vast history of cultural production from poetry, film, music, and performance to architecture, design, and art and their role they had in politically turbulent times. For such a new commonist mode of production media studies needs to become cyborgian and mix up practice with theory, instruments with content, socio-techno-politics with epistemologies, and this all recursively.

What is proposed here is a re-organisation not only of tertiary education in media studies at universities, but even more of those modes of creative production in secondary and elementary education. Works such as *AAI Chess* (2016-) by *Rybn*, *Data Workers* (2019) by *ALgolit*, or *A Drop in the OCEAN* by *Tactical Tech* as described earlier could all be exemplary works and projects of such a media practice and education yet to fully develop. Comparative media studies scholars such as Jentery Sayers, who edited a large companion for an approach he calls 'studying media through new media'[58] or 'the study of entanglements' and 'the fascinating mess' of media,[59] provide here interesting perspectives for such potential developments. Here we could gain further inspiration from Célestin Freinet and his pedagogy developed during the 1920s and 1930s in France, which was built around a collectively maintained printing press in the school, an older form of media technology, which completely reorganised the classroom into a place of collective cultural production, an ever going re-reading, re-printing of written accounts from students for students with students. Freinet's approach emphasised the use of machinery and technology 'disengaged from consumerist desire and the logic of accumulation […]',[60] which surely needs a sort of update for the digital realm as it has been pursued already by the Free-/Libre Open-Source-Software (F/LOSS), the Open Hardware, and other similar movements. They all helped to make technologies more accessible and easier to learn. Still, as I have argued earlier, we need to prevent co-opting and selling-out to large powerful companies.

Commonist media practice and pedagogy should become more common and adapted, practiced and transformed by extra-institutional learning, interest groups, and more generally by those communities who are interested

in forming alliances in solidarity and resist cultures of limitless profit-making. Re-modelling here could also be useful not only to criticise processes imposed on us, but also those chains of commoning some of us are actively constituting by themselves in a more direct way.[61] While growing new communities of commonist media practice it is surely also important to change the structures as much as possible and care for a culture of irony. What we need is ironism not cynicism. Irony involves hope. Hope that we will always find the irony of our cyborgian situations and are able to cope with them, or even change them.

Author

Shintaro Miyazaki studied media studies, philosophy, and musicology in Basel and Berlin where he wrote his PhD on the history (1200|1800|1930-2010) of digital technologies, focusing on algorithms and their rhythms by coining the term algorhythmics. Currently on an extended field trip in experimental design and artistic research, he is interested in how we can generate moments of (non-modernistic) criticality which would emancipate us from our self-imposed ignorance of the algorithmic infrastructures we are trapped by and at the same time keep this knowledge alive, open, non-commercial, and free from capitalist exploitation.

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Notes

[1]   Moore 2016.

[2]   Wark 2019, p. 3.

[3]   Berardi 2018, p. 114.

[4]   Deleuze & Guattari 2004, p. 12.

[5]   Jameson 1988, p. 353.

[6]   Miyazaki 2016.

[7]   Haraway 1991.

[8]   My 'we' is meant inclusively, although I strongly encourage critique of my arguments and different opinions.

[9]   Bollier & Helfrich 2015; Dyer-Witheford 2007; Shantz 2013.

[10]   Kleiner 2010.

[11]   Haiven 2016, p. 280.

[12]   Miyazaki 2019.

[13]   Haraway 1991, p. 181.

[14]   Berardi 2018, p. 19.

[15]   Ibid., p. 22.

[16]   Haraway 2003, p. 22.

[17]   Parikka 2012.

[18]   Barad 2014; Miyazaki 2018.

[19]   Deleuze & Guattari 2004, p. 12.

[20]   I use here singular they for keeping gender neutrality.

[21]   Jameson 1988, p. 357.

[22]   See Jodi Dean's idea of the horizon, 'a fundamental division that we experience as impossible to reach, and that we can neither escape nor cross'. Dean 2012, p. 1f.

[23]   I also use they as a non-binary pronoun.

[24]   Thanks to Özgün Eylül İşcen for pointing me to countervisuality.

[25]   Mirzoeff 2011, p. 28.

[26]   Ibid., p. 5.

[27]   Benjamin 2003, p. 396.

[28]   Berardi 2018, p. 18.

[29]   Benjamin 2003, p. 265f.

[30]   See for the term algorhythm Miyazaki 2018, but also adaptations in Coletta & Kitchin 2017.

[31]   Horkheimer 1982, p. 201.

[32]   Ibid., p. 242.

[33]   Ibid., p. 215.

[34]   This is paraphrased from the German original first publication, which is omitted in the English translation I worked with. See Horkheimer 1982, p. 241. Compare with the passage printed in 1937: Die kritische Theorie 'vollzieht sich nicht auf dem festen Grund einer eingeschliffenen Praxis und fixierter Verhaltensweisen [sic], sondern vermittels des Interesses an der Umwandlung, das sich zwar mit der herrschenden Ungerechtigkeit notwendig reproduziert, aber durch die Theorie selbst geformt und gelenkt werden soll und gleichzeitig wieder auf sie zurückwirkt'. Horkheimer 1937, p. 291.

[35]   Foucault 1984, p. 46.

[36]   http://rybn.org/human_computers/

[37] http://www.rybn.org/ANTI/ADMXI/

[38] http://www.antidatamining.net/

[39] Gandini 2019; Irani 2015; Scholz 2016.

[40] Freeman 2010, p. 3.

[41] https://turkerview.com/requesters/A12D4EQ1HM2NVV#

[42] See Miyazaki 2016 for a media theoretical take on algorithmic trading.

[43] Bollen et al. 2011.

[44] Metcalf & Malkiel 1994.

[45] Gode & Sunder 1993. In ADM 8 Rybn created a bot, which had a budget of 10000$ and was dealing within a real financial market.

[46] From a non-exhaustive list from rybn.org: b01, Femke Herregraven, Brendan Howell, Martin Howse, Nicolas Montgermont, Horia Cosmin Samoila, Antoine Schmitt, Marc Swynghedauw, Suzanne Treister.

[47] As found here, http://www.rybn.org/ANTI/ADMXI/about/

[48] A pertinent example is the Hades algorithm conceived by Nicolas Montgermont, which is described as 'HADES is a trading algorithm that uses its knowledge in astronomy, astrology and mythology to trade gold on the markets. HADES is the Hellenic god of the underworld (Pluto in the Roman Cult), who is also the god of Wealth, especially as the possessor of the underground minerals. HADES studies in real time the angle between Earth and the Pluto planet to determine if the context is favorable for trading. By using the astrological analysis of the angle developed in Ptolemy's Tetrabiblos, he decides when the configuration of the planets is optimal to sell or buy ounces of gold.' The code is documented here: https://github.com/nixhol/hades

[49] *Oulipo* is an acronym of *Ouvroir de littérature potentielle*, literally meaning sewing room for potential literature, and was founded in the 1960s.

[50] This is quoted from an email interview the author conducted in February 2020 with currently active members of the collective. All content of this subsection is derived either from this interview or their website: https://www.algolit.net/

[51] Ibid.

[52] Their current configuration as of February 2020 is a programmer, graphic designers, visual artists, a sound artist, a writer, and a statistician.

[53] The instructions for linear regression game reads: 'This game allows you to play along the rules of Naive Bayes. While manually executing the code, you create your own playful model that „just works". A word of caution is necessary: because you only train it with 6 sentences – instead of the minimum 2000 – it is not representative at all!' From https://algolit.net/index.php/Naive_Bayes_game

[54] The instructions for linear regression game reads: 'By playing this game you will realize that as a player you have a lot of decisions to make. You will experience what it means to create a coherent dataset, to decide what is in and what is not in. If all goes well, you will feel the urge to change your data in order to obtain better results. This is part of the art of approximation that is at the basis of all machine learning practices.' From https://algolit.net/index.php/Linear_Regression_game

[55] https://theglassroom.org/

[56] https://theglassroom.org/object/ocean-tool

[57] https://kit.exposingtheinvisible.org/

[58] Sayers 2018, p. 1.

[59]   Ibid., p. 3.

[60]   Carlin & Clendenin 2019, p. 10.

[61]   With a small team of researchers at the Critical Media Lab in Basel and funded by the Swiss National Science Foundation, the project 'ThinkingToys for Commoning' (project no. 175913, 2018-2021) is currently exploring the role of playful computer modelling in Swiss housing co-operatives like LeNa Basel (https://lena.coop/) or Warmbaechli Bern (https://www.warm-baechli.ch/).