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Tobias Blanke is a Distinguished University Professor of Artificial Intelligence and Humanities at the University of Amsterdam. His academic background is in moral philosophy and computer science. Tobias' principal research interests lie in the development and research of artificial intelligence and big data devices as well as infrastructures for research, particularly in the human sciences. Recently, he has also extensively published on ethical questions of AI like predictive policing or algorithmic otherings, as well as critical digital practices and engagement with digital platforms. Tobias's most recent book is on the socio-economic position of AI called 'Algorithmic Reason - the Government of Self and Other.' The following interview is based on Tobias' conversations with *Critical Humanities*' Editor-in-Chief, Puspa Damai.

Puspa Damai: For a layperson, AI signifies rogue robots and self-driving and frequently crashing cars. With the advent of ChatGPT, Bard, and other recent chatbots and image creators, we are forced to expand our understanding of AI. Could you help us get a good grasp on what artificial intelligence is? How has AI evolved, say since John McCarthy and Co. coining the term in 1956? Where do you think it is headed?

Tobias Blanke: This understanding of AI is not just the case for a layperson. If you read through the introductions of computer-science papers, a lot are motivated by similarly strong images of AI as found in science fiction and tech news. You can find references to self-driving cars, unique new treatments and medicines discovered by AI, or AI helping distribute humanitarian aid. However, it is not a secret anymore that contemporary AI has little to do with robots taking over and new machine overlords but stems from perhaps the single most important development in the field, the exploitation of statistical machine learning. Some people have tried recently to revive the debate that we are the threshold of artificial general intelligence, but there is little traction here in my opinion, and these debates often rely on selective interpretations of intelligence.

When McCarthy and others coined the term AI in 1956 at the famous Dartmouth workshop, they had something different and all-encompassing in mind than what we have now. Following system engineering and cybernetics, these pioneers thought that cognitive processes could be captured formally and abstracted from our embodied existence so that they could then be reproduced by machines. Intelligence was to be engineered. For a while afterward, rule-based symbolic AI

dominated computer-science research and AI-imaginaries. At its peak, this type of AI had some success with decision-support systems to help trade stocks in the 1990s. Maybe the most famous success was beating chess world champion Kasparov by the specially designed supercomputer Deep Blue. Deep Blue was the pinnacle of decision-support systems, relying on pre-programmed rules by computer scientists and experts.

But AI systems based on statistics scaled better to other domains and bigger data. In principle, we are now living with the global dominance of statistical approaches and so-called machine learning, where machines learn from data to find patterns and regularities. This can take various forms. The dominant one is supervised learning, where an algorithm learns from the examples we provide, while in unsupervised learning the computer discovers its own patterns. We also have reinforcement learning, which is the learning of an agent to optimize receiving a reward. In a famous summary of this transformation, Peter Norvig from Google located an epistemic-material transformation in AI from logical to statistical models from the late 1990s.

However, some scientists have recently argued that the most recent machine-learning paradigms are also moving away from some of their statistical origins. So-called deep learning systems both continue and discontinue these. Together with large amounts of available data and efficient hardware, they are the real reason we now see so much excitement about AI again. Deep learning works by layering small mathematically simple units, called neurons, in such a way that they together perform better than anything we have seen so far. But deep learning has a big problem

that we do not actually know why they are so effective. It has been called the 'dark secret' of AI because of its opacity. In many ways, it therefore also departs from its statistical origins.

What makes deep learning maybe more interesting to a social-cultural analysis is the fact that it enabled the production of AI at an industrial scale – probably for the first time in history because it unifies production processes. Say, you want to sell shoes with machine learning rather than more traditional digital e-commerce means. Rather than focusing on a fancy e-business website, you first collect as many examples of shoes on the Internet as you can possibly find. You then need a way of storing and managing these items, which is where a Cloud service provider comes in. The actual code to exploit the data through deep learning is done in a fairly standard workflow, which is nowadays based on very powerful toolkits developed by a few very large Internet companies – mainly Google and Facebook.

Making AI by collecting data and then running it through standardized algorithms, is therefore the same whether you want to sell shoes or equip drones with loitering autonomous targeting capacities, though the human relations behind them are very different. This making-AI workflow also applies to 'making culture' when you look at how Spotify or Netflix operates. The emergence of industrial deep learning has only become possible through platform and surveillance capitalism, which have globalized massive data extraction. I think this industrialization of AI is why Timnit Gebru, Meredith Whittaker, and others are right that a critical historical analysis of AI today should focus on the human-machine relations involved and in particular how labor relations are shaped.

Let me add one final aspect that is sometimes ignored in the discussions around how we have different AI worlds now compared to the ideas in the 1950s. I do not think McCarty and others would have thought of AI as something that we all do together. For a long time, AI had mainly been successful as expert systems for select tasks that were not for everyone. AI was for the pioneers something to be centrally designed. Today, we are all permanently creating and co-creating this world of AI together by feeding it with our data. I am saying this because I think this is an important distinction for a journal covering critical humanities. One of the biggest challenges of our time is that we tackle our entanglements with these in their own way smart machines.

Puspa Damai: Sundar Pichai has been repeatedly branding AI as humanity's "super-powered assistant." Bill Gates and others have pointed out AI's inherent humanitarian potential. They promote it as a great equalizer. To what extent could AI be our assistant? What are some of the areas in which we can benefit from its assistance and problem-solving capabilities?

Tobias Blanke: Thinking of AI as an assistant is often invoked by tech to reassure us that we still have control. This applies potentially also to humanitarian assistance, and to support their work, AI practitioners like to cite humanitarian examples. AI tools like chatbots and drones are supposed to deliver aid where help is otherwise not accessible because of a lack of resources. But we should always be careful with tech applications in the humanitarian sector. Technology has not always played the best possible role in humanitarianism. Media scholar Mirca Madianou talks about technocolonialism in this context.

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The UK government recently ran a hackathon to develop AI to help with the asylum process and work through its backlog (Gentleman, 2023). We know little about the hackathon, but it was framed in the economic language of 'streamlining' the asylum process, and we should be concerned that participants had to sign non-disclosure agreements (NDAs). NDAs are in my experience never a good sign in Tech. The discourse of 'streamlining' and the hackathon do not account for the changes in asylum legislation and policy, which covers potentially cruelty towards asylum seekers and refugees. Assuming that 'streamlining' with AI is a desirable aim, ignores the violence of migration governance today that is mainly interested in blocking what is seen as undesirable people from migrating. Feminist scholars Neda Atanasoski and Kalindi Vora's analysis in their book 'Surrogate Humanity' tells us that robots and AI do not mean the end of the economy and society as we know it. Rather, they reproduce inequalities and inequities. When talking about humanitarianism, it is most important to always remember that the unequal development of the world remains a human artifact. Humanitarianism does not work in a virtual realm.

That said, I am also an AI enthusiast and think we all should consider following AI researcher Phil Agre and his ideas of critical digital practices. As critical practitioners, we should go beyond thinking of AI as an assistant or instrument. AI can be a real associate and can help us think through problems for new creative thinking in sciences, arts and society, as long as we understand its perspectives and disadvantages. I work mainly in the domain of AI for research, where its reasoning has without doubt been a great associate in knowledge productions. DeepMind's

AlphaFold is maybe the most famous example of a successful AI-human collaboration in research. It performs predictions of protein structures, which helps with developing medicines and making sure that they are safe. I have worked with deep learning to deconstruct assumptions about leadership in political organizations or discover hidden voices in Holocaust oral testimonies. I have called this the paradox of predicting the past. But like any other associate we are working with, we should remain critical in our interactions with AI. AI systems might suggest things based on bad data and simplified assumptions about a complex global environment. Later on and after the initial amazement, the results of AlphaFold were criticized in a similar vein for a lack of transparency and a lack of context that might prevent it from being applicable to new structures.

In other areas of scientific development, there has also been disappointment. AI is widely seen to not have been a great help in developing responses during the Covid19-pandemic but this ignores a bit how important it has become for things in the background and diagnostics or drug discovery. In the near future, it will be interesting to observe what the challenges are with increased AI-based screening and diagnostics. They are another example of how important it is to think of AI as human-machine relations and to not ignore work relations. Things seem to get easier and more efficient in diagnostics with the new digital tools. But there is a paradox of scale. Say, we have a very good AI-tool that makes false positives predictions for particular cancers in only 5% of all cases, which is better than human analyses that err in 10% of all cases in this constructed example. But running this tool is also so cheap that one can now do a hundred times more analyses. Say, one can now run

10,000 analyses in a month compared to 100 manual ones. With the human analysis, you produce 10 false positives, but the AI-machine produces 500. The only way of avoiding creating unnecessary stress for many more patients is to add additional more extensive testing and screening to the AI-based one and actually accelerate human labour. Our 'super-powered assistants' are therefore not so different from many assistants in that they cannot do without creating additional work for those they are supposed to assist. The worry must then be that those who invest in these tools see them only from the perspective of efficiency and cost-saving and neglect how they must work together with larger investments in additional screening. AI has become a resource-management tool for health systems, which are either underfunded or privatized so that only some will have access to resource-intensive testing and investigations.

These examples from sciences are all important in that they show how a productive critical analysis of AI reasonings can develop from understanding the limits of their knowledge. This generally does not happen if we only consider efficiency and performance. In my own work, AI-outputs have made me think differently about my research, helped me identify differences that I had simply missed beforehand and generally required me to think anew how I address problems.

Puspa Damai: As AlphaGo's thrashing of Lee Sedol in a 2016 Go contest demonstrated, AI could defeat or replace even the most intelligent among humans. The widespread fear that most of our white-collar jobs could be taken in the not-so-distant future by AI therefore is not entirely unfounded. Could you describe how AI may

impact jobs, the workforce, and our perception of or relationship to labor?

Tobias Blanke: AlphaGo is a game and an impressive breakthrough that shows what could be achieved with these new deep-learning technologies for games compared to what we have already discussed for Deep Blue. It was definitely an exciting moment. But for me it is difficult to see how this might be applicable to many other problems, or at least the ones I work on. AlphaGo needs a well-defined mathematical 'objective function' to solve an optimization. Such functions are hard to come by for many social and cultural problems. In the case of systems like AlphGo, the computer could only learn because its reward is clearly defined by winning the game. I am not so optimistic about applying the same kind of reasoning and optimization in other contexts. I think current comparisons with human intelligence tend to rely a lot on specific definitions of intelligence that allow for the generalization of these objective functions. They are often additive definitions of intelligence that tick various boxes. Science and Technology Studies scholar Lucy Suchman has pointed out that we can learn a lot from the ideas of intelligence in AI about how incomplete our own views are. Let me then also add a good idea about intelligence that I like. Philosopher Jacques Rancière in *The Ignorant Schoolmaster* writes against measurable ideas of intelligence and finds intelligence rather in in the ability to navigate the social world, where everyone is assumed to be equally intelligent. I am not sure AI is quite there yet.

There has been an interesting new article out by Edward Felten and others that has produced rankings about which jobs are in danger of becoming obsolete through AI (Felten, Raj, and Seamans, 2023). The

general concern seems to be with the impact of AI on white-collar work, which has been traditionally assumed to be better protected against machine replacement and automation than blue-collar work. This has definitely changed with AI. We need far fewer personal bank employees, because computers learned to read cheques years ago. The deep learning expert Andrew Ng has once summarized how AI can replace white-collar work. AI, as it is currently made, has been for quite a while better than humans at many things that last about three seconds or less and that happen more or less spontaneously, without too much reasoning. Recognizing a face in a crowd or identifying a signature on a cheque are commonly cited examples. Your job can be at risk in the future if it consists of chains of such actions or if your manager imagines it as such. Otherwise, it might take a while longer yet.

There is another side to this, as there are also many new jobs that are created by AI. We have already spoken about how AI-based screening in medicine would only work with extensive additional human resources. We also have the current hype around the art of the 'prompt' or the art of asking a generative AI system to do something. This has led to well-paid new job opportunities for people generally not associated with AI developments like English-language majors. But it has created maybe even more low-paid jobs and will also put pressure on creative jobs, which were supposed to be immune from technological innovations. Ending on a cultural note then, the screenwriters' strike in the US was fascinating for its links to AI and discussing ownership of AI artworks. I guess writers have not yet lived through a technological revolution that seriously threatened them and might automate them. Writing is definitely not a three-second chain of actions.

The screenwriters demand that AI storylines or dialogues should not count as 'literary material', which is the contractual term for what a screenwriter produces – as far as I know. Nobody thinks that ChatGPT is already able to write an original creative screenplay that keeps us in our seats. But bread-and-butter episodes from a long-running streaming hit or replacing an actor for specific shots with AI-overlayed stand-ins are another matter. Finally, AI can already easily be used to organize the workflows of cultural production, reducing screenwriters to an appendix.

When confronted with such questions as whether AI can replace us, I find it helpful to turn the question around. What do we learn from AI about the realities of human intelligence or human work? What do we learn about the way culture is made in Hollywood by the fact that AI might make it, too?

Puspa Damai: When Microsoft bought ChatGPT for 10 billion dollars early this year, people started sounding off on the nexus between AI and capitalism. For some scholars, though, AI has been symbiotically connected to capitalism. Some would argue that AI is the epitome of that "inhuman power" that Karl Marx talked about a long time ago in relation to the market system assuming a life of its own in the hunt for nothing but surplus value. In *Digital Assets Ecosystem* (2014), you hinted at this nexus (between big data and value) by examining digital assetization through big data emerging from the interconnectedness or ecosystem between cloud and crowd. To what extent does AI represent autonomous capital and all ideological and superstructural apparatuses that such capital entails? Inversely, as AI

inaugurates the beginning of the end of human wage labor, how would AI help us critique and revisit Marxism and other forms of left-leaning cultural studies?

Tobias Blanke: Let us start with Karl Marx who, for all my unease with his political thinking, has indeed remained interesting to me for understanding how politics and economics are entangled. That humans and machines work together and also against each other is one of the core insights of Marx and his contemporaries, developed at the beginning of the modern industrial revolution. We can also learn from him and from critical theory that critique starts from what is considered to be the normal and everyday practices in a historical formation and not simply from obvious excesses and exceptions. Exploitation is not just happening when people are forced to work under inhuman conditions and do not earn enough to feed themselves, as terrible as that is. It is a question of how surplus is ruled over in the best of times, as surplus is the foundation of human freedom.

Yet, there is much on which I part ways with Marx and Marxist analyses. In my book on digital ecosystems and also in my most recent book on Algorithmic Reason, I have tried to develop a critique of (neo-)Marxian ideas for the digital economy. I have found some of these analyses to be lacking – especially around labor. It is very hard to imagine how Marx could have integrated the concept of 'free labor' or our practices of adding value to digital ecosystems by commenting online or creating reading lists for others. 'Free labor' from our 'free time' rather than organized work is happening everywhere in the digital economy and has made digital platforms such as Amazon more than an online bookshop. Books are valued not just by their price but in online rankings of many uses. Their value thus depends on this generally speaking 'unpaid' labor – although it can also be low-paid labor in so-called 'click farms'. I have not really read convincing arguments about how our data production through comments, reviews and so on works with Marx. Even if we consider this labor to be part of the machinery or constant capital, it still does not add value. Therefore, we need to depart from Marx's ideas of value and capital. Critiques of Marx should also extend to his limited contributions to the analysis of the destruction of nature and the production of gendered and racialized selves. Even for his time, Marx seems to have completely missed the importance of slavery for making capital and its continued co-existence in advanced capitalism as racial capitalism.

To go back to your question about revisiting Marxism, for me, learning from Marx means working with some of his ideas and being highly critical of others. While AI can be described as different from human intelligence, I would be concerned to describe it as 'inhuman power', as this ignores how it is currently organized as an assemblage of humans and machines, which is why the ecosystem books are subtitled 'Crowds and Clouds'. It actually tries to further the critique of contemporary digital economies through an analysis of the 'division of labor' that was so important to Marx and others. I am personally always surprised that this aspect of the critique of political economy as well as his in-depth historical investigations in *Capital* seem to be a bit forgotten compared to his theories of value and capital. I am interested in a theory of value that understands how AI and related technologies change this division of labor.

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The dangers of AI are – at least for now – less related to the loss of control so that AI transgresses the limits of its programming and destroys us all. They are more related to what it does to us in the name of efficiency and value-realization. For me, the critical question is how and when we become a tool and extension of the AI rather than the AI being a tool for us. Then, it is important that we look at the ways in which value is created in a globalized digital economy. I am currently working on how algorithmic valorization exploits small differences in cultural production and new datafications to make ever-new algorithms that redefine value and capital. Value is produced in this AI-driven economy by concentrating on whatever data fragments can be used to reconfigure experiences and situations of consumption. I would argue that we need to pay more attention to the valorization of the small. New forms of digital value emerge through the proliferation of smaller and smaller differences. Online music companies, for instance, try to understand from their data the exact situation we listen to music to; at home on our sofas or outside running through the rain. They want to sell us different music in all situations. If we take this analysis of the multiplicity of value production, we also need to think about the economic production of subjectivity differently and how this might lead us out of the current ways of doing digital economy. If value is produced through an intense focus on small differences in digital traces to keep us consuming, critical modulations of subjectivity are also places of friction, resistance, and refusal that can lead us out of how algorithmic reason currently operates.

Puspa Damai: In your 2022 book that you co-authored with Claudia Aradau, you equate deep learning with "algorithmic reason." How is this form of reason different from or similar to what the Frankfurt School dubbed "instrumental reason?" We know Bard, ChatGPT and DALL-E are capable to some extent of creative and critical thinking. How is algorithmic thinking different from these two types of thinking or reasons?

Tobias Blanke: This is an excellent question and one that raises even more questions for me. Horkheimer's instrumental reason definitely plays a role for us when we discuss Shoshana Zuboff's famous analysis of surveillance capitalism. At the same time, we also try to go beyond Horkheimer because his world looked very different from our contemporary digital economy. Instrumental reason has not been about a rationality that is also productive. It is mainly about objectifying control of nature and shifting means and ends – as far as I know. It is in that sense that Zuboff speaks about 'instrumentarian power'. For us, Foucault has been more an inspiration than Horkheimer. We are interested in historicizing rationality and attending to the productivity of power, where both are linked. As Foucault has put it in one of his reflections on method, what is at stake is 'examining how forms of rationality inscribe themselves in practices or systems of practices, and what role they play within them'. Rather than instrumental reason that takes hold of the world, we are interested in how algorithmic reason emerges as this new kind of productive rationality by our collective actions. The world of algorithmic reason is a world we are making all the time together, which is not a process that happens through an outside machinery that then imprints on us a particular way of thinking. These AI-

machines are nothing without the data that we humans together always produce and the modifications we permanently add.

While we take a more historical approach to the rationalities of government, we also rely on insights from critical theory, particularly around the centrality of labor in machine-human relations. These underpin the four constitutive elements of algorithmic reason. First, we think of algorithmic reason less in terms of some kind of magic of 'automated decision-making'. It is much more useful to analyze it through the lens of human-machine work relations or how we work together through a problem, to make a decision, etc. So, this human-machine work is the overall frame. Then, we have three elements that are overlapping and that are reoccurring in different combinations in all the empirical scenes we are looking at. There is first the idea of decomposing and recomposing data when producing knowledge. We find this mainly in the context of big data and its operations. The second new element that we find is that algorithmic reason works through machine-generated 'honest signals'. We call that truth-doing, reversing Foucault's famous work 'wrong-doing, truth-telling'. The third element is related to how all algorithms make decisions through what we call partitioning, the splitting up of information in distinct regions.

Compared to Horkheimer's instrumental reason, we do not claim to explain the totality of algorithmic reason but only how it has emerged in the context of the government of self and other. The word 'reason' in the title of the book stands more for 'rationalities' than for the more philosophical sense. These rationalities are covered in the first two chapters of the book. The first chapter on knowledge discusses questions of knowledge formation mainly through the lens of big data production and consumption. We use the Cambridge Analytica scandal to explain the way data is combined and recombined to form detailed profiles for political targeting. Here, AI shows its creativity – if you want to call it that – by decomposing and recomposing the old and what is already recorded in data. What is at stake for algorithmic reason is not so much what we say as what we do online. The things we like on social media or the places we visit according to our mobile phone metadata. This makes it more difficult to contest decisions politically because they are not based on human expressions but on machine recordings. In the second chapter on decision, we show that algorithmic decision-making works by partitioning abstract information spaces that can represent anything and everything in a geometric form.

This follows Foucault's idea of productive rationalities. Critical thinking is then also for us linked to the relation between knowledge and power. Critique is about investigating assumptions (knowledge) and at the same time challenging how we are governed (power). Looking at AI from this point of view, it is not doing critical thinking. It is hard to see currently how it might challenge power, and it is not great at even the basics of critical thinking, as it does not know the limits of its world. Everything is possible in the new generative AI, as Noam Chomsky rightly has pointed out in a recent opinion piece on AI in *The New York Times.* For Noam Chomsky and his co-authors, AI fails to distinguish the 'possible from the impossible' (Chomsky, Roberts and Watumull, 2023). Companies running large language models, e.g., need to first teach these to limit themselves and be careful with their assumptions in a detailed review process that costs a lot of money and is far from being automated. AI

is thus neither critical in its relation to power nor to knowledge.

Puspa Damai: In *Algorithmic Reason*, you use the metaphors -"connecting the dots" and "needle in a haystack" – to describe "the epistemic shift" marked by the advent of AI. Could you describe how knowledge production now is like finding a needle in a haystack? What pedagogical and research transformations do you expect to take place due to the use of AI in schools and colleges?

Tobias Blanke: This question points to the important relation between the small and the large in our book. The attention on big data and the scale of modern deep learning sometimes misses how vital the small is in the age of algorithmic reason. To understand this better, we should go back to theories of knowledge. The part and the whole are at the heart of epistemological debates in the sciences as well as the arts. Generally, there is no direct answer in epistemology to how to bridge the tension between the part and the whole, the small and the large, micro and macro, although many approaches have grappled with this chasm. Sometimes one side is simply negated, for instance when the existence of 'society' is doubted, or parts are ignored in reducing diverse populations to statistical averages. What we tried to unpack in the book is that algorithmic reason transcends the tension between the whole and the part or big and small, as wherever it goes it will find data. The move from the small to the large and back is simply a move of composing, decomposing and recomposing data. Data-driven methodologies bring closer together even disciplines seemingly at the opposite ends of the division of part and whole like psychology and sociology, as they work with data on different levels. Moving between recomposing and decomposing data knows only degrees of difference between the part and the whole. When we think of big data and AI and the political impact they have, we quickly arrive at concerns about the scale of it all. Everywhere and all the time, everything is collected now and datafied. This should indeed worry us. However, once you start looking into the details of why, what, where and when and ask about what is specific in our present situation, it also becomes clear that governments, companies, etc. have always tried to collect as much data about us as they could. They might not have had the digital infrastructure to really collect as much, but the intention was there. Traditionally, this data was used to capture our behavior in models that allowed governments and companies to intervene in our actions. This continues in the age of big data and AI, but what is different now is the ability to produce very detailed profiles of us and our things. These granular descriptions might be used to convince us to vote differently next time or not to vote at all or automatically play a different piece of music because we are outside running rather than relaxing at home. In the age of big data and AI, the standard algorithmic operationalization of politics follows less the search for the average man in the average city but more what we got used to from Amazon and recommender systems. Rather than buying a book or watching a movie, we are supposed to do political and economic things differently because other people who drive the same car or have similarly colored houses provide these recommendations. The 'needle in the haystack' metaphor and 'connecting the dots' points to this interest in finding the small and very small differences that make a difference for the government of self and other.

Statistics quantifies populations from a

small data sample to generalize. Machine learning is very good at looking for small patterns and regularities in data to make predictions that can be repeated with data that has not been seen before. It cares less than statistics about being able to interpret the model and more whether its predictions get it right. Machine learning is all about producing these results, and it relies on test datasets to demonstrate that it can achieve these results. This kind of testing and evaluation goes on all the time with our data.

What is the impact of AI in education? In terms of research, there is definitely an issue that many of these models are not interpretable as they are focused on predictive test performance and they are easy to misuse. We hear now almost every day about problems arising from seemingly great performing models that turn out to have taken shortcuts in data patterns and fail to generalize to other problems. There is a great investigation that with bigger and bigger data you will always find correlations. In terms of education, we have more than enough examples where these AI algorithms produce spurious results. At my university, we had issues with the surveillance of students' home exams during Covid-19. Proctorio's security algorithms used webcams, microphones, and browser activity to track suspicious activity. Students complained about the use of their private data to optimize Proctorio.

That all said, it is important as educators to work with the frictions and potential controversies of these technologies, as they will not go away. There are many positive impacts of AI in education – just think about how it was doing a literature review before online libraries. I have also already seen many creative uses of ChatGPT and generative AI. Repetitive tasks in education can be better done with AI, and if we fear that students will be able to cheat on their assignments more easily with ChatGPT, it is also up to us to critically investigate the status and form of these assignments. In other words, rather than the anxiety over cheating and the rush to produce new university policies on the use of generative AI, we can ask what its use tells us about the structure and form of higher-education assessment. We need to learn to set them differently towards making creative frictions with the machines.

Puspa Damai: Let me go back to *Algorithmic Reason* again, if you don't mind – and this time to the cases that you and Aradau have selected for discussion in the text - the Cambridge Analytica scandal; Chicago City's controversial CivicSpace predictive policing to monitor and control crime; and NSA's SKYNET program, which racially profiled Ahmad Zaidan – an Al Jazeera journalist – as a suspect terrorist. What these cases have in common is the fact that AI is an imperfect intelligence that leads to undecidability, controversy, and even violence. On the other hand, using the sovereignty paradigm from political philosophy, you discuss AI in relation to decision-making. How can AI as a site of contestation, controversy, and debate (which you aptly describe as democratic scenes) be compatible with a form of Schmittian radical conservative political theology?

Tobias Blanke: I have already tried to explain algorithmic reason and its four components of human-machine work, decomposing and recomposing data, truth-doing and partitioning. Let's focus here then what this means for how a journalist Ahmad Zaidan can become a target for the NSA. What I am saying could be used similarly in other scenes we are discussing like Cambridge Analytica, etc.

As you point out, Zaidan became famous as an Al Jazeera journalist who led their Bureau in Pakistan during the first reign of the Taliban in Afghanistan. He had good contacts with the Taliban and Al Qaeda and was one of the last people to interview bin Laden. However, he got maybe even more famous because he featured heavily as a successfully identified target in Snowden's revelations about government surveillance with AI and big data. In the book chapter you refer to, we investigate how suspect others are algorithmically made – as it happened with Zaidan. We are concerned with what is at work to make Zaidan into the 'other' that is at the same time an Al Jazeera journalist and a potential terrorist. We are really interested in this both-and and how this can happen. This is also set – as you say – against the idea that decisions in algorithmic reason are very exceptional. They can be seemingly mundane, not so exceptional, contradictory and nevertheless final. We did not have the space in the book to write a detailed critique of Schmitt, but we want to move away from his idea of agency in sovereign decisions and focus on a critical theorist who is less known but should be: Günther Anders.

Anders is very helpful for understanding the political dilemma of decision-making we face with algorithmic reason. He described this when he discussed the implications of dropping the atomic bombs on Hiroshima and Nagasaki. His question was who was in charge – human or machine – when the atomic bomb was dropped. The pilot did press a button, but he was embedded in a complex technological assembly to make this happen. For Anders, this expresses the impossibility of a sovereign decision. Many people investigating the political impact of algorithmic reason are worried about Weberian bureaucratization taking over, where the algorithm has become the mighty administrator. Popular is also the idea of algocracy as a technological version of Schmittian exceptionalism. However, international political sociologist Jef Huysmans has argued that Schmitt's political theory leaves out social and political struggles. We can see the conservatism you talk about in such an erasure of the social. For Schmitt, there is one actor, which is the sovereign making decisions, and technology has little to no agency, as far as I can see. At least it is not supposed to have any agency so that Schmitt can separate it from the political. To explain the entanglement of humans and machines, Anders provides a much better reference. In the age of AI, it becomes harder and harder to answer who is in charge, which is why we focus on the both-and in Snowden or Cambridge Analytica.

Let us look a bit more at how the both-and is constituted by going through the example of Snowden and Zaidan. Snowden was a government contractor working for the NSA who disclosed lots of information on their global surveillance programs in 2013. This material can be still accessed today in various archives but consists often of PowerPoint presentations that present the capabilities of the NSA and its global partners. Similar presentations can also be found when companies like Cambridge Analytics or CivicScape talk about their capacities. Zaidan plays an almost triumphant role in these presentations, where the NSA's data scientists – as they would be called today – show that their algorithms actually work. It is quite interesting how the NSA seems to speak the same language and produces the same presentations as other data science companies. The NSA has become a big-data organization

and can be analyzed in similar ways as we would talk about – say – some social media companies. The Snowden leaks consist of documents similar to the PowerPoint presentations you could find in banks to predict financial markets or in tech companies to showcase how to predict consumer behavior. The workflows are the same and the algorithms very similar, although the inputs might be different and have widely different consequences. The same entangled human-machine decision-making is involved.

Against exceptionalism and bureaucratization, our ethical question is, whether none of the people at the NSA, etc. knew how to search the Internet. Even in those days, searching for Zaidan would have easily delivered his affiliation with journalism and that he interviewed Taliban and Al Qaeda members. Then, they might have wondered whether the same type of algorithms that identify these members would also identify journalists. We answer our ethical question about the lack of Googling in the book with the idea of the 'both and' that is made possible because the data can be composed and decomposed in so many different ways by the algorithms, that the individuals behind them can take many different shapes justifying all kinds of manners of being others. This is why big-data decomposing and recomposing is so powerful.

Of course, the data scientists at the NSA knew how to search the Internet. They knew that Zaidan was a journalist but for them he could still be a terrorist because of minute data differences, algorithmic partitions, etc. that make us all into both-ands all the time. I think that in the age of algorithmic reason we need to start thinking in these non-exclusionary terms much more and emphasize mundane and entangled practices. In the book, we relate Zaidan's specific situation to 'nano-racism', a concept by the political philosopher Achille Mbembe in 'The society of enmity'. For him, nano-racism develops in everyday social relations. To us, it describes perfectly the small differences, minor modifications in the data-driven views that made Zaidan into a both-and and a dangerous other.

Puspa Damai: One of the most intriguing themes for me in *Algorithmic Reason* is your discussion of colonialism – especially in relation to Facebook's Free Basics and its digital colonialism. In what sense do you imagine AI to be a force of decolonization?

Tobias Blanke: We have indeed struggled with the idea of digital colonialism quite a bit in the book. AI can definitely be both a force of colonization as well as decolonization, particularly if one follows Latin-American theories and practices of a decoloniality that link it to knowledge and cultural production. AI allows us to produce knowledge differently, which has accelerated, as AI tools have become easier to use and adopt. There is a chance for alternative knowledge to be made differently and this is already happening.

Before we talk about AI's decolonizing potential, maybe a bit more background on the Free Basics case. It is a great example of how my own thinking on digital colonialism has evolved in the course of writing the book. Free Basics was a Facebook project to bring affordable Internet services to India (and other countries of the Global South). The condition was that users were given privileged access to select few prominent US companies. In particular, access to Facebook was top of the list, which led to a lot of criticism. In the Western media,

there were articles on Facebook's new 'digital colonialism'. The *Atlantic* and others compared Facebook with the East India Company. On the other side, Marc Andreessen, famous co-founder at Netscape, was on the Facebook board of directors at the time and tweeted that anti-colonialism had been a catastrophe for Indian people. He later apologized. Mark Zuckerberg himself wrote in the *Times of India* a rather embarrassing article in my view, where he questioned how anybody could be against this project.

In the end, Facebook had to withdraw from the Free Basics in India, largely because Indian Internet activists mobilized in terms that are very familiar to us in the Global North, in support of net neutrality and against platformization. While reflecting on the case, we learned a lot from listening to cultural theorist Nishant Shah who had been involved in the mobilisation against Free Basics. He described how, on the one hand, local activists were upset about a multinational company telling them what is good for their country. On the other hand, the successful fight against Free Basics also stopped the rollout of Internet services to the poorest parts of the Indian population, which were simply left without Internet and infrastructure to support any access. In the book, we introduce the case of Free Basics as it helps us understand questions of encircling and rebordering in a digital age. This rebordering stands against the ideology of a global digital family on social media that Facebook and others like to push, ignoring the power relations they create at the same time.

There is so much excellent work now on decolonization and AI. For an overview, the AI Decolonial Manifesto by Sabelo Mhlambi and others tries to understand how decolonial theories can be used in the critique of AI. My own answer about decolonization and AI is related to what I have learned from Nishant but also in the context of an emerging new field, which is called global digital cultures. In a previous administrative role, I had the privilege of helping institutionalise early research in this field, which in my opinion is one of the most exciting ones in the new global digital studies. For me, the lesson from global digital cultures research is that we should study AI and other digital technologies without taking platforms and services of the Global North as the default or the norm. In the Free Basics case, we should understand the complex Indian situation without failing to criticize Facebook. This means we analyze what kind of local algorithms, data and infrastructures dominate a particular case. We should start by researching (digital) methods and epistemologies and their diversity in India in collaboration with research institutes in the area. As we are looking at digital technologies, we need to avoid focussing only on Western AI and its platforms but realize that there is a second Internet, and probably a third and fourth Internet emerging, which drive a different AI. A critical perspective should avoid seeing these as purely reactions to attempts by Western corporations and governments to push their versions of the Internet but needs to investigate the specific social and cultural configurations that have developed locally. Especially under-researched here seems to me Africa, but this is starting to change, too.

Puspa Damai: On page 73 you note that "[d]istributions of humanity, subhumanity, and infrahumanity continue to be produced algorithmically." What form of data activism or data justice movements can we

expect to see in the age of Artificial Intelligence?

Tobias Blanke: The third part of our books covers what we call interventions which work against forms of algorithmic othering, economic exploitation, etc. We develop ideas for making algorithms and AI into 'public things', a concept we borrow from political philosopher Bonnie Honig. For Honig, these are things that are agonistically held in common. We discuss little tools of friction, refusal and resistance from the perspective of dominant AI ethics, the creation of accountability companies and international cooperation. These develop out of scenes of controversy over making algorithms ethical, accountable and governable.

Friction is a Science and Technology Studies (STS)-inspired idea that refers to various strategies of slowing down and modifying data collections and algorithmic productions. It throws spanners into the works of the AI-machinery and opens new spaces for reflection.

These frictions can be created, too, either intentionally or as a side effect, and can thus help redistribute and reconfigure power and knowledge. They are both technical and social in the way that they are made and that they proceed. We discuss the Google employees' petition against their involvement in Pentagon work on AI-based weapons in Project Maven. While there have been many criticisms of the limited objectives of the petition, it has also unfolded into new unforeseen directions by, for instance, bringing in labor conflicts. If nothing else, Google employees have made it clear that AI-technologies are social and that progressive collectives can be formed around them. They show that AI is not the automated process its the

general idea might suggest, but it is similar to other human–machine labor processes, which means there will be mundane parts and unexpected consequences. Another example of creating these kinds of frictions is our own experiences with inverted hackathons, where these become practices to collectively trace the human relations in technologies by, for instance, breaking into mobile apps to understand how they datafy us in our daily lives. These are not the hackathons that Silicon Valley wants, which are focused on efficiently creating new tools and services. They can be seen as critical practices to use the tech for justice.

Next to friction, we also analyze global movements to refuse AI – e.g., in global scenes of the rollout of facial recognition to surveil more and more populations, and to make digital economies run faster. STS scholar Ruha Benjamin has famously argued for an 'abolitionist toolkit' when faced with the racializing effects of technologies to simply say no whenever limits are reached. We contrast this with the programs by businesses and governments to make things run faster, and more efficiently and accept no limits by adding algorithmic auditing regimes as an answer to citizens' concerns about facial recognition. There is an interesting trend for tech companies to now provide their own accountability services. Refusals of AI are both global and proliferating and include both mundane and highly visible practices, including legal challenges from Europe to China. By stopping what is currently mainstream, these actions can reconfigure how we make and perceive AI.

A final form of intervention we analyze in the book is internationalized resistance. We are especially interested in how borders between the national and

international change with AI and its global circulations. We can see how states aim to re-territorialize big tech companies through law and regulation. While much attention has focused on bringing in new regulations, resistance emerges both against big tech but also against regulatory politics. When content moderators for Facebook around the world accuse the company of a lack of care and initiate court cases, they speak of themselves both as workers and citizens based in legal jurisdictions but also as citizens and workers of the world. There are many excellent examples we can learn from here. Meredith Whittaker has worked on unionizing workers at Google, while Lilly Irani has shown how difficult it can be to bring together distributed digital laborers.

Let me draw this to a close with one short comment on activism and resistance. The main challenge is to stay clear from either falling into technophobia or technophilia. I prefer a material approach that starts by asking what AI does and does not do, what it can do and what it cannot do. It sets off from how AI already works rather than what imaginaries are circulated and commercialized. Then, the world of AI becomes much more open, and resistance, refusal and friction are based on what is happening and not what kind of dark stories we might imagine.

Puspa Damai: Digital globalization promised to make national borders more permeable. To some extent, the digital revolution succeeded in achieving this goal. Do you think AI will continue this legacy of bringing the world together? In your opinion, how will the Global South fare in the age of AI? Will it again be a source or site of data extraction, or can we expect it to have some level of agency?

Tobias Blanke: First, there is of course the question of what the 'Global South' delineates here. If China is included, there is already a lot of agency happening. China is an AI super-agent. But let us ignore the problems with the term Global South and look at Africa, which is still under-researched. Rwanda, Nigeria or Kenya, all have their own blossoming start-up scenes, but you also find these scenes in Sudan or Mali. For hundreds of millions of dollars, BioNTech, which created with Pfizer one of the Covid19-vaccines, recently bought InstaDeep, which is a company headquartered in London but with deep ties to Africa and founded in Tunis (Kene-Okafor, 2023). The acquisition has put the African AI ecosystem on the map. To understand more about these discussions, I recommend the interview on the movement to decolonize AI with Stanford's Sabelo Mhlambi (Miller, 2022).

That said, we also have big problems with data extractivism in AI in the Global South. There have been many very good studies on data colonialism. Nick Couldry and Ulises Mejias's work comes to mind but also Mark Graham and his collaborators on the 'planetary labor market' around AI, where the critique of AI extractivism is linked to clickwork 'data labeling' or the new 'blue-collar jobs of the AI era' according to *Tech Republic*. Data labeling work is essential to create the training datasets for AI. You might have heard about the recent case of Kenyan content moderators and label workers suing Facebook for psychological damage as a result of having to review and assess posts about Ethiopia's civil war. I think everybody has heard about the psychological stress for content workers in the Philippines or India. Another problem might also be that even this kind of labor is inaccessible. I believe it was in a report of the International Labour Organisation that

refugees in camps struggle to even get registered as content workers. A Syrian refugee in a Kurdish camp wanted to make a living with clickwork but could not. They could not get accounts due to access conditions of the platforms running the clickwork.

Finally, there are several datasets that have been collected in the Global South without proper recognition and that have become essential for AI – especially around health care. Google vaunts its recent AI project with hospitals in Asia to fight diabetes as 'AI for Good', but I am sure they gain a lot of human data insights that they can then use in more profitable markets. And of course, there is a lot of beta-testing with the most famous examples being Cambridge Analytica working first on the 2015 Nigerian and 2017 Kenyan elections before they became infamous through their work for Trump and Brexit. All these cases unfold in their own ways, if the critical study of global digital cultures starts with going beyond the norms set by Western companies. We should all work together to support local critique and action against these practices and understand how they could reconfigure AI for all of us.

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