The Allure of an Algorithmic Future

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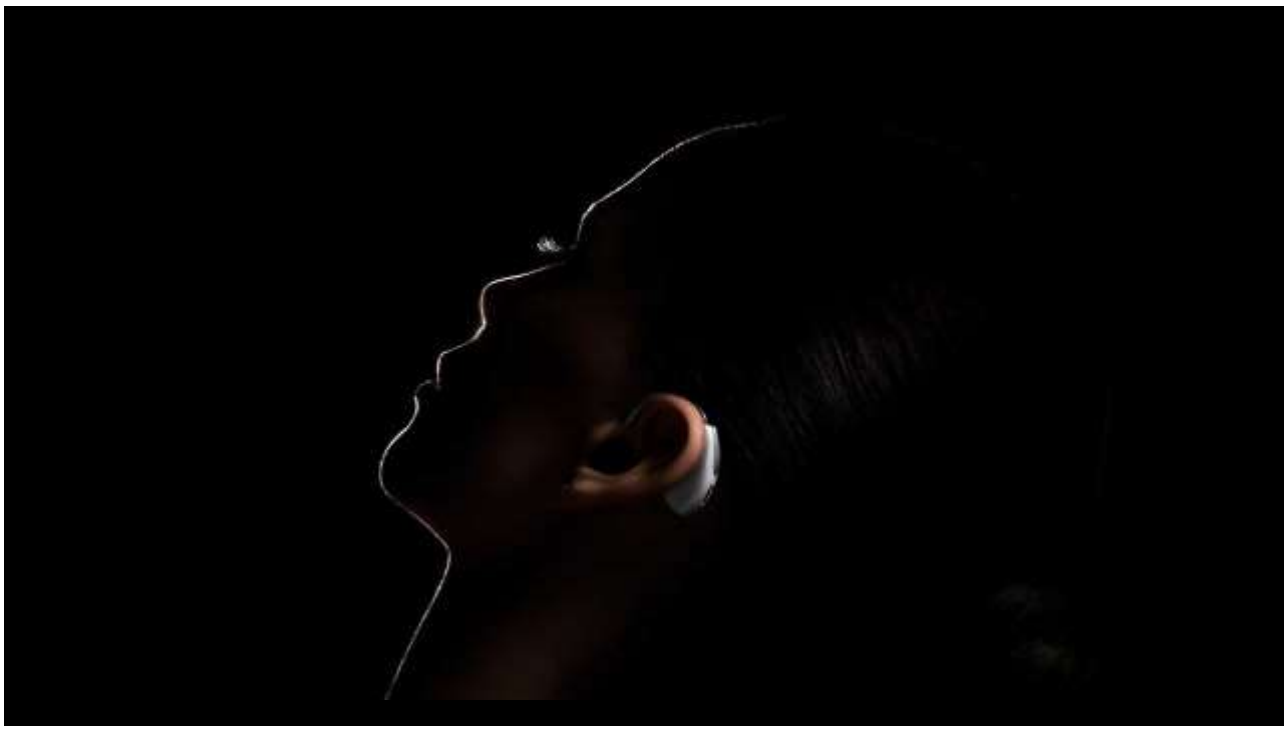

"Even if your ears are fine, you might want a device that translates 27 languages, tracks fitness, and monitors vital signs" (Josh Dean, 2019).

The Future of Wearable Tech Is Called a Hearing Aid

"Your digital future begins with a realization: every time you interact with a computer – whether it's your smart phone or a server thousands of miles away – you do so on two levels. The first one is getting what you want there and then: an answer to a question, a product you want to buy, a new credit card. The second level, and in the long run the most important one, is teaching the computer about you. The more you teach it, the better it can serve you – or manipulate you. Life is a game between you and the learners that surround you" (Domingos, 2015, 264).

Is this so obvious?

Does our *digital future* begin and end with shopping only?

"You can refuse to play, but then you'll have to live a twentieth-century life in the twenty-first. Or you can play to win. What model of you do you want the computer to have? And what data can you give it that will produce that model? Those two questions should always be in the back of your mind whenever you interact with a learning algorithm – as they are when you interact with other people. …The novelty in the world today is that computers, not just people, are starting to have theories of mind. Their theories are still primitive, but they're evolving quickly, and they're what we have to work with to get what we want – no less than with other people. And so you need a theory of *the computer*'s mind, and that's what the Master Algorithm provides, after plugging in the score function (what you think the learner's goals are, or more precisely its owner's) and the data (what you think it knows)" (Domingos, 2015, 265–265, italics in original).

"the technologies that mediate our existence provide an illusory sense of mastery, as we tap a screen and summon brightly colored sweaters to our door. 'The precise moment at which our needs are met,' Zuboff writes, 'is also the precise moment at which our lives are plundered for behavioral data.' We find ourselves in an elegantly designed, frictionless trap" (Ross, 2019).

Or, we live in a digital iron cage...

"*The Age of Surveillance Capitalism* is a step-by-step account of the building of the digital iron cage. … Two major questions loom over the story that Zuboff unfolds. The first – How did Big Tech pull it off? – is answered in excruciating and infuriating detail. She traces a relentless progression from data collection to behavior prediction and finally to behavior control. The second – Why did we let them do it? – is more elusive, although Zuboff ventures some good guesses. She quotes Hannah Arendt and George Orwell; she talks about the instinct to bow before power, particularly before a supremely confident power. The seductive ease of life under surveillance capitalism has so far stilled the countervailing instinct to defy the bully, to protect the sliver of the self" (Ross, 2019).

Ellen Meiksins Wood: Enlightenment or Capitalism

"The process of rationalization is typically associated with certain intellectual or cultural patterns that go back to the Enlightenment: rationalism and an obsession with rational planning , a fondness for 'totalizing' views of the World, the standardization of knowledge, universalism (a belief in universal truths and values), and a belief in linear progress, especially of reason and freedom" (Wood, 2002, 182–183, italics in original).

"To unravel the conflation of capitalism and modernity, we might begin by situating the Enlightenment in its own historical setting. Much of the Enlightenment project belongs to a distinctly non-capitalist – not just pre-capitalist – society. Many features of the Enlightenment, in other words, are rooted in non-capitalist social property relations. They belong to a social form that is not just a transitional point on the way to capitalism but an alternative route out of feudalism. In particular, the French Enlightenment belongs to the absolutist state in France" (Wood, 2002, 183).

Immanuel Kant 1724–1804

"Have courage to use your own reason!" – "*Sapere Aude*: this is the motto of enlightenment" (Kant, 1997 [1784], p. 83).

So, let's keep Kant's motto: "Have courage to use your own reason!"

And start with a few caveats

I am ***not*** going to talk about:

- "the instinct to bow before power"
- "the seductive ease of life under surveillance capitalism"
- neoliberalism, the latest incarnation of capitalist ideology
- social media and information technology
- datafication of our human lives
- attention seeking advertising – an extended hand of merchants
- surveillance technologies, or the 'psychologisation' of us all

These are very important topics and, unfortunately, they are not always treated together, as they should…

"Your digital future begins with a realization: every time you interact with a computer – whether it's your smart phone or a server thousands of miles away"…to buy, or sell or search for a finance to buy…

- I am going to situate the theme of a digital future at its 'root' – *historically*.
- My claim is that this modern drive of algorithmic 'harvesting' of data, Artificial Intelligence, learning machines, etc… and their present development to colonise our lives for one single aim, profit, is the outcome of scientific reasoning – and I would call it, a *reductio ad absurdum* of scientific reasoning – that has started in the sixteenth and seventeenth centuries, remaking the world and our lives on the model of mathematical reasoning.

Another *important* theme, which I will *not* cover, is – *why* technology developed in *this particular way*

After all, technology could have taken a different turn, as Tim Wu makes (accidentally) clear…

"The Internet's lack of utility was, in fact, a serious danger to its future throughout the 1970s, a very precarious moment in its history. Fortunately, as a government project, it didn't actually have to make any money (had it been required to, there would have been no Internet). But eventually the Internet would have to prove of some use to someone, or face defunding" (Wu, 2017, 183–184).

So, let me try a different route…

God is dead!

"God is dead! God remains dead! And we have killed him! How can we console ourselves, the murderers of all murderers! The holiest and the mightiest thing the world has ever possessed has bled to death under our knives: who will wipe this blood from us? With what water could we clean ourselves? What festivals of atonement, what holy games will we have to invent for ourselves? Is the magnitude of this deed not too great for us? Do we not ourselves have to become gods merely to appear worthy of it?" (Nietzsche, 2001, §125, 120)

Modern Science – the 16th & 17th centuries

- The scientific reasoning, from its beginning in the 16th and 17th centuries, turned nature into a formal, mathematical manifold, proceeding step-by-step to restructure human understanding as well.
- Instead of *seeing* nature as unknowable, threatening and terrifying, new science proclaimed those views as prejudiced and unscientific.
- Nature becomes predictable through understanding of formalised relations of natural processes, with an underlying focus on prediction of 'natural events, which could be *usefully* incorporated into human projects.
- The new engineering logic of High-Tech Companies is an extension of the scientific methodology that had remade our world.

- Although scientific rationality leads to an unprecedented technological innovations, which leads to many appliances that make our lives easier, it has also another, darker side.
- Once we understand nature as the mathematical manifold, our lives become formally separated from it.
- To be morally responsible for the world we live in is hard to imagine if we speak of nature in terms of triangles and circles, as Galileo did, or in terms of forces, energy and motion, as we do now.
- In our modern imagination, nature is simply a resource for our human projects.

- Although scientific methodology and its self-limited purpose to focus only on physical processes does not claim to address humans in their daily lives or their concerns with the overall meaning of life, it has serious implications for human responsibility.
- Scientifically inspired rationality, and its applied practice, leads not only to a destruction of the world
- … but also, recently, to a substitution of human autonomy with 'happiness' that social media promote, while the space they offer is cluttered with an explosion of information that is impossible to turn into knowledge, whereby eliminating spaces of reflection and contemplation.
- According to Roberto Simanowski, the defining feature of our networked society is "the disappearance of the present and the loss of reflective perception of both the world and oneself" (Simanowski, 2018, xv).

- Nietzsche was not the first to acknowledge the problem of faith and knowledge, or, as he named it, the death of God, which the rise of modern science brought about.
- Already in 1670, Blaise Pascal recognised the problematic project of mechanical nature of modern science.
- The new science's project *might* be able to fulfil Francis Bacon's injunction *scientia potentia est* – knowledge is power – by reconfiguring knowledge of medieval science into the scientific *practical* knowledge of nature…
- However, in the process, beginning with Galileo, science *changed* Nature that was until then understood as created by God – with his promise of after-life and a guarantee of morality – into a mechanical manifold, a mechanical machine running on its own.
- **Humans can understand nature *via* mathematics but they ceased to be a part of it.**

- The gap that had opened up between the world of science and the lost world of God is also a cause of the alienation of modern individuals.

- As Roberto Simanowski puts it, "It is not, as is often claimed, [that] social network … separates us from social life; it is the felt lack of a real life that makes the social network so attractive as a 'respectable' way out" (Simanowski, 2018, 35).

The Concept of Causality

As Edwin Arthur Burtt observed in 1925, "the whole magnificent movement of modern science" was erected on "basic postulates" of the "victorious mechanics, especially the all-important postulate that valid explanations must always be in terms of small, elementary units in regularly changing relations", and "the postulate that ultimate causality is to be found in the motion of the physical atoms". Those were the basic building blocks of modern science (Burtt, 1925, 16–17).

- Modern science and modern knowledge is interested in *certainty of knowledge*, which is never final; the results are always provisional, while scientists search for more patterns, forces, relations in our models of the universe.
- This model was never intended to be the ultimate answer to humans' existential worries and moral uncertainties.
- We need to rethink this model and revisit worries of early thinkers who have recognised the problem of denying God as a driver of what is to be known, without offering a different way to think about human existence.
- God offered not only knowledge but also faith in the moral conduct and meaning of life to each of his believers.
- Without God, morality becomes devoid of a security that God provided and the human life becomes a speck of dust in the immensity of the universe.

Conquest of Time and Space

- To understand the turn to 'mathematisation' and formalisation of knowledge, and subsequently, of our lives, we need to understand also the change from the world created by the omnipotent God into the mechanical machine.
- The God who has been shepherd of people's lives was 'exchanged' for scientific reasoning.
- And this exchange has implication not only for the way we understand the world but also for understanding the 'nature' of morality' and 'truth'.
- The new turn in the domain of knowledge leaves behind questions about good and bad – *bonum* and *malum*.
- The answer becomes unanswerable.
- God is still considered a first architect of this huge mechanical nature, but then he stepped aside, as the early natural philosophers theorised.

- There were many attempts to fill this moral void, but if the modern scientific reasoning is privileged, the only way to proceed is to use what we know in terms of formal mechanics.
- As Pascal already recognised, "philosophers have *constructed* their ethical systems"; yet, knowledge of nature, according to Pascal, "will not console me in times of affliction for the lack of moral rules".
- It is true, as he notes, that the natural laws, derived from the "law of cause and effect demonstrates man's greatness" in the realm of knowledge of nature.
- Yet "the construction of … a fine moral order" is impossible to erect using the law of causality.
- According to Pascal, without a divine intervention and an inability of science to account for moral actions, the rules of morality must be, by necessity, "drawn out of concupiscence" (Pascal, 1999, III, §57).

It seems that the full meaning of 'concupiscence' as a driver of all human actions becomes visible only today, when apps are designed mainly to satisfy needs and desires of their users.

After all, "uncovering and articulating those desires…remains our prerogative" (Bridle, 2018, 16).

Instantaneous gratifications replace meaning of life and moral feeling.

Today, we have converted "every human need or desire into a profitable enterprise"... (Brown, 2015, 28).

while high-tech companies rest "directly upon the frazzled, binge-watching desires of news-saturated consumers" (Bridle, 2018, 130).

According to Jan Patočka,

"Christianity remains thus far the greatest, unsurpassed" answer to human unpredictable lives, offering a fortification against scepticism and relativism, while assisting "humans to struggle against decadence" (Patočka, 1996, 108).

In fact, as Pascal suggests, modern science cannot answer any questions concerning human condition.

René Descartes' new scientific method explained the universe, "in terms of mechanistic causes", whereby "the science of human physiology is the same in kind as the science of stones" (Wilson 2019).

Thus, for Isaac Newton, the same natural laws explain *movement* of heavenly bodies, of pendulums and of an apple falling on his head in terms of the law of gravity in geometrical space and time but not in human time.

As Pascal writes, "The eternal silence of these infinite spaces terrifies me" (#392).

The Concept of Correlation

As I have argued, modern science not only eliminated human existential concerns from its project, it never offered a way to think about them.

The scientific reasoning became the *modus operandi* for all our thinking.

The worries of the thinkers, who were still aware of the problem, slowly became incomprehensible to us, without realising that the problem was never resolved.

The High-Tech 'innovations' are *reductio ad absurdum* of formalised reasoning, looking for new gods, in terms of technology.

Today, these innovations reduce human future to an algorithmically harvested field of correlations drawn from a big data pool.

Chris Anderson. "The End of Theory: The Data Deluge Makes the Scientific Method Obsolete"

"This is a world where massive amounts of data and applied mathematics replace every other tool that might be brought to bear. Out with every theory of human behavior, from linguistics to sociology. Forget taxonomy, ontology, and psychology. Who knows why people do what they do? The point is they do it, and we can track and measure it with unprecedented fidelity. With enough data, the numbers speak for themselves" (Anderson, 2008).

- The idea of *causality* – on which the modern science was built – is replaced with *correlations*, which algorithms can 'recognise', if the field of data is large enough.
- *Why* is an idle question in view of the simple fact: '*that is how it is*'.
- As Anderson puts it "Who knows why people do what they do?"
- As at the beginning of modern science, 'measurement' and 'numbers' were primary, but now the scientific method is turned on its head.
- Instead of accepting causation as the primary driver of the 'scientific' understanding of nature, in the laboratory of the engineers, applied mathematics and algorithms become the driver of 'knowledge' by tracing correlations in the amassed data.

- However, with the shift from causation to correlation, we ceased to understand *why* something has happened.
- To use a simple example, leaves falling in autumn are correlated with birds flying to warmer climate.
- No need to understand the change of seasons, which is a cause of both events, all is as it is – leaves and birds flying away happen at the same time.
- We simply align one set of mathematised data to another, to proclaim 'new' knowledge.

"In a recent and much-cited example of machine bias, Amazon dumped an AI-assisted hiring program they'd created to help sift their human resources department sift through candidates for job openings due to the program's failure to include women. How did this happen? Well, an AI designed to hunt for certain items on resumés is only as good as the criteria with which it's been supplied. In the case of Amazon, the program was given several years' worth of hiring records and told to analyze what separated those that were hired from those that weren't and create an algorithm that could be used on future candidates. The AI did as asked and immediately began weeding out female applicants just as its human predecessors had. ….

…In another instance, NYU's AI Now Institute took a look at thirteen police departments utilizing AI for so-called "predictive policing," a way for police to use previous cases to help determine future allocation of resources. Nine of these thirteen departments were found to be inputting data from periods of time when these departments were engaged in "unlawful and biased police practices." Software created at Carnegie Mellon (CrimeScan) and UCLA with the help of LAPD (PredPol) has also come under fire for using dirty data to create their predictive algorithms. These programs used geography to highlight not only alleged "trouble" areas but also areas where smaller crimes were escalating potentially turning an area into a future trouble spot"
(Wheaton, 2019).

"unlawful and biased police practices"

- Yet, even if all inputs were correct, bias weeded out (well…. we only have *past* data to use for a prediction of the future…), etc.
- Would this model account for *reasons* why in some areas crime rates are higher?
- As long as we use this model to free 'resources' of cash-strapped police departments to use law enforcement only in 'high-risk' areas; the social questions are impossible to consider.
- The same problem as with 'unanswerable questions of morality'.
- Numbers *might* speak for themselves, but they speak language of quantification only.

Blaise Pascal….again…

- Pascal was a mathematician. His famous wager for existence of God became a beginning of what we call today a decision theory and a theory of probability.
- His wager was the beginning of idea of probability: establishing the numerical odds of a future event with mathematical precision.
- The very mathematical thought that Pascal recognised as a danger to human existence, he used in his wager to avoid the problem of mathematical reason that has banned God from the world.
- By this gesture, mathematics permeated not only theological arguments, arguments for morality, but also extended to all domain of human lives, subsuming all to formalisation.
- Today, all aspects of our lives are 'measured' by mathematics.
- In the end, mathematics has won in this race.

And, yet…. Do mathematical sciences speak to our human lives, to our worries, uncertainties, joys…?

Algorithmic Science?

"No one knows how to write a piece of code to recognize a stop sign. We spent years trying to do that kind of thing in AI – and failed! It was rather stalled by our stupidity, because we weren't smart enough to learn how to break the problem down. You discover when you program that you have to learn how to break the problem down into simple enough parts that each can correspond to a computer instruction [to the machine]. We just don't know how to do that for a very complex problem like identifying a stop sign or translating a sentence from English to Russian – it's beyond our capability. All we know is how to write a more general purpose algorithm that can learn how to do that[,] given enough examples" (Smith, 2018).

"Hence the current emphasis on machine learning. We now know that Herzberg, the pedestrian killed by an automated Uber car in Arizona, died because the algorithms wavered in correctly categorizing her. Was this a result of poor programming, insufficient algorithmic training or a hubristic refusal to appreciate the limits of our technology? The real problem is that we may never know" (Smith, 2018).

"…the only way we can achieve safe self-driving cars is to completely segregate them from human drivers and pedestrians, [and] we already had such technology: [it is called] trains" (Johnston, 2018).

In the end? Is this the only way?

"Our practices of accountability can sometimes be made fairer by becoming more algorithmic. But leading practitioners of algorithmic approaches to social order have made their fortunes via complicity with unjustifiable hierarchies of wealth, power, and attention. An algorithmic accountability movement worthy of the name must challenge the foundations of those hierarchies, rather than content itself to repair the wreckage left in their wake" (Pasquale, 2018).

Eli Pariser nicely sums up this double bind of modern technological reasoning *and* neoliberalism:
"For better or worse, programmers and engineers are in a position of remarkable power to shape the future of our society. They can use this power to help solve the big problems of our age – poverty, education, disease – or they can…make a better farting app" (Pariser, 2012).

Does it mean, then, that only engineers – with their way of thinking in terms of the solutions to technical problems – could save us?
Is it up to them to decide what our priorities should be at this time and age?
"poverty, education, disease – or a better farting app"…

Is it possible to maintain that the problem is in terms of the 'input' of biased data to enable us "to …solve the big problems of our age"; or is it a problem we have inherited from scientific reasoning, now turned on its head by privileging correlation, where we derive our predictions from the past occurrences, using correlation, and, then, using the principle of 'causation', we think we can predict the future?

Can we stop looking for new gods and accept our own, finite, responsibility for the world?

"If it exists, the Master Algorithm can derive all knowledge in the world – past, present, and future – from data. Inventing it would be one of the greatest advances in the history of science. It would speed up the progress of knowledge across the board, and change the world in ways that we can barely begin to imagine. The Master Algorithm is to machine learning what the Standard Model is to particle physics or the Central Dogma to molecular biology: a unified theory that makes sense of everything we know to date, and lays the foundation for decades or centuries of future progress. The Master Algorithm is our gateway to solving some of the hardest problems we face, from building domestic robots to curing cancer" (Domingos, 2015, viii).

So, it is another dream to replace God, which we are still searching for, to find the ground of certainty and support.

But today, I suggest, it cannot be a God to instruct faithful, or a mathematical God that Pascal was afraid of.

- As Marc Elsberg suggests, "[i]n this brave new world of ours, possibilities and chances are sacrificed to probability …because [our] future is assessed on the basis of [our] past'" (Elsberg, 2018, 14).
- We must revisit old concepts and think through this 'algorithmically defined future'.
- And the beginning might be to revisit fears of thinkers in the past that were still aware of the precipice they stood on, a precipice open up by mathematisation of nature.
- Why – in the name of a comfortable life, defined by the speed that social media and internet offer us – are we willing to renounce the imagination of new futures?

God is dead and we should recognise that the idea of a divine support is no more…

I think that the challenge of our times is to confront this divine 'banister' erected by humans, while recognising the historical situation of our lives that can be addressed neither by divine omniscience nor by mathematised, formalised, algorithmic reasoning.

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