Interviste/2

Questioning Algorithms
Interview with Igor Pelgreffi

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Andrew Feenberg, one of the greatest living philosophers of technology, addresses the question of the algorithm starting from a comparison with some of his typical topics, in particular his vision of technology as a social construction derived from works like *Critical Theory of Technology* (1991) and *Questioning Technology* (1999). Automation in work is one of the logical centres of the evolutionary and historical movement that today leads to the primacy of what may be called 'algorithmic governmentality'. After an analysis of Marx's thought in the *Capital* and in the *Grundrisse*, the question of the Jacquard loom and of Babbage is also touched upon in the line of a capitalism of machine automation, which deskills and eliminates labour at many levels, including the intellectual one. Feenberg also dwells on other theoretical references, such as his concept of 'technical code', that of Foucault's *dispositif* and above all the possibility of re-actualizing Marcuse's thought, in the key of a critique of technology today. Furthermore, Feenberg explores the question of the loss of the *Lebenswelt* as a symptom of the one-dimensionality of the human being due to extensive digitalization in the historical-social world, and the future possibility of emancipation.

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Igor Pelgreffi – *Professor Feenberg, I am asking you about the topics in question (algorithm: genealogy, theory, critique) as you have a long experience on the one hand on the subjects of philosophy of technology, but also historical and socio-political aspects of technology, on the other. The visual angle of this interview, therefore, will be precisely that of a look that takes into account your many years of work, already in two very important books released in the 1990s, such as* Critical Theory of Technology *(Oxford University Press, 1991) and* Questioning Technology *(Routledge, 1999). It is true that there is still no explicit talk of algorithms there, and still not much of the progressive trend towards global algorithmization in work processes. And it is true that, in those works, you did not intensively speak of digital technologies. And yet, it seems to me that there are contents or theoretical tools that – and this is what I ask you to begin with – can perhaps be applied to the current situation, and hence to some analysis of the algorithm.*

*It seems to me, for example, that in those books you can find a topic of this kind: technologies, in a sense, 'go by themselves'. Auto-matically (*autos*). A bit like the* global automatic machine *or the* automatisches Subiekt *mentioned, among others, by Marx in* Das Kapital. *There was already the idea of this hyper-functioning or meta-functioning, which tends to be more and more automatic (in the processes of integral and systematic automation, which the digital will later realize historically, albeit with some resistance layer).*

But, having admitted this, then we need an idea of technology, and an ability to read technology, which allows us to resist 'by staying internal'. In the dialectic between the technocratic model of control *and the* democratic model of communication, *of which you spoke in* Critical Theory, *the path of a* social construction of technology *emerged as a concrete possibility. But, as I said, this was just one of the possible examples. So, before dealing with the topic of* algorithmic governmentali*ty, which as you suggested is perhaps a good starting point, I asked you for a first reflection on the above.*

Andrew Feenberg – The social construction of technology is at work in both the technocratic and the democratic models of technology. All technology is socially constructed, although who constructs it may differ significantly. A general feature like the wheel or the gear can be incorporated into a variety of technical systems, with different social consequences, depending on the demands of the social actors able to influence the design process. Automatic functioning is such a general feature. It can play a role in a technical system organizing democratically or technocratically, but that role will be different in each case.

All this goes back to Marx's considerations on technology in *Capital* and in the *Grundrisse.* Marx observes that the combined and coordinated labour of groups of workers can exceed the contribution each would make working individually. Capitalism is based on the maximization and appropriation of this excess by the capitalist who is not only the organizer of groups of workers, but also in possession of the tools they use and therefore able to modify those tools in accordance with his interests. The capitalist occupies a peculiar position in the division of labour as both the technical coordinator of the work and the exploiter of the work group. The tools of the work group are gradually modified in function of these roles. The tools must enable control of labour during the workday despite the lack of interest of the workers in production, and that involves reducing effort and skill to a minimum.

In this capitalist context, automation reduces the worker to a slave of the machine. The intellectual forces of production are transferred to the automatic functioning of the machine and the worker left with simple mechanical operations the machine cannot perform. Unskilled workers who can demand little and are easily replaced correspond to this type of automatic functioning. In the most developed case, those operations consist of nothing more than supervision and maintenance, performed by a small cadre of workers for a vast array of machines. The ideal of the workerless factory is asymptotically achieved.

Marx believed that this condition would be incompatible with capitalism. If surplus value is extracted from unpaid labour, the ultimate success of capitalism in eliminated labour would be its downfall. Exactly how this would occur Marx does not say, but he argues that full automation would only be compatible with a socialist society in which most workers' roles were reduced to tending the automatic machines. The qualifications of work would rise in these circumstances as workers were charged with second order intellectual tasks requiring scientific knowledge. Marx did not specify the degree of work democracy involved in this system, although Engels suggested that democratic control would be desirable within practical limits.

There is much debate over whether Marx was a social constructivist in the full sense of the term. He certainly believed that types of production means were intrinsically suited to specific economic relations. And he showed in the case of capitalism that social actors, capitalists, constructed technology in conformity with their needs. But he did not and no doubt could not imagine a similar process of socialist reconstruction of technology by workers under socialism. Instead, he speculated about the future of automation as I have explained, thereby skipping the whole process of technological transformation implied in a constructivist conception of the socialist transition.

Be that as it may, what has actually happened as capitalism has survived its predicted demise is rather different from Marx's schema. I want to mention two important changes with respect to Marx's 19th century. Automation under capitalism has increased in intensity and scope far beyond Marx's expectations. The deskilling of labour has proceeded in ever more domains. What started out as an industrial strategy has morphed under neo-liberalism into a way of organizing bureaucratic work in both business and government. Furthermore, the drastic reduction of labour in many highly automated processes has not had the effects Marx foresaw and seems compatible with capitalism.

In this context, algorithms have played an especially important role. As is well known, it all began with the Jacquard loom. This was one of the most important innovations in the capitalist automation of work. Babbage saw the possibility of achieving similar results in the calculation of navigational tables and received a subsidy from the British government to create a computer for that purpose. Had he succeeded, the application of automation to all sorts of bureaucratic occupations would have begun in the 19th century. There is a science fiction novel that imagines the results. In reality, Babbage was unable to make his 'difference engine' work, and it was only after World War II that his vision was realized. That achievement is the basis of the radical extension of automation beyond industry to domains such as education and government. This is what is radically new about contemporary capitalism.

In these bureaucratic domains neo-liberal management operates in accordance with the capitalist imperatives of deskilling and eliminating labour even in non-capitalist and public sectors of the economy. The social construction of automated technology is still subject to the limitations of the capitalist division

of labour, which excludes democratic control and input into technological decisions, and it extends into many other areas of social life. It now becomes apparent that the essence of capitalism is not simply private ownership of the means of production, but more fundamentally the organization of every sort of cooperative activity from 'above', from a position that both coordinates and exploits the activities done 'below'. We can call the most advanced forms of automation under capitalism 'algorithmic governance' only so long as we keep in mind the specific social construction that depends on this organization.

The socialist construction of technology and work organization now comes more clearly into focus than in its original Marxian version. The principal issue is no longer the tyranny of the market but rather the construction of technology.

Under socialism, as Marx conjectured, automated processes would not be designed to exploit the labour force and control social activities. They would not be organized from above but controlled from below. The technical functions of management and engineering would be coordinated with collegial and democratic processes involving the whole work group and the surrounding community. A wide distribution of intellectual skills would be essential in such a system. The end of capitalism would mean a new design for automated systems and a new role for labour.

Igor Pelgreffi – *Thank you for this long analysis of the issue, focusing on Marx philosophy, but also crossing through the Jacquard loom or Babbage, that is the historical and somehow genealogical aspects of algorithm. Let us go more in detail in the concept of algorithmic governance or algorithmic governmentality. The previous analyses, based precisely on your idea of* social construction of technology *and on the centrality of practices in determining the even logical structures of technical repetition (if you agree, one can call them 'pre-digital algorithms'), are able to read still today the phenomena related to the algorithm? And in what, instead, do they show some limit?*

Andrew Feenberg – Well, I think that by the concept of 'pre-digital algorithms' you may mean what I have called the 'technical code'. This is the systemic design principle which accommodates technology to the social order. Deskilling is such a technical code. It formats the design of a whole range of technologies according to a single principle. It is in a sense a kind of analogue version of an algorithm encoded in economic culture rather than in a computer…

Igor Pelgreffi – *If we go through this political-sociological point of view again, it seems to me that the analogy that you sketched between the algorithm and your concept of* technical code *(very interesting, in this context of analysis) can be useful. Can you tell me more about what you mean by 'technical code'?*

Andrew Feenberg – Technical design translates social demands as specifications. For example, the social demand for clean air is 'translated' into

the catalytic converter on the tailpipe of automobiles. The purely technical 'meaning' of clean air is embodied in that device. The general principles of translation I call the 'technical code.' This is the ideal type which signifies the social meaning of technical specifications. Some codes regulate whole domains of technological design. Deskilling is an example. It is a desideratum for all sorts of technologies. If we think of an algorithm as modelling a domain through computer operations, then we can see the technical code as performing a similar function at the level of the culture of engineering.

Igor Pelgreffi – *I mean, probably, the important question today is the following: if the algorithm, which can also be considered as* a matrix, *as 'the' matrix of the* administered world *(taking up the old concept of Adorno), is already there, it works (very well!), and we are somehow crossed (and perhaps even* constructed*) by it, how can we find a key to resist it, to defer its effects, to modify (or transform) it? How can we have a* critical experience – *if any – of/in the algorithm?*

Andrew Feenberg – I believe Adorno and Marcuse to a lesser extent overestimated the ability of advanced capitalism to modify the structure of everyday experience. They both saw in consumer society a force able to repel critique, but in reality as we know critique continues to be a factor in social life.

Marcuse acknowledged this under the influence of the *New Left*, unlike Adorno. The key problem of critique in critical theory has to do with consciousness of potentiality. We see this consciousness appear in many social movements today, for example, the movement against climate change. That creates tensions within the society that have significant consequences. It should be obvious, but unfortunately is not to some critical theorists, that the world has changed in response to that consciousness in the last 75 years. This is not to say the revolution is on the horizon, but theoretically that is not the issue, which concerns the role of negation in the system.

Igor Pelgreffi – *In your opinion, in addition to what you have just told me, some analysis by Foucault (author on whom, I remember, you have worked anyway) is also usable, for example his concept of* dispositif, *a little re-declined or adapted, and therefore the theme of a 'disciplinary society' which would be, in some way, 'regulated' by an algorithmic logic, and which therefore is not so distant in the current state of affairs?*

Andrew Feenberg – Foucault and Marcuse have more in common that is usually believed. Foucault, like some other intellectuals I could name (Zizek for example), identified Marcuse with various clichés of the New Left such as the revolutionary virtues of sex. In reality, Marcuse's concept of 'repressive desublimation' is similar to Foucault's theory of the instrumentalization of sex by the capitalist system. One need only read a few chapters into *One-Dimensional Man* to avoid a stupid mistake. The concept of dispositive, which

in English would be translated as 'apparatus', includes not only devices but also the associated practices. A *dispositif* is socially inflected and technically effective at the same time. This is a constructivist critique of technology, again similar to Marcuse's position. Where they differ is in Marcuse's more positive utopianism.

Igor Pelgreffi – *Thanks. Just to come back to one theme that we touch upon in the analyses of this monographic issue of* Lo Sguardo, *I would like to ask you: in your opinion, what kind of relationship exists between the body, bodies, corporeity in general, on the one hand, and algorithm, algorithmic governmentality on the other? Here, I mean that, somehow, algorithmization* affects *the bodies, it modifies the psycho-physical world, for example, and also ends up in the sphere of the unconscious, even more so than in the 'subject' sphere. After all, on these aspects, authors like Marcuse still have a lot to say, to stay on those of the Critical Theory of the Frankfurt School, on which you has worked for a long time. Of course, it is perhaps a Marcuse that you have spent reading, on the question of technique and life, also in a stimulating critical comparison with other theoretical paradigms, including Heidegger (see even just your book* Heidegger and Marcuse. The Catastrophe and Redemption of Technology, *Routledge 2004).*

Andrew Feenberg – The question of the body appears in several ways in the contemporary context. People more and more consider their bodies as devices to be operated under optimal conditions with the help of various technological instruments and practices. This goes along with the psychological phenomenon in which people view their whole life from the standpoint of a technological operator. These are incursions of the model of the computer into the *psyche*, which have the effect of reducing the body to a mechanical device.

There is an enormous outpouring of advice on the Internet covering every aspect of the body-machine and huge sums are spent on fake remedies supposed to maintain it in good condition. People wear digital watches that monitor their heart rate and the number of steps they walk in the course of the day. One could argue that these practices are quasi-algorithmic in that they standardise bodily operations in accordance with a set theme. What is lost is all the complexity of the first person standpoint on existence, the *Lebenswelt*, now stripped down to a mechanical residue. These are symptoms of the triumph of one-dimensionality. It is interesting to note that Marcuse was already sensitive to these issues and placed great emphasis on the recovery of sensuous lived bodily experience in opposition to the 'plastic' perfection of the marketable body advertised in television commercials.

Igor Pelgreffi – *Thank you Professor Feenberg. A final question: future scenarios? With respect to the increasing pervasiveness of algorithms, what do you 'feel', or what do you 'imagine', for society, but also for the technology itself? And again: what future do you 'imagine', reversibly, for critical knowledge?*

Andrew Feenberg – I wish I could say I see socialism in the future but I have no reason to believe it will happen any time soon. So what do I see? I am impressed by the rise of critique and contestation in the last 50 years. I grew up in the 1950s when critique was confined to a small coterie of intellectuals. The conformist fifties in the US were the background to Marcuse's notion of one-dimensionality. We have come a long way since then. It may be hard to grasp how far if you did not live in that earlier world. The emergence of widespread critical consciousness belies the silly notion that critique has 'run out of steam'. The reality is one of constant dissensus, both on the right and the left. This seems to lead in two incompatible directions: a new type of fascism based on hatred of 'elites', as a consequence of neo-liberalism; or a return of the welfare state with many new aspects concerning identity and the environment. This latter outcome is not yet socialism but it at least opens the future to human possibilities.

Of course the society in both cases will be organized by algorithmic governmentality, which has the potential to co-opt change and innovation. That was already Marcuse's idea of one-dimensionality. The situation today is less original than one might imagine. The important point is that contestation is far more widespread than in the past and that opens up unprecedented potentials.

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