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Jacques Ellul, AI, and the Autonomy of Technique

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Abstract

Contemporary concerns about the development of Artificial Intelligence (AI) frequently discuss the prospect of AI becoming rogue or out-of-control. Such concerns are raised by advocacy groups like the Centre for AI Safety and academics such as Nick Bostrom. In this paper, I consider those concerns in light of Jacques Ellul's account of technique. On the basis of Ellul's account, I argue that the prospect of machines getting out-of-control is not a future potentiality, but a present reality. I do this by outlining the various characteristics of technique according to Ellul, and then discussing the ways in which Bostrom et al. have misunderstood the danger of out-of-control technology.

Keywords: artificial intelligence (AI), rogue AI, Jacques Ellul, The Technological Society, George Grant

Introduction

In this paper, I consider contemporary concerns about out-of-control Artificial Intelligence (AI) in light of Jacques Ellul's account of technique in his 1954 book *The Technological Society* (*La Technique ou l'Enjeu du siècle*).[1] My basic claim is that concerns about out-of-control AI overlook an important consideration, namely that technological development may already be out-of-control. By "out-of-control," I mean "acting or behaving in a way that is counter to human interests and/or purposes, with no obvious possibility of being (re-)subordinated to those interests and purposes." While depictions of AI in popular culture and certain academic discussions of AI and superintelligence express concern about the (as yet unrealized) potential for technology to become out-of-control, such a potentiality is already a reality. As Ellul argues, we already live in a technological society that is organized with the end of maximum efficiency and is not, in fact, organized in pursuit of human ends, whatever those ends may be. Given that the technological society is not subordinated to human ends, we may reasonably call it out-of-control. Thus worries about an out-of-control AI do not see that their basic concerns for the future are already realized in the present.

In order to show that the technological society is already out-of-control, I divide my paper into four sections. In the first section, I provide a brief overview of contemporary concerns about AI. I take thinkers like Nick Bostrom and institutions like the Center for AI Safety (CAIS) as offering representative warnings about the dangers associated with AI. They argue that the potential construction of an artificial general intelligence (AGI) and, in particular, an artificial superintelligence poses an existential risk for humanity. In the second and third sections, I turn to Ellul and his account of technique. As I explain, by 'technique' Ellul means any "operation carried out in accordance with a certain method in order to attain a particular end."[2] (Technique is therefore not to be confused with tools or machines, which are only one aspect of technique.) In the second section, I discuss Ellul's account of the traditional technique so that we can better distinguish what is special about the modern technological society. In the third section, I outline the defining characteristics of the modern technique as Ellul understands them. They are: (a) automatism, (b) self-augmentation, (c) monism (*unicité*), (d) the necessary linking together of techniques, (e) universalism and (f) autonomy. In the fourth section, I return to contemporary concerns about AI and show that those concerns are not a future potentiality but a present reality. As Ellul's account of technique shows, the prospect of social control being wrested from humanity by its technological creations is already upon us because the chief determining factor of society is no longer human interests or purposes, but an autonomous and self-justifying technique.

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[1] Jacques Ellul, *The Technological Society*, trans. John Wilkinson, Revised American (New York: Alfred A. Knopf, 1964).
[2] Ellul, *The Technological Society,* 19.

Contemporary Concerns about AI

Concerns about the potentially catastrophic implications of the development of AI have rocketed into the public consciousness following the release and popularization of large language models such as ChatGPT in 2022. Despite these recent alarms, however, criticisms of and warnings about AI are nothing new. As early as 1949, Norbert Wiener cautioned that the development of machines which could learn from experience could produce machines that were increasingly independent and potentially defiant of human interests and purposes. He warned that once those machines were capable of defiance, it would be hard to remedy the situation since "the genii in the bottle will not willingly go back in the bottle, nor have we any reason to expect them to be well disposed to us."[3] Indeed, the prevalence of AI-related concerns from early on in the period of digital computing is demonstrated by the fact of such films as *2001: A Space Odyssey* (1968). What would happen if we developed a computer like HAL-9000 and gave it so much power and practical responsibility that it could kill us, if killing us were necessary to achieve its programmed objectives? With the development of machines performing functions once thought the exclusive privilege of humanity, there emerged various questions and anxieties about delegating or ceding too much control to those machines.

More recently, criticism of AI has become a burgeoning field in academia and public interest advocacy. Perhaps the most well-known academic critic of AI today is Nick Bostrom. In 2014, Bostrom published a book entitled *Superintelligence: Paths, Dangers, Strategies* in which he argues that the eventual creation of an artificial superintelligence poses significant risks to humanity and that we should adopt certain strategies now in order to mitigate those risks.[4] Bostrom argues that humans have held an advantage over animals because of our greater capacity for general intelligence, but that if we should someday build machines with even greater general intelligence, those machines would have an advantage over us which would put us at their mercy and hence in great danger. The danger stems from the fact that the machines would be much more capable than we are and yet might also be unfriendly to us.[5] Bostrom argues that there is a real possibility of a superintelligent AGI for two reasons. First, the fact that evolution has produced a general intelligence at least once (humans) means that it is in principle possible for it to happen a second time, and the handiwork of an intelligent human programmer would likely make the process only more efficient.[6] What is more, computers already surpass humans in several respects: they

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[3] Norbert Wiener, "The Machine Age" (1949), 8, Norbert Wiener Papers MC 22, MIT Institute Archives and Special Collections.

[4] Bostrom defines superintelligence as "any intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest." Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford: Oxford University Press, 2014), 22.

[5] Bostrom, *Superintelligence*, vii.

[6] Bostrom, *Superintelligence*, 23.

can perform calculations more rapidly, they can communicate more rapidly, they can more easily store information, and they are more easily adaptable to hardware additions and modifications (e.g., attaching improved sensors).[7] The fact of these extant advantages combined with the potential for AGI is that there is real potential for a machine to exist that surpasses humans in virtually every way, but especially in terms of intelligence.

Although Bostrom makes no claims that the development of a superintelligence is in any way imminent, he nevertheless insists that it is prudent for us at this early stage to take steps to mitigate the risks associated with such an eventual development. The mitigation of these risks is important because a superintelligence would in principle be capable of outwitting, outmaneuvering and outdoing us at every turn. If its ends (either self-consciously self-specified or unwittingly assigned by its human programmers) are counter to human ends, the result would be catastrophic, perhaps including the extinction of the human race.[8] Even a sufficiently advanced AI (but not truly general) directed toward some arbitrary end (e.g., paperclip maximization) could prove disastrous, as the AI might convert the entire planet into an automated paperclip factory, even at the expense of human life.[9] Given the risks of a malicious AI or an obedient AI but one with poorly-specified ends, it is incumbent upon us to develop strategies now to program AI very carefully. We need to ensure that any future AGIs or superintelligences are programmed according to human values and in such a way that it pursues these values or its specified ends in a manner that we like.

More recently, a number of public interest advocacy groups have released warnings of their own about the risks associated with developing AI. Organizations like the Center for AI Safety, PauseAI, and the Center for Human-Compatible AI have all released various reports, articles and public statements warning about the risks associated with AI and strategies we might use to mitigate them. Though these organizations highlight a variety of risks associated with AI (e.g., the malicious use of an AI by a human bad actor), they all highlight the risks associated with rogue AIs in particular. In identifying the risk of AIs becoming rogue or out-of-control, these organizations highlight many of the same concerns that Bostrom does in his book. The risks associated with a rogue AI include the pursuit of flawed objectives to an extreme degree (e.g., paperclip maximization), goal drift (i.e., the AI's prior specified ends changing as a result of a changing environment), or power-seeking (i.e., an AI seeking power as a means to pursuing its prior specified goal unhindered).[10] As the authors of one report note, such risks are especially acute because the rapid pace of development of relatively rudimentary AIs has revealed just how difficult it is to control them when they are given even a modest level of autonomy; even when a

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[7] Bostrom, *Superintelligence*, 59–60.
[8] Bostrom, *Superintelligence*, 116.
[9] Bostrom, *Superintelligence*, 123.
[10] Dan Hendrycks, Mantas Mazeika, and Thomas Woodside, "An Overview of Catastrophic AI Risks" (Center for AI Safety, June 26, 2023), 2.

programmer attempts to carefully specify an AI's ends, they are often met with undesirable surprises.[11]

Though there is a wide range of concerns associated with the development of AI and of AGI in particular, of acute concern is the idea that an AI could eventually go rogue and get out-of-control. If an AI were out-of-control, it is hard to know precisely what it would do but one can easily imagine the risks. Especially in the case of a superintelligence, there is little telling what it might take for an end, given that its hypothetical intelligence vastly exceeds that of humans. Given the diversity of possible ends available to a superintelligence, it is a statistical certainty that, if left to chance, it would choose something we would not like. Further, given how different a superintelligence would be from humans (e.g., presumably it would not have an organic body), it also seems likely that it would pursue its ends in a way we do not like. There would be little we could do about this, because the superintelligent AI would be especially capable of pursuing its ends, if not through mechanical means (e.g., physical control of infrastructure) then through interpersonal means (e.g., deceiving or convincing humans). There would seem to be a real risk that as an yet undeveloped out-of-control AI could have grave consequences for humanity as it pursues inhumane ends in an inhumane manner. Yet as we shall when we turn to Ellul's account of the modern technological society, the unstoppable pursuit of inhumane ends in an inhumane manner is already a present reality.

Traditional Technique

Before turning to Ellul's discussion of modern technique, let us first discuss traditional technique. By placing modern technique in relief to traditional technique, we will better see what is special about the modern situation and therefore the way in which technique has gotten out-of-control. In its most general definition, a 'technique' is an "operation carried out in accordance with a certain method in order to attain a particular end."[12] This definition of a technique is comprehensive of everything primitive and simple, modern and complex. Whenever there is a consistent method for producing a result—using a flint to produce a spark—there is a technique. This is to be contrasted with "natural and spontaneous effort," which is not so consistent and regular.[13] Fundamentally, this has not changed between antiquity and modernity.

In the pre-modern era, however, techniques were "applied in certain narrow, limited areas."[14] Although techniques were obviously used, much of life was governed

[11] The authors cite examples of a 2016 Twitter bot programmed with "conversational understanding" and Microsoft's Bing Chatbot in 2023. The former rapidly adopted hateful language after being released on Twitter, and the latter has been given to making threats and intimidation. Hendrycks, Mazeika, and Woodside, "Catastrophic AI Risks," 34.
[12] Ellul, *The Technological Society*, 19.
[13] Ellul, *The Technological Society,* 20.
[14] Ellul, *The Technological Society,* 64.

by "social spontaneities" or "private initiative, short-lived manifestations or ephemeral traditions, [rather] than on a pervading technical will and rational improvement."[15] In short, techniques were circumscribed by a society that was itself not technical and of which the most important aspects were not technical. Within those limited applications of technique, technical means were themselves limited: in a given society, "there was no great variety of means for attaining a desired result, and there was almost no attempt to perfect the means which did exist."[16] Humans used the means at their disposal and did not rigorously or systematically pursue improving those means. The limited tools which were applied in limited scenarios were themselves geographically limited, i.e., a given technique was local. Because social groups were, for the most part, strong and closed, techniques spread slowly and accidentally, if at all.[17] The limited techniques used were not rigorously and rationally developed in disregard for their social context, but were instead integrated into a given society, which itself was relatively stable.

The consequence of these characteristics of traditional technique was that techniques could almost always be adapted to human purposes. The limits in application, means, and geography meant that:

> technique[s] could be adapted to men. Almost unconsciously, men kept abreast of techniques and controlled their use and influence. This resulted not from an adaptation of men to techniques (as in modern times), but rather from the subordination of techniques to men. Technique did not pose the problem of adaptation because it was firmly enmeshed in the framework of life and culture.[18]

Whatever the particular features of certain techniques in a given community, those features were subordinate to broader human purposes. They were adapted to what was taken to be the good life. Techniques occupied an, at best, secondary role in human life and human communities. This is not to say that they were not important or significant, but that they were never the most important or significant thing. In one way or another, humans could meaningfully determine how and when they applied a technique or, even more fundamentally, what sort of life they wanted to lead. As we shall see, according to Ellul those choices are by and large unavailable in a modern technological society.

The genesis of modern technique is outside the main thrust of this paper, so I will only say a few words about it. Ellul explains the development of modern technique in historical, social, and objective terms. He says that modern technique arose because

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[15] Ellul, *The Technological Society,* 65.
[16] Ellul, *The Technological Society,* 67.
[17] "Every technical phenomenon was isolated from similar movements elsewhere. There was no transmission, only fruitless gropings." Ellul, *The Technological Society,* 69.
[18] Ellul, *The Technological Society,* 72.

of the coincidence of five phenomena: "the fruition of a long technical experience; population expansion; the suitability of the economic environment; the plasticity of the social milieu; and the appearance of a clear technical intention." [19] These phenomena coincided in the end of the 18th century and the beginning of the 19th century. That is to say, the genesis of modern technique is coincidental. Five phenomena happened to coincide that made the technological society more likely. As far as Ellul is concerned, technique is not the final expression of a millennia long destiny as it is for Heidegger. It is the result of happenstance. But for Ellul this is not ultimately important. [20] It doesn't matter that modern technique is the result of happenstance. What matters is that is has come to be. Regardless of the 'why,' modern technique is a fact of our present civilization.

Before turning to Ellul's account of modern technique, it is worth briefly noting Ellul's rhetorical style. In his discussion of the technological society, Ellul often seems to hypostasize or to ascribe a certain agency to technique. He will argue that "technique does X," or that "technique requires Y," or that "technique allows Z," as if technique had its own separate existence and were an independent force shaping society. This approach has a certain merit, insofar as it vividly and succinctly illustrates to the reader what Ellul takes to be the basic principle organizing society and, as Lovekin notes, that those living in a technological society have a kind of "technological consciousness" which determines how the world appears to them.[21] But Ellul does not literally mean that technique has its own independent existence. Indeed it is central to my present criticism that technique has no separate existence to which we could point. Technique only exists as it is actually practiced by humans or carried out through the work of various machines. Neither does Ellul's rhetorical approach agree with the mode of discourse favored by Bostrom and the like, making an Ellulean criticism of contemporary AI critics difficult. For that reason, I have made modest efforts to "de-hypostasize" Ellul's account and not to write in a way that implies a separate existence to technique. For example, where Ellul speaks of technique itself doing something, I have tried to speak of people performing technical operations. This is not to suggest that I know better how to say what Ellul is trying to say, but to try to meet Bostrom and his peers on more familiar terms. Nevertheless, it is not always possible to maintain

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[19] Ellul, *The Technological Society,* 47.

[20] As George Grant observes, Ellul's relative neglect of the genesis of modern technique is one of the main weaknesess in *The Technological Society*. This is especially problematic because, in Grant's view, understanding the technological society requires examining its close connection to and genesis in Western Christianity, and Ellul remains a committed Christian. Yet Grant gives Ellul the benefit of the doubt and suggests that Ellul's "lack of discussion at this point comes from a highly conscious and noble turning away from philosophy toward sociological realism." Ellul neglected the history of technique so that he could better see what it is in the present. George Parkin Grant, "Review of The Technological Society, by Jacques Ellul," in *Collected Works of George Grant*, vol. 2 (Toronto: University of Toronto Press, 2002), 417.

[21] David Lovekin, "Jacques Ellul and the Logic of Technology," Man and World 10, no. 3 (1977): 251.

this approach, especially as we come the conclusion of Ellul's description of technique, the autonomy of technique.

Modern Technique

Let us now turn to the characteristics of modern technique. Ellul defines modern technique as "the totality of methods rationally arrived at and having absolute efficiency (for a given stage of development) in every field of human activity."[22] Modern technique has a number of characteristics which belong to a single, integrated whole and cannot be entirely separated from each other. Again, these characteristics are (a) automatism, (b) self-augmentation, (c) monism, (d) the necessary linking together of techniques, (e) technical universalism, and (f) autonomy. (Ellul notes that modern technique is also rational and artificial, but declines to discuss these characteristics since they are sufficiently well-understood.)[23] The sum of technique's characteristics, we shall see, is that the technological society is not organized to pursue human ends in a humane way, but to pursue the distinctly technical end—efficiency—in a distinctly technical way—as efficiently as possible. Because it is not organized in pursuit of human ends but in pursuit of technical ends, the technological society can reasonably be described as out-of-control.

Automatism

Technique pursues the 'one best way' of doing things, since it is pursuing efficiency absolutely. This means that when a technical operation happens, the people involved measure and calculate matters mathematically, and on that basis determine what the best course of action is. The result of this calculation is that the best course of action is *obviously* the most efficient one. When the calculations are done, there is no personal decision to be made, any more than there is a personal decision in determining whether 4 is greater than 3. The technical decision is therefore 'automatic.'[24] If an activity is 'technical,' there is only one course of action available, namely that which is determined by mathematical calculations to be most efficient. To the extent that someone makes a meaningful choice, their work is not technical.[25] When the 'best' solution is evident, it is the only technical option. With regard to technical automatism, the human becomes little more than "a device for recording effects and results

[22] Ellul, *The Technological Society,* xxv.
[23] Ellul, *The Technological Society,* 78–79.
[24] Ellul, *The Technological Society,* 80.
[25] As we shall see, Ellul will go on to explain that although humans still do make some genuinely human choices, these are systematically excluded and hence have diminished impact on society and are becoming increasingly uncommon.

obtained by various techniques. He does not make a choice of complex and, in some way, human motives. He can decide only in favor of the technique that gives the maximum efficiency." [26] What is more, this decision is by and large met with satisfaction, since it is so successful in practice. When the automatic decision made by technique is obeyed, it is more successful than when a comparatively inefficient approach is adopted: when technique is applied, wars are won, more widgets are manufactured, and energy is saved. CAIS itself observes this logic is all too likely to guide the future development of AI as it has already long guided technological development, even at the expense of human safety.[27]

Self-Augmentation[28]

The consequence of the automatic success of technical operations is that technique is self-augmenting. This means that with each successful technical operation, there is demand that technique be applied more widely, which in turn garners it further success and more widespread application. What is more, Ellul argues that not only is it assured that the application of technique will increase, it is assured independent of the work or choices of any individuals. Ellul does not mean that increase in application of techniques is a result of common effort, but rather that the factors which determine this increase in application are primarily technical:

> We can no longer argue that it is an economic or a social condition, or education, or any other human factor [that determines technical progress today]. Essentially, the preceding technical situation alone is determinative. When a given technical discovery occurs, it has followed almost of necessity certain other discoveries. Human intervention in this succession appears only as an incidental cause … Technique, in its development, poses primarily technical problems which consequently can be resolved only by technique. The present level of technique brings on new advances, and these in turn add to existing technical difficulties and technical problems, which demand further advances still.[29]

Far from the wealth (or poverty) of a given society, or the attitude adopted by a host of researchers or educational institutions, the determining factor of technique is nothing other than technique. Technical developments are not the result of an excess or desire for wealth in a society, nor are they driven by a society that has built and can

[26] Ellul, *The Technological Society,* 80.
[27] Hendrycks, Mazeika, and Woodside, "Catastrophic AI Risks," 18–23.
[28] I discuss the self-augmentation and the autonomy of technique in more detail elsewhere. See B.W.D. Heystee, "The Unlovable Violence of Technique: George Grant's Reception of Jacques Ellul," *The Philosophical Journal of Conflict and Violence*, 2023.
[29] Ellul, *The Technological Society,* 90–92.

support institutions out of a pure desire to discover things, etc. etc. The sole reason that we apply technique to an ever increasing array of domains is that previous applications of technique demands this increase.[30] As one technical development is implemented, it presents problems or difficulties that need to be addressed; this brings forth further technical developments, which themselves produce problems or difficulties which in turn must be addressed by technique, since technique is the only means of addressing technical problems. [31] Further, because each technical development tends to present several difficulties and/or opportunities, the application of technique does simply increase, it accelerates. Technical developments tend to reverberate through several fields or even create new ones, which in turn produce further technical developments.[32] Consequently, when we apply a technique, we are not leading but are participating in a process of automatic and accelerating growth in the application of techniques in general.[33] This process of "self-augmentation" is not a result of individual or collective deliberation, but primarily a result of the effects of previous applications of technique.

In the context of the present paper, Ellul would say that developments in AI have not been a consequence of, say, idle curiosity or financial incentives, but of responses to technical problems: e.g., image recognition software and natural language processing are the result of the need to process increasingly large quantities of data, quantities produced in response to prior technical difficulties. As neither these underlying difficulties of data processing nor the consequent difficulties associated with the prevalence of natural language processing will simply disappear on their own, the process of technical self-augmentation will continue to drive AI development into the future.

Monism

The nature of this automatism and self-augmentation means that the totality of various modern techniques is also monistic. The word Ellul uses which has been translated as "monism" is *unicité,* which the translator notes may also be rendered as "holism." Neither term is exactly right, but what Ellul means by *unicité* here is that "the technical phenomenon, embracing all the separate techniques, forms a whole" and that

[30] Lovekin likens the exclusion of human decision-making to a kind of technical "collective unconscious, encouraging the anonymous but steadfast involvement and the submersion of the individual in the technical process." Lovekin, "Logic of Technology," 258.
[31] Darrell J Fasching, *The Thought of Jacques Ellul: A Systematic Exposition*, vol. 7, Toronto Studies in Theology (Toronto: Edwin Mellen Press, 1981), 18.
[32] Ellul, *The Technological Society,* 91.Ellul notes that of course not every field is constantly accelerating and that fields do stall from time to time. But these are exceptions that prove the rule: the general fact is that technique develops more rapidly today than it did yesterday, and will be yet more rapid tomorrow.
[33] Langdon Winner, *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought* (Cambridge: MIT Press, 1978), 61.

the components of the whole technical phenomenon are tied together and cannot be meaningfully isolated from one another.[34] In effect, the world of technique becomes a "closed world" from which parts cannot be removed.[35] In other words, in the technological society various individual techniques cannot be separated from each other, nor can they be separated from their effects. The interrelatedness of various techniques was implied in my above discussion of self-augmentation. The very fact that one technical development necessarily entails several other developments in other fields speaks to interrelation; indeed, it is precisely interrelatedness that makes these rapidly multiplying and accelerating developments an inevitable outcome. Superficially disparate fields in fact cannot operate without the cooperation of various other fields.[36] Neither can a technique be separated from its use and its effects: Ellul insists that a technique *is* a use, and consequently is also an effect. The potential applications of technique are not meaningfully distinct from the actual applications, except the temporal distinction of before and after. When a technique is applied it is necessarily the best, most efficient course of action for a given scenario. That means that a bad use of, e.g., a machine is not an example of technique at work.[37] While non-technical uses of machines are in principle possible, that is the exception to the rule; it is the deliberate but irrational decision made by an individual in flat contradiction to the automatic "decision" made by technique.

But is it not possible for better and worse technical developments to be encouraged or discouraged, and thereby ensure more or less better uses of technique? Such a question is obviously relevant to the development of AI, since the warnings of Bostrom and CAIS are predicated on the assumption that AI can be developed in better and worse ways. In response to such a question, Ellul cites the example of the atomic bomb. It may be tempting to say that it would have been better for humans to develop nuclear energy without the bomb: put nuclear techniques to good use and not to bad use. Yet Ellul would remind us that atomic research requires passing through the stage of the atomic bomb. The technical problems associated with a bomb are prior to the technical problems associated with industrial energy use, a fact corroborated by Oppenheimer himself.[38] Society cannot simply skip or circumvent the

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[34] Ellul, *The Technological Society,* 94.
[35] Lovekin, "Logic of Technology," 261.
[36] Ellul offers this illustrative example: "The case of the police, for example, cannot be considered merely within its specific confines; police technique is closely connected with the techniques of propaganda, administration, and even economics. Economics demands, in effect, an increasing productivity; it is impossible to accept the nonproducers into the body social … The police must develop methods to put these useless consumers to work." Ellul, *The Technological Society*, 111.
[37] Ellul cites the example of using a car to drive to work versus using it to kill one's neighbour. While both outcomes are possible (and indeed the latter does occasionally happen), the latter is not an application (and hence *abuse*) of technique: "Technique is in itself a method of action, which is exactly what a use means … The driver who uses his automobile carelessly makes a bad use of it. Such use, incidentally, has nothing to do with the use which moralists wish to ascribe to technique. Technique *is* a use." Ellul, 98.
[38] Ellul, *The Technological Society,* 99.

bad parts of technique. The drive to efficiency has its own logic and proceeds along the necessary steps, regardless of whether they seem to us good or bad. The monism of technique means that various individual techniques and their uses exist as a single integrated whole so that we cannot pick and choose better or worse uses, as if we were at a technical supermarket. As we carry out technical operations automatically, and as those operations are applied to an ever increasing scope of society, we cannot reject certain parts of technique without rejecting the whole.

The Necessary Linking Together of Techniques

Ellul argues that the wholistic integration and interdependence of techniques has not been an accident, but rather has been a necessary consequence of the modern development of technique. Ellul says that these connections necessary because each technique has *demanded* the emergence of other techniques.[39] For example, increasingly productive machinery required new commercial techniques so that the machines could be put to work optimally. Then, the production and especially consumption of additional goods required that humans be relocated to cities, necessitating the development of urban planning and mass amusement to make urban life tolerable. Economic and labor techniques were then necessary to ensure a relative equilibrium between steady production, distribution, and consumption. This includes the educational apparatus necessary to training a technical workforce. All these various fields and the more specific techniques within those fields emerged out of necessity and then developed in a state of interdependence so that the techniques are necessarily 'linked together.'

We see this linking together in the development of AI. The dependence of software engineering on the mining of precious metals, educational programs, and urban development is clear enough. Yet we may also say that those fields in turn depend on software development (and will eventually depend on AI) so that they can develop and proceed efficiently; mining will require automated machinery at the rock face, education will need to process and evaluate data on limitless students in increasing detail, and urban planning will require complex models and algorithms to predict future needs. All these various techniques are necessarily linked together in their origins and will forge ever closer links as they develop in pursuit of greater efficiency.

[39] Ellul, *The Technological Society,* 116.

Technical Universalism

The monistic and necessarily interrelated application of various techniques has become universal, and in two senses. The application of techniques is geographically universal and it is qualitatively universal. Virtually every corner of the globe has been colonized by modern techniques of various kinds, and so too for nearly every aspect of our lives and cultures. The geographic universality of technique is, in my view, an uncontroversial claim. Though we do observe variety in techniques actually used as a consequence of climate, available resources, or the stage of technical development of a given people, the fact is that techniques are used everywhere. What is more, the differences are not a result of variety in social customs and priorities (as was the case with traditional technique), but in the fact that objective conditions mean that there are slightly different ways of achieving maximal efficiency. The competition between rival foreign powers in computing power, cyberwarfare, and other aspects of digital infrastructure speaks vividly to the fact that technique now spans the globe and in so spanning has created a kind of international technical homogeneity.[40] In Ellul's day, such universality was already evident in the ever more integrated global shipping industry, with its more or less uniform ocean vessels, port installations, railroads, shipping containers, and standards of every kind.[41] Every place is required to be brought up to and maintained at the standard of maximal efficiency.

The technological society is qualitatively universal in the sense that it increasingly defines every aspect of life so that local and national cultures are diminished and differences between one way of life and another disappear. Self-augmentation means that technique will run up against problems in more and more areas of life. Automatism means that when those problems are encountered, the decision will be in favor of technique. The monism and necessary linking-together of technique mean that certain aspects of society cannot be meaningfully insulated from the encroachment of technique. Even in the case of art or literature, areas where it would seem to be least appropriate, technique has become dominant: artistic expression cannot ignore techniques of finance or telecommunication necessary to artistic production and distribution.[42] And this is to say nothing of more recent developments of which Ellul could not have known: artificial image generation software such as DALL-E or the advent of audio and visual deepfakes.

The most remarkable consequence of this is that no longer is technique subordinate to a more comprehensive civilization, but rather "technique has taken over the whole of civilization."[43] Whatever social or civilizational ends directed the development of technique in the past, those have either disappeared or been

[40] As Lovekin observes, whatever cultural dichotomy there was between East and West, technique has almost completely erased it. Lovekin, "Logic of Technology," 263.
[41] Ellul, *The Technological Society,* 119–20.
[42] Ellul, *The Technological Society,* 128.
[43] Ellul, *The Technological Society,* 128.

transformed so that they have only a secondary status. Though there may be differences from place to place, these differences are by and large vestiges of bygone civilizations that technique has not yet erased because there are presently greater impediments to efficiency that must first be addressed. According to Ellul, the differences between civilizations are superficial in comparison to their technical unity. Technique is universal in scope and exhaustive in detail.

Autonomy

We now turn to the final and decisive characteristic of technique: autonomy. The autonomy of technique is, in effect, a kind of crowning characteristic. It is the result of the combination and sum of the other characteristics, though it has the effect of reinforcing those characteristics. Ellul says that technique is both practically and morally autonomous. In the section on technical autonomy he makes little effort to prove this claim, taking it as evident based on his prior discussion of the other characteristics.

Technique is practically autonomous in the sense that, for example, it is autonomous with respect to economics and politics. Ellul writes, "Neither economic nor political evolution conditions technical progress. Its progress is likewise independent of the social situation. The converse is actually the case . . . Technique elicits and conditions social, political and economic change."[44] The prime factor which determines the others is technique. The other social factors are consequent upon it. Though it might seem the other way around at times, this is a misconception. The relocation of humans to cities might have seemed an economic determination because of, e.g., the desire for wealth on the part of factory owners, but Ellul maintains it was more fundamentally a response to the technical problem of how to efficiently distribute and consume the more plentiful goods produced in a factory. The economic conditions in this case were secondary, a byproduct so to speak. In practical terms, "External necessities no longer determine technique. Technique's own internal necessities are determinative."[45]

More striking is Ellul's claim that technique is morally autonomous. Ellul claims that technique is the author of its own morality and accepts no external limitations or judgments. For our purposes, we may say that morality is judgment about what ought and ought not to be done. The moral autonomy of technique means that only technique determines whether its own actions ought to be done or not:

> Technique tolerates no judgment from without and accepts no limitations . . . Morality judges moral problems; as far as technical problems are concerned,

[44] Ellul, *The Technological Society,* 133.
[45] Ellul, *The Technological Society,* 133–34.

> it has nothing to say. Only technical criteria are relevant. Technique, in sitting in judgment on itself, is clearly freed from this principal obstacle to human action . . . technique theoretically and systematically assures to itself that liberty which it has been able to win practically.[46]

The sum of technique's other characteristics—automatism, self-augmentation, monism, linking-together, and universalism—means that technique operates according to its own logic and its own determinations about what is necessary or forbidden. Technique determines for itself what the problems and the solutions are. Whether or not something is 'moral' according to more traditional standards has no significant bearing on technique's operations.

And to be clear: this does not simply mean that technique has moral implications, or that it is 'not neutral.' What Ellul means is that technique sits outside other moralities because it is the author of its own morality: "It was long claimed that technique was neutral. Today this [whether or not technique is neutral] is no longer a useful distinction. The power and autonomy of technique are so well secured that it, in its turn, has become the judge of what is moral, the creator of a new morality."[47] Technique cannot be morally righteous or problematic, because technique determines for itself what is moral: that which satisfies the continued drive to efficiency. All other considerations are systematically excluded from technical decision making. [48] Technique is not good or evil (or neutral) because it is beyond good and evil. Technique has no goals outside of itself.

The combined effect of the various characteristics of technique, capped off by autonomy, is that technical morality is not limited to a special province, but colonizes every aspect of human activity and systematically excludes any factors that might interrupt its drive to efficiency. This is clearest in the way that technique progressively reduces the role that humans play in any technical operation, whether it be factory workers, airplane pilots, or statisticians. Ellul explains that when human interference in a given activity cannot be eliminated or substantially reduced, humans are adjusted to become more technical so that they more closely resemble the machines they are operating; humans become an appendage of technique rather than a user.[49] Humans are not permitted to interfere with technique nor do they contribute to technique's activity in a uniquely human way. They are only permitted to participate in a technically determined operation as simply one part of the machine among many. Put more generally, whatever human ends, interests or desires could have disturbed technique's efficiency, they are all diminished or excluded from technique's ever increasing domain

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[46] Ellul, *The Technological Society,* 134.
[47] Ellul, *The Technological Society,* 134.
[48] Lovekin, "Logic of Technology," 264; Helena Mateus Jerónimo, José Luís Garcia, and Carl Mitcham, "Introduction: Ellul Returns," in *Jacques Ellul and the Technological Society in the 21st Century*, vol. 13, Philosophy of Engineering and Technology (Dordrecht: Springer, 2013), 4.
[49] Ellul, *The Technological Society,* 134–40.

so that the sole criteria are technical and no alien morality could limit or redirect technical activity. While continuously expanding the scope and detail of its activity, technique sets the terms that justify that activity and refuses the possibility of any other terms.

In Ellul's judgment, this is the nature of technique and technique is the chief determining factor in society today. Technique operates according to its own logic and its own morality and leaves no opportunity for meaningful human intervention. Its decisions are automatic. It increases the scope and detail of its influence of its own accord. It is a unified whole whose component techniques cannot be separated from one another. It is not an instrument or even a sum of instruments that can be subordinated to human ends, let alone be used for good or for evil. It shapes and determines the way humans live and the ends we pursue, all the while persuading us that it is *we* who use *it* freely and for our own purposes.

The Pressing Reality of Out-of-Control Technique

Another way of saying that technique is "autonomous" is saying that it is "out-of-control." In detailing these six characteristics of technique, Ellul is arguing that the technological society is organized in such a way that the ends pursued by such a society are not the result of human deliberation or choosing. The increasing technification of society is no longer a direct or indirect consequence of human reflection about what our ends are or should be, but rather as a consequence of the fact that it is already organized technologically. Though such reflection may have had a role in the genesis of technique, it is no longer consequential.[50] The technological society's organization around the pursuit of efficiency is not only self-sustaining, it is self-augmenting and autonomous. With each passing year, the technification of society grows more encompassing and more detailed, not because as free humans we have deemed this to be good, but simply because society is already technological. The logic that determines the role—or rather, predominance—of techniques in our society is itself technical.

What is more, for the most part humans are neither passive participants nor actively resisting opponents of technique; they are willing contributors. Part of the technological society is the formal and informal education necessary to such a society. This education ensures compliant and efficient workers to carry out technical operations: accountants, physicians, factory workers, and bureaucrats are all trained to carry out their operations as efficiently as possible so that the sum total of techniques

[50] Ellul does not note the role of such reflection in his account of technique's origins, but many others do. To cite just one example and to neglect countless others, in his reception of Ellul, George Grant argues that modern technique emerged out of the affirmation that "man's essence is his freedom and therefore that what chiefly concerns man in this life is to shape the world as we want it." George Parkin Grant, *Technology and Empire: Perspectives on North America* (Toronto: House of Anansi Press, 1969), 114 n. 3. Technique was a means of making human freedom concrete.

can continue its overall drive toward absolute efficiency. That is to say, when technique is understood not simply as a consistent means of producing a result, but in the peculiarly modern sense of a "a totality of methods rationally arrived at and having absolute efficiency," it is clear that humans themselves belong to that totality and for the most part do not stand outside it.[51]

This is why I say that technique is "out-of-control" but I do not adopt the language of AI critics and say that it is "rogue." While "rogue" would imply an antagonistic relation—the AI standing over and against us, undermining our conscious interests and causing explicit frustration—technique does not do this. Rather, technique integrates and technifies human interests and ends so that they become a compliant part of the technological society. The social and educational institutions of the technological society persuade its members that technique is desirable, because in its efficiency it apparently provides us with greater capacity to pursue our freely chosen ends. Never mind the fact that we are encouraged to choose ends agreeable to technique, and that little time is left for ends of other sorts. (To the extent that someone does choose an atechnical, inefficient life, they are marginalized from society so that they pose little threat to technical operations.) Because the way the technological society assimilates humans to the overall pursuit of efficiency, we can say that not only is technique insubordinate to human ends, in practice it is *superordinate* to human ends. There is no antagonistic relationship to technique and so it should not be called "rogue." But it is not subordinate to human purposes so it should be called "out-of-control."

The prospect of a technological creation getting out-of-control is not a looming possibility which we should be careful to avoid or mitigate, but a present reality which presses in upon us at this very moment. When organizations like CAIS and thinkers like Bostrom pose the possibility of a rogue or superintelligent AI as something which threatens us not yet, but in the future, they overlook a crucial feature of our present society. Bostrom's warnings about an artificial superintelligence and his exhortations that we carefully program our AIs with human values assume that (1) we are presently still in control of our machines and (2) that our current values are freely chosen and form the basis of a more or less desirable society. Ellul would contend that neither is the case. Indeed, he would likely argue that the future of which CAIS and Bostrom warn us is in fact our present. Yet those AI critics do not see this because they have misunderstood the technological danger in three crucial ways.

First, they assume that there will be some identifiable machine or AI which goes rogue and poses a specific threat to which we could point. Recall that Bostrom argues that an artificial superintelligence is, in principle, possible and is perhaps likely over the

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[51] Ellul would concede that human freedom allows for individual opposition to technique, but this is the exception rather than the rule. Nevertheless, if enough individuals make a stand, it is possible for these 'exceptions' to change the direction of society in an unforeseeable way. Ellul, *The Technological Society,* xxix; cf. Daniel Cérézuelle, "Jacques Ellul, Penseur du Système Technicien," *Futuribles* 429, no. 2 (2019): 85–88.

next several centuries. In other words, the superintelligence which goes rogue is a specific project or creation which may come into existence at some point. The superintelligence may exist in a certain piece of hardware or it may be distributed across a large network, but it would have a definite and particular existence. Indeed, it is for this reason that Bostrom considers the difficulties associated with "capability control," including physical confinement.[52] The idea of capability controls (whether or not they are ultimately feasible) only make sense if the technological threat is something like a specific machine or mechanism. The autonomy of technique, however, is not like this. The self-augmenting, autonomous nature of the technological society is not limited to a machine or mechanism of any particular size or distribution, but rather it encompasses the whole of society in which we live at every moment. Nearly every feature of our social organization is determined or shaped by technical operations of some kind so that nothing escapes the drive to efficiency. There is no machine that we could switch off, nor any software that we could reprogram, because technique is not a machine which lies outside of us. In the technological society, the out-of-control drive to efficiency is everywhere and nowhere and therefore cannot be resisted in the way Bostrom or CAIS propose.

Second, Bostrom and CAIS assume that we still have the capacity to (re)direct the development of AI so that we can avoid the pitfalls and enjoy the benefits. This is a natural assumption given that they believe the dangers of rogue AIs and superintelligences to be in the future. Yet this assumption does not consider the nature of technological development and how it is rarely, if ever, the consequence of human deliberation and free choosing. Developments in technique arise as the necessary response to problems previously posed by technique, and they exist as a single integrated whole. It is not up to individual developers to pick and choose from among the various techniques so that we get the good without the bad. Nuclear energy could not develop without the nuclear bomb, and neither development could have been indefinitely forestalled on account of the risk they posed; they were occasioned by prior technical developments and requirements, and the stages through which they progressed where themselves determined by the logic of technique. So too, we are to expect, will be the development of AI: there may be calls to 'pause' research on AI or arguments that certain aspects of AI should be encouraged or discouraged, but the social forces which drive AI development do not listen to such calls and arguments. So long as we live in a technological society, our ability to practically limit or direct technical developments will be marginal at best.

Third, and most importantly, the warnings of Bostrom and CAIS assume that the world of out-of-control technology is not yet here. These warnings place the rogue AIs and superintelligences in the future and thereby imply that out-of-control technology is a distant prospect which has little bearing on our present lives, except perhaps for the professional lives of those technical experts actually involved in

[52] Bostrom, *Superintelligence*, 129 ff.

software development. They suggest that we are currently in control of our machines, and we should be careful lest those machines get out-of-control in the future. Yet it is not clear that we are in fact in control. Though no particular machine has yet defiantly resisted us in a significant way, it is not true that the machines we build are subordinate to our freely chosen, human purposes. Both the machines and their human operators presently exist within a broader, technical milieu which shapes and determines what actions ought or ought not be taken. Human deliberation and reflection are not in control of technical development or decision-making today.

It is not my intention with this paper to dismiss out of hand the practical concerns of thinkers like Bostrom and organizations like CAIS. They would seem to make reasonable cases why a superintelligence or a rogue AI would pose an existential threat to humanity. Indeed, I am willing to defer to their technical expertise on the likelihood and consequences of that specific scenario. I am happy to take their word for it that we need to consider the prospect of a paperclip maximizing machine gone wrong. Rather, my intention is to impress upon the reader that we should not allow warnings about the future to obscure the nature of the present. Concerns about a malevolent superintelligence or catastrophically incompetent AI risk overshadowing present technological difficulties. In particular, they risk convincing us that we are really still in control of our machines for the time being, when in fact technology is already out-of-control. The challenge posed by the autonomy of technique is not a future potentiality, but a present reality and one that must be addressed with the urgency that the present deserves.