"Ellul and the post-efficiency landscape of AI"

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This draft is not exactly what I will say in presentation

Abstract: Jacques Ellul's critique of technological society is integrally associated with his critique of efficiency; he argued that efficiency used exploitation and coercion to merge human work and life into managerial systems. This paper asks if Ellul's efficiency critique still applies in a time of systems dominated not by the mechanical understandings that influenced Ellul, but by systems increasingly surrendering to the influence of artificial intelligence, many forms of which may be said to embody excess rather than efficiency, in their use of massive amounts of data, enormous energy demands, and reliance on multiple iterations of search.

Efficiency was central to Ellul's celebrated critique of technological society. In fact Ellul's critique may be summed up as one of efficiency. As David Gill put it, in describing Ellul's most famous book, *The Technological Society*, "[t]echnique, the root of technology, refers to rational, scientific, measurable methods of doing something in the most efficient way possible."[1] Efficiency has become so important because of the cooption of ends by means. "Today", Ellul wrote in his earlier 1948 book *Présence*, "everything has become means." "What justifies the means today is whatever succeeds. Whatever is effective, whatever possesses in itself an 'efficiency', is justified" [note that Ellul used the English term "efficiency"].[2] In *The*

[1] Jacques Ellul, *Presence in the Modern World* (Eugene, OR: Cascade Books, 2016), p. 13, fn 17. Wha-Chul Son also sees efficiency as essential to Ellul's critique: "Although Ellul himself did not use the term 'efficiency principle,' it effectively describes his claim that efficiency is the only criterion in all decision making processes in technological society"; see Wha-Chul Son, "Are We Still Pursuing Efficiency? Interpreting Jacques Ellul's Efficiency Principle," in Helena M. Jerónimo et al, eds., *Jacques Ellul and the Technological Society in the 21st Century* (Dordrecht: Springer Verlag, 2013), 49-62, 49.
[2] Ellul, *Presence in the Modern World*, 40, 45.

Technological Society, that most famous book, Ellul used efficiency as the ultimate term for technique, and, ultimately, for what we call technology. He identified "the fixed end of technique – efficiency." "Technical progress today is no longer conditioned by anything other than its own calculus of efficiency."[3] Forcefully expressed in *The Technological Society* and consistent throughout his work was Ellul's condemnation of this end that he called efficiency. In 1948 he wrote that efficiency was contrary to faith and contrary to life: people do not recognize the power of faith "because we no longer believe in anything but efficiency, and life is not efficient."[4] About the time of the publication of the English edition of *Technological Society*, he wrote, in a study of human and divine will, of the chasm between efficiency and morality, that human behavior "is determined by the organization, by efficiency planning. The more the organization – of work, of government, of family life, of living conditions, of traffic, of public health, of recreation, etc. – is perfected, and the more exactly the patterns of behavior are established, the more does efficiency planning tend to displace the moral imperative."[5]

In keeping with his dialectical style of thinking, Ellul offered a potent antithesis to efficiency that grew straight from his protestant Christian faith. He used a motif of water. On the one hand is water from a river or reservoir, funneled into channels; on the other is a flood, an overwhelming torrent that respects no banks. Of technique he wrote "[j]ust as hydroelectric installations take waterfalls and lead them into conduits, so the technical milieu absorbs the

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[3] Jacques Ellul, The Technological Society (New York: Alfred A. Knopf, 1973), 21, 74.
[4] Ellul, *Presence in the Modern World*, 61. The sentence that follows reads "But it [faith] – it alone – can provoke the astonishment of the modern world by revealing to everyone the ineffectiveness of techniques".
[5] Jacques Ellul, *To Will and To Do* (Philadelphia, Boston: Pilgrim Press, 1969), 188-189; originally published as *Le Vouloir et le faire: Recherches éthiques pour les chrétiens* (Geneva: Labor et Fides, 1964).

natural".[6] Of God's work he wrote, "[w]e never observe a straight or causal course any more than we see a static and more-or-less permanent order established. God's action always appears as a power in motion, as a torrent that crosses and re-crosses history, that changes course, rolls in waves, and churns up all the particles of creation."[7] This dialectical opposition makes apparent the power of efficiency, to which he opposed the power of God.

Ellul described efficiency in terms of what I have called a technological orthodoxy: "the belief that all things should act efficiently."[8] In recent years we are confronted by another technological orthodoxy: the belief that artificial intelligence is necessary for human development. The orthodoxy is that people must recognize its value, and must adapt their lives, working lives, consuming lives, and personal lives, to it. This is what an orthodoxy does: it is identified as the right way, the correct way, the agreed-upon sentiment and belief of a particular group; it is accepted. As orthodoxies do, it offers comfort and direction to many believers. It also cuts, and marks for excision the things that impede its workings.

A few examples of this new orthodoxy [this will be extemporaneous and may include these examples]:

> Arun Bozeman, disruptor at CH Robinson: "to improve our productivity, we use technology to reduce the number of manual touches in every step of the logistics order lifecycle like price quoting, order entry, carrier booking, pickup and drop of appointments and so on."[9] [my emphasis]

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[6] Ellul, *Technological Society*, 79.
[7] Ellul, *To Will and To Do*, 33-34.
[8] Jennifer Karns Alexander, *Mantra of Efficiency* (Baltimore: The Johns Hopkins University Press, 2008), xi.
[9] "Rajan Set to Disrupt at C.H. Robinson," *Minneapolis Star Tribune*, July 2, 2024, p. D1, D3.

Joseph Aoun, writing in the *Chronicle of Higher Education* the first of this month: July 1, 2024: "We have reached a moment of reckoning about what artificial intelligence means for the human experience. This is a moment of reckoning, too, for higher education. It's not enough for colleges merely to transfer knowledge and skills to AI's future programmers and stewards. Colleges have a pivotal role to play in preparing all students for life *with* AI, and advancing human well-being in a digital world."[10]

Ethan Mollick, of the Wharton School, commenting to Kevin Roose, technology columnist for the *New York Times*: "A lot of stuff's going to break," Mr. Mollick said. "And so we have to decide what we're doing, rather than fighting a retreat against the A.I."[11]

A headline from almost late December, from New York Times columnist Vauhini Vara: "One Year In, and Chap GPT Already Has Us Doing Its Bidding"[12]

As though AI is just another person: Platformer News on an "emotional upgrade" of ChatGPT: "OpenAI's forthcoming voice assistant laughs, flirts, helps – and draws a sharp distinction with Google". [13]

So: in this new technological orthodoxy we have a clash with an older one: the technological orthodoxy of efficiency, developed during the twentieth century and rooted in quantitative analysis of the workings of machines. Of course efficiency was not corralled by

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[10] Joseph Aoun, "How Higher Ed Can Adapt to the Challenges of AI: The future is here. Now is the time to make sense of it," *Chronicle of Higher Education*, July 1, 2024.

[11] Kevin Roose, "How Schools Can Survive A.I.," *NYT*, August 24, 2023
How Schools Can Survive A.I. - The New York Times (nytimes.com)

[12] Vauhini Vara, NYT: Opinion | One Year In and ChatGPT Already Has Us Doing Its Bidding - The New York Times (nytimes.com) December 19, 2023, guest essay

[13] ChatGPT gets an emotional upgrade (platformer.news) OPENAI

mechanics and mechanisms, and, once given general mathematical form (as thermal efficiency, drawn from the laws of energy of the mid-nineteenth century) it soon floated free, unmoored from the physical, tactile expressions at its mechanical core. By the turn of the twenty-first century efficiency had become ubiquitous as a general statement of good work, good design, good management, and elimination of waste, and as an index of control. Its tools are surveillance and vision, and efficiency has become powerfully associated with the achievement of visions. It is no longer bound by the mechanical exactitudes at its historical core.

Asking what might remain of efficiency's mechanical core in an era of artificial intelligence, especially of pattern recognition AI, which might well be called a practice of excess, has led me back to Jacques Ellul. Ellul's prescient, uncompromising, and completely radical, I will repeat, completely radical critique of technological society might be summed up this way: technological society values and seeks only what is efficient, and the requirement for efficiency disassociates people from themselves and from each other.

Artificial intelligence as post-efficiency

The artificial intelligence landscape bears many appearances of being a post-efficiency landscape. People use the term "artificial intelligence" in many ways, and so I will draw attention to two particular issues germane to its most visible current use, as generative AI, that is, as a form of artificial intelligence that generates text, images, code, etc., often in response to user prompts. The two issues to which I will draw attention are, one, the historical roots of generative AI, in the division of labor, intimately connected with the development of efficiency and in contrast to the usual history of AI as rooted in symbolic and logical manipulation or in attempts mechanically to model human brain behavior; and two, the enormity of means such artificial

intelligence has gathered to itself, in particular its association with powers that outreach most nation-states and its appetite for truly enormous quantities of energy and water. In both these respects, the current landscape of artificial intelligence may be seen to be post-efficiency.

The connectionist heritage and its connection to labor management and surveillance

Firstly, then: AI may be more properly seen to have developed from interests in the division of labor than in symbolic and mathematical manipulation. Many authors trace its history to the first use of the term, by John McCarthy at a workshop at Dartmouth in 1956 from which grew logic theory and general problem solving methods, and expert systems and inference engines to classify, monitor, schedule, design, etc. Yet the most currently interesting forms of AI, and what we now conventionally mean by the term, came not from this symbolic lineage but from a connectionist lineage; this is the argument of Matteo Pasquinelli, a philosopher of science at Ca' Foscari University, Venice.[14] The connectionist lineage developed not through rational and mathematical manipulation of symbols and logic, but through work on artificial neural networks and pattern recognition. Work in the 1940s by Warren McCulloch and Walter Pitts established the possibility that a device of some sort might "classify information according to useful common characters"[15] by doing something quite different from computing through logical rules and systems of expert data. Basically, a device might sort things, and gather together those that

[14] See Matteo Pasquinelli, "Labour, Energy, and Information as Historical Configurations: Notes for a Political Metrology of the Anthropocene", *Journal of Interdisciplinary History of Ideas* 11/22 (2022): 13:1-13:31; and Matteo Pasquinelli, *The Eye of the Master: A Social History of Artificial Intelligence* (London, New York: Verso, 2023); see also Herbert Dreyfus and Stuart Dreyfus, "Making a Mind versus Modeling the Brain: Artificial Intelligence Back at a Branchpoint," *Daedalus* 117/1 (1988): 15-43.

[15] Quoted in Pasqinelli, *The Eye of the Master*, taken from Warren McCulloch and Walter Pitts, "How We Know Universals: The Perception of Auditory and Visual Forms," *Bulletin of Mathematical Biophysics* 9/13 (1947): 127-47, 127.

shared certain characteristics. This connectionist heritage, of sorting, classification, and pattern recognition, was construed until recent decades as in opposition to the logical rules-heavy tradition of what was until recently called artificial intelligence. This heritage built not from a workshop at Dartmouth but through work sponsored by the Office of Naval Research, most especially through psychologist Frank Rosenblatt's development for the ONR of an early neural network called the Perceptron.

The link Pasquinelli makes and that I will describe here, between the connectionist lineage of AI and the use of surveillance in the management and division of labor, suggests an affinity with the mechanical understandings of efficiency that informed the twentieth century, the affinities I am suggesting actually give a post-efficiency character to our current climate. Let me say something about the connections as other scholars see them, buy looking at Charles Babbage's eighteenth-century work on mechanical computing machines. Babbage's mechanical work was in part an effort to save the labor expended in the tedious production of tide tables for the British Admiralty. Tide tables filled large folio-sized volumes, each page containing hundreds and even thousands of calculations used by ship's navigators. In his time, though, Babbage's computing machinery experiment was considered a farce, and his failure to build a second working engine while using parliamentary funds engendered the cutting witticism that "it will not slice a pineapple".[16] Babbage's computational work was neither cited nor known by early workers in the trajectory of what have become the computing professions today. Babbage was more known for a treatise on manufacturing, which included a section on the importance of the division of labor and the need for specialized tools to support such a division. He wrote of the

[16] Doron Swade, "'It will not slice a pineapple': Charles Babbage and the First Computer", *IEEE Review* 37/6 (1991): 217-222.

need for specialized methods of cutting metals, for example, including not only dedicated tools but also skill in the speed with which they were used.[17] Babbage did not use the term "efficiency" nor did he do calculations that suggest such conceptualization; his discussion of metals cutting nonetheless seems to presage the work of Frederick Winslow Taylor a century later, who built a widely known system of efficiency and scientific management following success in experiments in metals cutting.

AI and brute force

AI's connection to computing and division of labor is more strongly made in the confluence of statistical techniques and machine learning in the 1950s – in a way that reinforces the sense of AI as a master of surveillance but not in a way that reinforces the mechanical understanding of efficiency. It thus leaves open the possibility of a post-efficiency AI landscape. Efficiency in its mechanical sense is elegant, precise; it requires intimate surveillance, true, but it is more scalpel than bludgeon. Generative AI has a brute character, in its creation and re-employment of statistics out of masses of data. Statistics are not what generative AI is generally expected to produce; it is expected to use its own statistical interpretation of data to provide another level of service or response. Rosenblatt's work demonstrates the connection to labor; working on his doctorate in psychology, he employed a form of factor analysis (of answers to cognitive questionnaires) whose matrices looked "identical to the numerical matrices of digital images", and perhaps informed his conception of the Perceptron. Psychometrics helped to create the "statistical mentality" of AI and enabled it to automate "the labour of *perception*, or

[17] Charles Babbage, *On the Economy of Machinery and Manufactures* (Cambridge: Cambridge University Press, 1832, digital 2009), 136.

supervision."[18] As Pasquinelli points out, visual media have long been used in the surveillance of labor; Frank Gilbreth's photographs of working people are a well-known example (Ellul use Gilbreth's work as an example of human technique). What AI, in its connectionist lineage, has come to do is supervise, to take over the tasks of surveillance of labor, workspace, and time use. But it is not an elegant calculus of outputs and inputs. It is instead "just a technique of mathematical optimisation. This is still a case of brute-force approximation, the logic of which has become even more 'brute' in large models featuring trillions of parameters."[19]

The brute-force character of AI as we now know it underlies the second way in which it suggests a post-efficiency landscape. Technical efficiency, as it developed in the twentieth century, focused on the conservation of resources, i.e. inputs. In contrast, generative AI aims at one sort of conservation only: of time. This may take the form of replacing touch, in terms of keystrokes or button-pushing, or of replacing "eyes-on", or of someone looking at or visually registering something. Replacing these behaviors requires multiple iterations of information retrieval, classification, statistical manipulation, and statistical deployment, before an AI generates a response. This all goes at an unfathomable speed, and the task often appears effortless, and thus efficient. But the cost is great. May I turn to headlines again? *CNBC* reported last week that Google's energy consumption, and carbon emissions, surged more than fifty percent above 2019 levels because of "rapid advancements in and demand for AI". "The impact of AI on elecricity demand is well documented. Electricity demand is forecast to grow as much as 20% by 2030, with AI data centers alone expected to add 323 terawatt hours of electricity

[18] Pasquinelli, *The Eye of the Master*, 224, 227, 233; italics in original.
[19] Pasquinelli, *The Eye of the Master*, 215.

demand in the U.S."[20] There is this headline from *The Guardian*: "Can the climate survive the insatiable energy demands of the AI arms race? New computing infrastructure means big tech is likely to miss emissions targets but they can't afford to get left behind in a winner takes all market." Microsoft, the "biggest financial backer of ChatGPT developer OpenAI" admitted that because of AI it will likely miss its 2030 net zero "moonshot"; the *Casper Star Tribune* reports that Bill Gates has founded a nuclear power company, TerraPower, which recent broke ground for a nuclear facility outside of Kemmerer, Wyoming. *The Guardian* compares expected AI electricity use in 2026 to equal the energy demand of Japan (1,000 TWh, terawatt hours). Then there is water, needed to cool data-centers; again, from *The Guardian*: "AI could account for up to 6.6 bn cubic metres of water use by 2027 – nearly two-thirds of England's annual consumption."[21]

These are headlines. Kate Crawford has, in the widely-cited and well-reviewed study The *Atlas of AI*, turned a scholar's eye on the hidden forces behind AI and substantiates Pasquinelli's point about its brute force character.[22] Crawford analyzed "the rate", a productivity rate set by Amazon managers for warehouse fulfillment workers, and observed how it proved largely impossible to meet. She quotes Tung Hui Hu, who wrote "[t]he cloud is a resources extractive technology that converts water and electricity into computational power leaving a sizable amount

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[20] https://www.cnbc.com/2024/07/02/googles-carbon-emissions-surge-nearly-50percent-due-to-ai-energy-demand.html

[21] https://www.theguardian.com/business/article/2024/jul/04/can-the-climate-survive-the-insatiable-energy-demands-of-the-ai-arms-race; https://billingsgazette.com/news/state-regional/government-politics/bill-gates-led-nuclear-energy-project-breaks-ground-in-southwest-wyoming/article_beb85ba1-2825-54ff-a8eb-3e40ee7bc682.html; https://trib.com/news/state-regional/business/nuclear-energy-project-breaks-ground-in-kemmerer/article_5bcdd02e-2819-11ef-a507-e3c0541f6835.html.

[22] Kate Crawford, *The Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence* (New Yaven: Yale University Press, 2021).

of damage that it then displaces from sight."[23] Crawford analyzed the opening and operations of National Security Agency's data center in Bluffdale, Utah, one of the largest data centers in the U.S., and the struggle over water usage in the largely desert state.

[more here]

That this can be contemplated at all is evidence of an "enormity of means", as Ellul called it in *Présence*, although he referred to a more prosaic sort of waste: "Immense force will be put into service so that one person can save a few seconds, while full days will be lost to the unemployed and to those waiting in queues at government offices. Both are products of the enormity of our means."[24]

There is, then, a real sense in which AI can be characterized as a post-efficient technology. There are reports of its efficiency – for example in the report from the supply chain company in Minneapolis mentioned above -- but such reports focus on the task level, and not on the firm-level or anything more general.[25] Perhaps at the task level, of keystrokes or time saved, efficiencies are demonstrated and AI thus fits within the twentieth-century model of efficiency. The question is whether it is sufficient to assess efficiency on this, the task level, and whether such an assessment would have been sufficient for Ellul.

Post-efficiency efficiency: Dynamic efficiency of power

The answer is a resounding "No".

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[23] Tung Hui Hu, *A Preshistory of the Cloud* (Cambridge, Mass.: MIT Press, 2015), 146.
[24] Ellul, *Presence in the Modern World*, 44.
[25] Ben Waber and Nathanael J. Fast, "Is GenAI's impact on productivity overblown?", Harvard Business Review, January 8, 2024; https://hbr.org/2024/01/is-genais-impact-on-productivity-overblown. See also David Berraey, "Chat GPT Helps, and Worries, Business Consultants, Study Finds", *New York Times,* December 28, 2023, https://www.nytimes.com/2023/12/28/science/chatgpt-business-consultants.html.

Ellul's *Technological Society* may be taken as an analysis of efficiency *in toto*.

The *Technological Society* is not, in its largest significance, a critique of the numerical calculation of the efficiency of tasks. It is much larger.

Thus Ellul's "Note to the Reader" from 1963:

> "The term *technique*, as I use it, does not mean machines, technology, or this or that procedure for attaining an end. In our technological society, *technique* is the *totality of methods rationally arrived at and having absolute efficiency* (for a given stage of development) in *every* field of human activity" [italics in original].[26]

And the earliest pages of the first chapter:

> "It must be emphasized that, at present, technique is applied outside industrial life. The growth of its power today has no relation to the growing use of the machine. The balance seems rather to have shifted to the other side. It is the machine which is now entirely dependent upon technique, and the machine represents only a small part of technique. If we were to characterize the relations between technique and the machine today, we could say not only that the machine is the result of a certain technique, but also that its social and economic applications are made possible by other technical advances. The machine is not now even the most important aspect of technique (though it is perhaps the most spectacular); technique has taken over all of man's activities, not just his productive activity."[27]

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[26] *Technological Society*, xxv.

[27] *Technological Society*, 4.

One page further:

> "Technique integrates the machine into society. It constructs the kind of world the machine needs and introduces order where the incoherent banging of machinery heaped up ruins. It clarifies, arranges, and rationalizes; it does in the domain of the abstract what the machine did in the domain of labor. It is efficient and brings efficiency to everything."[28]

What artificial intelligence may do, in an post-efficiency era, is free critics to use Ellul's larger and more radical critique of efficiency without bounds, of a dynamic efficiency unconstrained by measurements of resources and oriented toward not human comfort, but power.[29]

Such a critique will help scholars and critics go beyond commenting on or elaborating Ellul's work; this is the danger Carl Mitcham saw some years ago.[30] Remaining, after account is taken for the mechanical sort of efficiency that does not pertain in AI tasks, i.e., efficiency marked by an elegant apportioning of resources to product, or inputs to outputs is perhaps the most significant type of efficiency developed during the twentieth century: the efficiency of power, or the efficiency of growth. Wha-Chul Son finds that Ellul did not elaborate the concept of efficiency – Son calls it the "efficiency principle" – but I disagree. Again, I conclude that Ellul's *Technological Society* may be taken as an analysis of efficiency *in toto*.[31] And as such it

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[28] *Technological Society*, 5.

[29] *Technological Society*, 421.

[30] Carl Mitcham, "How *The Technological Society* Became More Important," in Helena M. Jerónimo et al, eds., *Jacques Ellul and the Technological Society in the 21st Century* (Dordrecht: Springer Verlag, 2013): 17-34, 32.

[31] Ellul most often used the term "*efficacité*", which also carries the meaning of effectiveness, in addition to the calculating measure of efficiency (*La Technique ou l'enjou du siècle* (Economica, 2021), . At times he used the English term "efficiency" even while writing in French, for example in *Présence*, as noted above. *"Rendement*" may also be translated as the English

critiques not simply the mechanical and mathematically- and calculation-oriented sort of efficiency, but also the sorts of efficiency that are unbounded by calculations. These are the grandest scales of efficiency, where the rewards of profits and power are enormous. These are efficiencies at scales that dwarf the task-oriented efficiency with which we are most familiar. The term "national efficiency", in which early twentieth-century concepts of eugenics were discussed, should give an indication of the scope of these incalculable efficiencies. By incalculable I do not mean something that cannot be calculated; I mean something that exceeds the balance of inputs and outputs that governs task-efficiency measurements. One of the keys to task efficiency measures was the use of the same units to figure both inputs and outputs – this allowed the units of measurement to cancel each other and yield simple percentages as a result. Left is a bare number, glorified with the term "efficiency". This is an efficiency of balance, of trying to bring into agreement, in practice, the amounts of something used up and the amounts of something returned, as a ratio or fractional percentage. It is also a balanced efficiency, an efficiency of conservation, in trying to get the most out of a given quantity of input. It is, in an important sense, a static efficiency.[32]

Broader efficiencies are not efficiencies of balance and conservation. They are, instead, dynamic efficiencies of growth. The constraints implied in calculations do not bind dynamic efficiencies. The eugenics term "national efficiency" again helps illustrate this. Although the number of healthy potential army recruits could indeed be counted, and thus measured, the crises

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"efficiency", but it more properly means yield and again does not imply the calculation as does the English term; Wilkinson translated it as yield. "*Perfectionnement*" was frequently used to describe calculations of effect, and so is quite close to the English "efficiency", and Ellul used it to describe weapons technologies that appeared to him to have reached perfection in destructiveness, and so are not considered in terms of productivity (*Technological Society*, 16; *La Technique*, 14).

[32] Alexander, *Mantra of Efficiency*, 11-14.

of national efficiency were not discussed in mere numbers. The numbers of unfit army recruits were used to alarm, for example at the turn of the twentieth century when Britain was raising an army for the Boer War. They were not used as a baseline against which to measure British national power. Yet the outcome sought was British national power – potency – as measured in potential military success. Military success was not offered as a measure of efficiency, or as a calculation, but rather as a vision, an aspiration, invaluable because valued without numbers.[33]

Dynamic efficiency is allied with visions of the way the world should be, for example the vision that Britain should be world-powerful, and with methods to bring such visions about. Such visions need not adhere in individual people nor do people need to state them explicitly, although they may. Ellul expressed this larger idea in his concepts of technological autonomy and technological self-augmentation, both prominent features of *The Technological Society*.

Human techniques as illustrative of dynamic efficiency

An example of the dynamic efficiency of AI, in other words an example of the power it generates, becomes apparent if we turn to Ellul's discussion of human techniques. Chief among these is propaganda, which he analyzed at length in another book than *Technological Society*, and which he saw as used to decrease the friction of disagreement that might be caused by technical developments. In *The Technological Society* his arguments about human techniques move out to the widest view, the widest possible lens, and there expose a larger vision of the goal of a technological society: human beings human beings "smoothed out, like a pair of pants under

[33] Linda Simpson, "Imperialism, National Efficiency and Education, 1900-1905", *Journal of Educational Administration and History*, 16/1 (1984): 28-36; G.R. Searle, "The Politics of National Efficiency and of War, 1900-1918, in Chris Wigley, ed., *A Companion to Twentieth-Century Britain* (London: Blackwell, 2003), 56-71.

a steam iron." The purpose? To remove human friction, or, in biological terms, to "'immunize' the environment against any possible virus of disagreement", to remove spontaneity and personal gestures.[34] The key: to render people adaptable, to remove impediments to its own power.[35]

> [depending on how the time is going, perhaps a couple of concrete examples of human techniques, from German efforts to increase the efficiency of seated workers, water-engineering and turbulence, and/or the efficiency of American antebellum slavery; this would be extemporaneous and based on *Mantra.* The discussion of the efficiency of slavery would include mention of Ellul's observation, referring to the work of Tibor Mende, that "in accordance with the criteria of yield and efficiency (the sole justified criteria of any planning), the most authoritarian methods are the most profitable." Mende had observed that communal agricultural projects failed because their planning was "not comprehensive and authoritarian", in comparison with Chinese practice.[36]]

Efficiency in the masking of non-human as human

One of Ellul's most striking observations regarding human techniques is that what techniques reveal as human is neither the man in the mirror nor the man next door, nor the man down the street. Instead, "technique analyzes its objects so that it can reconstitute them; in the case of man, [here is the striking part] it has analyzed him and synthesized a hitherto unknown being."[37] For a final example of the post-efficiency efficiency of AI, we examine the mask that hides such a hitherto unknown being, behind the interface through which people interact with

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[34] *The Technological Society*, 411, 410, 399.
[35] *The Technological Society*, 348.
[36] *The Technological Society*, fn 1 p 179.
[37] *The Technological Society*, 387-8.

large language model generative artificial intelligences, such as ChatGPT. The reason for the mask? To make it appear more human. Making a communicative device appear more human makes it more likely to be used and thus grants it greater power. The efficiency at issue: removing impediments and objections to the use and spread of techniques that generate unfathomable fortunes and enormous power.

Efficiency and mimicry in large language models[38]

A stochastic parrot is how Emily Bender, Timnit Gebru, Angelina McMillan-Major and Shmargaret Shmitchell characterized a language model in an influential paper: it is "a system for haphazardly stitching together sequences of linguistic forms it has observed in its vast training data, according to probabilistic information about how they combine, but without any reference to meaning".[39] A large language model like ChatGPT is "a mathematical system that is trained to predict the next string of characters, words, or sentences in a sequence."[40] To Bender and co-authors this is stochastic: statistically analyzable, but only randomly predictive or meaningful; and a parrot: a bird that mimics human speech without thinking or understanding.

But it is not a parrot that answers a query to ChatGPT. It is a mask that makes the technique appear more familiar and lessens opposition. It is in fact a hitherto unknown being. It takes advantage of generations of work with machines and techniques that have made people

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[38] This section is adapted from "Mask of Sanity: Manipulation and Psychopathy at the Human-Computer Interface", forthcoming in Con Diaz and Jeffrey Yost, eds., *Just Code* (MIT Press, expected 2024).

[39] Emily M. Bender, Timnit Gebru, Angelina McMillan-Major, Shmargaret Shmitchell, "On the Dangers of Stochastic Parrots: Can Language Models Be too Big?" *Proceedings of the Fairness, Accountability, and Transparency Conference 2021*, Association for Computing Machinery (March 2021): 610-623, 617, 619.

[40] Ben Tarnoff, "Weizenbaum's nightmares: how the inventor of the first chatbot turned against AI," *The Guardian*, July 25, 2023.

comfortable with them. By now it has been robustly established that people are willing to be seduced by machines, to "tumble, effortlessly and affectingly, into introjective relations with computers right from the very beginning," as Elizabeth Wilson described it. In an introjective relation – the term is Sánder Ferenczi's – one brings an object inside, welcomes it and makes it at home.[41] People's "vulnerability to deception" is well established, as is their tendency to anthropomorphize their tools and machines, and to persuade themselves that their devices understand and care for them.[42]

What Ellul called the human techniques are on vivid display in large language models. They illustrate tricks of the trade, a certain kind of gamesmanship, designed to bring people into steady interaction with them, and they illustrate the underlying philosophy of human deconstruction and reconstruction, in their dissociation of language from emotion.

It is common to describe large language models and chat programs as masks and sites of play-acting. ChatGPT is called a "weapon of mass deception", described as a site of neither truth nor falsehood but only of "the appearance of being true or real".[43] Analysts of InstructGPT describe the chatbot adopting and discarding "masks" and as a "big black box" that gives no clues to its own workings or beliefs.[44] To "simulate" is another term for masking and play-acting; analysts specify that artificial intelligence "simulate[s]" intention, intelligence, and even

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[41] Wilson, *Affect and Artificial Intelligence*, 95-96, 93.
[42] Natale, *Deceitful Media*: *Artificial Intelligence and Social Life After the Turing* Test (New York: Oxford University Press, 2021), 132; Sherry Turkle, *The Second Self: Computers and the Human Spirit* (Cambridge, MA: MIT Press, 2004).
[43] Alejo José Sison et al, "ChatGPT: More than a 'Weapon of Mass Deception': Ethical Challenges and Responses from the Human-Centered Artificial Intelligence (HCAI) Perspective," *International Journal of Human-Computer Interaction* (2023) 1-20, 3, 13; https//doi.org/10.1080/10447318.2023.2225931 accessed 15 Oct. 2023.
[44] Liam Magee, Vanicka Arora, and Luke Munn, "Structured Like a Language Model: Analysing AI as an Automated Subject," *arXiv.*2212.05058v1 8 Dec. 2022, 9, 7.

emotions.[45] Meta data scientist Colin Fraser commented that the language model ChatGPT is "designed to trick you, to make you think you're talking to someone who's not actually there."[46]

Theater provides a metaphor for chatbots. According to Joseph Weizenbaum, creator of ELIZA, the most famous forerunner of current chatbots, an "unmasked" computational structure in which people could see its workings would lose the illusion – or "glamour", as Caroline Bassett put it -- of power and authority. ELIZA owed her name to theater; the program was named after the "gutter-snipe" Eliza Doolittle, who, in Shaw's play *Pygmalion*, created the illusion of upper-class status in the way she spoke. ELIZA was designed to simulate a psychiatric interview – or to "parody" it, as Weizenbaum later said.[47] ELIZA was "a programmer's semantic trick",[48] he wrote, designed to reply to key words from a human interlocutor, often by mirroring what the person said and posing questions about it. Here we see technique, in the Ellulian sense: such mirroring and reiteration helped a person develop a "sense of being heard and understood" by an entity that in fact had little knowledge, and needed little knowledge, of the world to which the person referred. ELIZA thus created an "illusion of understanding."[49] ELIZA was surprisingly successful; in what is called the "ELIZA effect" people came to think a machine cared for them, and to attribute to it human feelings of empathy and compassion. The description

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[45] Simone Natale, *Deceitful Media*, 132.
[46] Ben Tarnoff, "Weizenbaum's nightmares: how the inventor of the first chatbot turned against AI," *The Guardian*, July 25, 2023.
[47] Joseph Weizenbaum, *Computer Power and Human Reason: From Judgment to Calculation* (San Francisco: W.H. Freeman and Company, 1976), 3.
[48] Quoted in Nathan Rheingold, *Tools for Thought* (Cambridge, MA: MIT Press, 2000), 153.
[49] Joseph Weizenbaum, "ELIZA – A Computer Program For the Study of Natural Language Communication Between Man and Machine," *Communications of the ACM* 9 (1) (January, 1966): 36-45, 42, 43.

of artificial intelligence and chatbots as theater has extended far beyond Weizenbaum, and has become common among developers and observers.[50]

Large language models have made a virtue of dissociating computation structures from people's emotions and bodily experiences. This is the taking apart of people's ways of being so that they can be reconstructed in new configurations. Blaise Agüera y Arcas, a vice president and fellow of Google Research put it succinctly: "Large language models illustrate for the first time the way language understanding and intelligence can be dissociated from all the embodied and emotional characteristics we share with each other".[51] The models handle language statistically and behaviorally, and not as a vehicle for emotional meaning. A key assumption in removing emotions from the handling of language has been that the consciousness of emotions or experience matters little in predicting or influencing behavior.[52] The conclusion is that all you see is all there is. Xiaochang Li analyzed a similar case of dissociation in speech recognition research, when IBM's speech recognition group turned to statistics and pattern recognition at large scale in the 1970s, leaving behind attempts to understand human language as a reflection of human meaning and reason. Li argues that the shift marked a transition from treating speech as recognizable human communication to speech treated as classifiable sounds. John Pierce, of Bell Lab's Communication Science Research Division, objected to this move in the field, and his own language describes the dissociation. He argued that recognizing human speech as meaningful

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[50] Simone Natale, "If software is narrative: Joseph Weizenbaum, artificial intelligence and the biographies of ELIZA," *New Media and Society* 21(3) (2018): 712-728; Simone Natale, *Deceitful Media: Artificial Intelligence and Social Life After the Turing* Test (New York: Oxford University Press, 2021), 55.
[51] Blaise Agüera y Arcas, "Do Large Language Models Understand Us?" *Daedalus* 151 (Spring 2022): 183-197, 194; the phrase continues "and with many other animals."
[52] Kate Crawford, *Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence* (New Haven: Yale University Press, 2021), 157.

required “an intelligence and a knowledge of language comparable to those of a native speaker of English”; in contrast, the severing of meaning and sound resulted in at most a “studied and artful deceit.”[53]

Such dissociation is apparent in the way large language models are trained. Emily Bender, Timnit Gebru, and co-authors examined this in their seminal stochastic parrot paper. “Text generated by an LM [language model] is not grounded in communicative intent, any model of the world, or any model of the reader’s state of mind”, they wrote. ”It can’t have been, because the training data never included sharing thoughts with a listener, nor does the machine have the ability to do that.” Scraping the billions of pages of data from the Common Crawl repository, upon which ChatGPT trained, was not an attempt to create shared communications with users or to develop a shared understanding of intentions and beliefs, nor was it an attempt to establish common contexts of interpretation. The method was contrary to the way meaningful human communications are established. “Even when we don’t know the person who generated the language we are interpreting [when reading, for example], we build a partial model of who they are and what common ground we think they share with us, and use this in interpreting their words.”[54] Its dissociation from the experienced, embodied world further underscores the masked character of the machine-interlocutor. Liam Magee and colleagues, in an analysis of interviews with InstructGPT, noted that it lacked connection to anything outside – “any world, body, motor-sensory instruments – against which it could test its claims.” This was symptomatic of psychosis, they concluded, and it marked the model’s failure to inhabit a shared human world.[55] The

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[53] Xiaochang Li, “’There’s no data like more data’: Automatic Speech Recognition and the Making of Algorithmic Culture”, *Osiris* 38 (2023): 165-182, 165, 171-172.
[54] Bender et al, 616.
[55] Liam Magee, Vanicka Arora, and Luke Munn, “Structured Like a Language Model: Analysing AI as an Automated Subject,” *arXiv.*2212.05058v1 8 Dec. 2022, 16, 17.

dissociation appeared in a casual observation of Yunn LeCun, Yoshua Benigo, and Geoffrey Hinton, that the growing importance of unsupervised machine was justified because, after all, people learn the world by observing and not by being told about "every object".[56] A truism, yes, but it reveals the expectation that the most important learning comes not through cognitive work and the sharing of emotionally meaningful language, but from operations independent of emotional and cognitive human interaction. The truism reveals the technique.

Conclusion

In the large language model example, the efficiency connection can only be seen at the largest scale. This is the scale at which fortunes are made, and at which individual people acquire means that make them more powerful than governments, able even to leave the earth under their own power. Ellul has often been described as pessimistic and his pessimism linked what he saw of the war and of the war's weapons, of the power of technique he saw in the 1940s. We are far from the 1940s, and people in the United States even then did not see weapons and their power up close. But we here can see these techniques, and a post-efficiency analysis of Ellulian efficiency focuses attention on the grandest scale, where efficiency is not calculated but is recognized in the accumulation of power.

[56] Yann LeCun, Yoshua Benigo, and Geoffrey Hinton, "Deep Learning," *Nature* 521 (28 May 2015): 436-444, 432.