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Liberal democracy has been the paradigmatic political system of the Western world for approximately 200 years. It grew from humble origins as a post-industrial revolution political philosophy into a force that would withstand totalitarian empires and irrevocably shape the modern world. Yet as a political system, liberal democracy is dependent upon certain institutional subsystems, and the validity of certain assumptions, without which its success cannot be guaranteed. The present AI revolution challenges the very ontology of liberal democracy in numerous ways, some of which are severe enough to warrant regulatory attention. In this article, two such challenges are discussed, and prospective countermeasures are provided.

The AI Revolution

On March 21 2023, Bill Gates took to his blog to announce that the world, as we know it, has changed. His six-word title is an affirmation of something that has been awaited, predicted, and feared for the better part of a century: that at last, "The Age of AI" had begun.[1]

Gates was careful in his choice of both words and timing. His conclusion was only announced after months of turbulence resulting from the emergence and explosive proliferation of generative AI models (or *GAIMs*[2]) late last year. Most of these were free, or open-access; and some were even open-source, allowing them to be duplicated and repurposed toward whatever end an astute programmer might pursue. Gates did not rush to judgment, but rather watched and waited as these "revolutionary" (*his own words*) technologies slammed into the global internet and the worldwide economy. His conclusion would have taken into account information that most of us will never be party to, but against the broader picture of a global technological change poised to affect every aspect of life and society, that hardly seems to matter. Fundamentally, the facts of the matter are both clear and simple: AI is out of the box, and Pandora cannot put it back whence it came.

Why the AI Revolution will matter for Liberal Democracies

Virtually all entrepreneurs, computer scientists, and philosophers in AI research fields concur that AI technology is, or will be revolutionary. Despite this, only a small proportion of these have followed Gates in affirming that this revolution has in fact arrived.[3] The cautiousness and reticence that predominates outside of a smaller core of outspoken figures (e.g. Gates, Elon Musk, Nick Bostrom, and others) reflects the anticipated challenge of coming to terms with the disruptive impacts that will accompany the adoption of AI at scale.[4] Acknowledging the arrival of this AI revolution is easy, but formulating responses to it at any level is exceptionally hard.

Revolution, as a term, has been defined in various ways at different times and by different thinkers. Interestingly, there is substantial compatibility and overlap between these definitions - that of Marx vs that of Kuhn, that of Schumpeter vs that of Turchin, etc.[5] Fundamentally, a revolution is a relatively short period of dramatic change and overhaul, marking the point of transition between one modality (what Kuhn and Turchin would call a paradigm, or what Schumpeter and Marx would call a mode of production) into another one. Revolutions are not inherently good, nor are they bad, but they necessarily accompany what Schumpeter refers to as "creative destruction,"[6] meaning massive upheaval and disruption in one or more domains (i.e. society, the economy, the state, and so-on). This chaotic environment, according to Schumpeter, brings forth the creativity needed to reorganize the system into a new, functioning paradigm.

In the Western world today, the predominant system (or paradigm) for political and socioeconomic organization is liberal democracy. Throughout its approximately 200-year-old history, this system has adapted to a succession of social and technological changes, some of which were also revolutionary in nature. Yet at the same time, liberal democracy was and remains a system fundamentally rooted in the post-Industrial Revolution Western world, which could neither anticipate nor prepare for a world shaped by AI. If the pillars of liberal democracy can maintain against the disruptive influence of AI, then the system itself could survive the century. If the pillars of liberal democracy collapse, then it is unlikely to persist in any recognizable sense. In this research paper, I will discuss two key pillars of liberal democracy that are threatened by the challenges of the AI age.

Liberal Democracy: its pillars, and its challenges

The present-day systems of liberal democratic governance can be directly traced back to the first stage of the Industrial Revolution, beginning in the late 18th century, and concluding in the early 19th century. Liberal democracy is characterized by an expanded (or universal) suffrage, by open societies where individual rights are paramount, and by governments that rule by the consent of the governed. The core principles of liberal democracy - including the illegitimacy of immutable distinctions within society by race, caste, or class, and the construction of political legitimacy via the consent of the governed, obtained through the democratic vote - are largely unchanged since their inception two centuries prior.[7]

The impressive adaptability of liberal democracy to technological progress and the passage of time notwithstanding, it is clear that the AI revolution poses many challenges to this system, some of which are entirely new and potentially severe. This list will describe two core axioms of liberal democracy, and the challenges these axioms may face in a revolutionary AI age.

Pillar 1: The "Rational Voter": socio-technological literacy

During the early 19th century, Western societies saw rates of urbanization skyrocket to unprecedented heights. This socioeconomic shift was spurred on by industrialization, which created a new demand for labor in the burgeoning factories, most of which were located in a few key cities with a substantial minority population of political and economic elites (London, Belgium, Rotterdam etc.). The mass migration of rural workers, who belonged to the peasant class, into the cities brought them into close proximity with the institutions within which political power was centralized, and the social classes who exercised this power. The industrial *polis* endowed its freshly-arrived migrant workers with a newfound political consciousness, influencing laws like the UK Reform Act of 1832, when non-landowning tenants could vote for the first time.[8]

Another consequence of these trends was the spike in population of urban centers, fueled by illiterate factory workers of rural migrant origin.[9] In the UK, just one year after the Reform Act, Parliament voted to financially support the construction of schools for poor children for the first time in English history. This provided literacy and education to the

booming population of city-dwelling factory workers of rural origin, thereby further strengthening the capabilities of non-elite British citizens to engage with and participate in democratic politics.

The last, and arguably most important development in this vein was the advent of mass circulation in newspapers. With literacy and political awareness comes a demand for information, and this manifested in the explosive rise in profitability and popularity of newspapers in 19th-century liberal democracies. Graham Law states that at the beginning of the 19th century, Britain had barely 200 distinct titles in print in the entire country; by the end of the century, it had over 5,000, some of which had over a million copies in circulation per issue. This far exceeds what could be predicted by growth in population alone.[10]

These developments were necessary preconditions to the emergence of liberal democracy in the modern sense. Without political consciousness, mass literacy and public education, and an organized system for the circulation of political information, liberal democracy cannot have large electorates or presume that voters are capable of making rational choices electorally.

Problem 1: Socio-technological exclusion by obsolescence

One of the necessary conceits of liberal democracy is the concept of the rational voter. 'Rationality' is an extremely subjective term; things that are 'rational' in the view of one group (whether defined by culture, religion, or anything else) are typically not rational from the viewpoint of others. This fact alone can be, and is indeed denied by virtually all political systems, but what cannot be denied is the fact that being literate in one's own politics and society is now considerably more demanding - and cognitively challenging - than it was in the time when liberal democracy crystallized as a fixed political system.

In the age of newspapers, the proportion of people who would have been unable to read, converse, or comprehend politics to the degree needed for a meaningful vote on a ballot paper, was unprecedentedly low. Whether on account of genetic disease, injury, or cognitive deficiencies, those individuals who were not able to participate in the liberal democratic system did exist, and their existence was universally acknowledged by the societies of their day. The existence of this small minority was never considered a flaw or a contradiction in democracy itself, but rather a fact of life, as it were. Perhaps unfortunately, the rapid pace of technological progress through the 20th century, and continuing into the 21st, has made what was formerly a small minority into a much larger group. Increasing technological complexity over time has left an ever-growing proportion within democratic societies unable to keep up.

This is to some extent due to the inherent inequalities in cognitive ability, quantified in terms of IQ, within all societies, irrespective of group size, culture, or anything else. Theoretical physicist Stephen Hsu has documented the fact that ability in mathematics and physics is subject to quantifiable cutoffs, or "non-linear psychometric thresholds," where those with an IQ below the cutoff line are simply incapable of participating at the

graduate level, while those above the IQ cutoff can enter the playing field and either fail or succeed on their own terms.[11] This may be representative of more general features of cognitive inequality,[12] which is already so serious a problem in certain jurisdictions that entire US states[13] have abolished the requirement for highschool students to demonstrate that they can read, write, or perform basic mathematics in order to graduate.[14]

Tracking the sub-population within democratic societies who are simply "cognitively ineligible" of participation is not easy, as this group is not tracked in any official statistics, and the standards for competence are frequently manipulated to the extent of losing all meaning, as the previous example shows. Nevertheless, what has been made clear even before the advent of AI is that not everyone can simply "Learn to Code" as left-leaning U.S. journalists (somewhat cruelly) instructed jobless miners to do after mass layoffs in that country.[15]

Considering this, can we even begin to comprehend how few people in our societies today are really capable of using AI to the utmost of its potential? The historical examples of the personal computer and universal internet indicate that the impact of technology upon productivity is not additive, but rather *multiplicative*.[16] As the more cognitively and technologically competent use AI to make huge gains on their productivity and output, the rest of society - perhaps an absolute majority - could be left out on the huge wealth generation that AI is anticipated to bring. The fact that the most sophisticated of these tools are not accessible to the public, but are in the hands of specific technocratic elites that are associated with private companies like Google means that an ever-larger proportion of our population simply does not have the tools or the cognitive capabilities required to keep up with the gains that the elites are now making.

Pillar 2: Social Mobility and Meritocracy

19th-century democracy emphasized the right to private property, free enterprise, and free-association. These were instrumental to the higher goal of having a society where hard work, rather than clan-loyalties or family ties, would be the means by which individuals could freely move between different geographical localities and different rungs in the social hierarchy.[17] The rights of any individual, by law, to own what they owned, or to conduct the commercial activities they conducted, or to be with the people they wished to be with, were inseparable from liberal democracy at the time of its inception, as they are in the present day.

Collectively, these rights formed the bedrock of the pillars of economic freedom, meritocracy, and thus also social mobility, the end result of a system in which such rights were observed and maintained. Both legally and culturally, these rights were ardently defended. Large corporations with monopolistic practices were opposed by the populace and broken up by the state. Individuals who had failed in business (sometimes repeatedly) were viewed, either rightly or wrongly, as 'down on their luck' rather than irredeemably flawed or incompetent.

Social mobility itself was at once a possibility, and a promise. For the most part, it was out of reach for most citizens in liberal democracies, but the very possibility of one day attaining upper mobility became a powerful motivating force that animated capitalistic activity in democracies around the world. The promise of social mobility even for those individuals who could not live up to that promise was and remains very powerful as a unifying force in liberal democratic societies.

Problem 2: Techno-Oligarchy

Today, AI tools are universally available - anyone with an internet connection can consult ChatGPT to write rhythmic poetry, a perfect award acceptance speech, or beautiful code in any programming language in existence. Most observers would consider this a radical shift in technological accessibility toward the right direction, and they are not at all wrong to say so. Without most of them even realizing it, human beings around the entire planet who enjoy the privilege of internet connectivity may indeed receive profound boons (i.e. to productivity and creativity) from the newfound accessibility of these tools. But what if these absolute bonii belie relative deprivation? What if the common man has tools that are utterly inferior to those enjoyed by a small, unelected, technocratic elite?

We need not imagine such a world, as we are currently living in one. The most popular AI application in the world, ChatGPT, runs off of a language model called GPT-3. Its successor, GPT-4 (far, far more capable than its predecessor)[18], is already fully operational and effective, but has not been made accessible to the general public. Although OpenAI has repeatedly promised its investors that GPT-4 will be made available to the general public in the near future, the fact that it is currently being used by OpenAI employees and a select group of journalists, AI researchers, government regulators, and other individuals handpicked by the company itself is almost incomprehensible. If a select elite can enjoy unadulterated access to one of the most powerful wealth-generating technologies ever devised, while the populace at large subside on a second-rate alternative, how can democratic imperatives such as social mobility, or equality of opportunity, retain their coherence?

GPT-4 is the devil we know about; it is not the devil itself. There are doubtless many other tools unknown to the public that lie in the hands of governments or corporations; these too could likely be utilized to provide a profound advantage on the economic playing field to the few who can access them. What matters here is that we are entering a landscape in which the early adopter advantage is no longer a possibility for the expert, or for the hobbyist, or for the inventor; all these professions can be deputized to the latest AI, and those with access to said AI can reap the rewards to the detriment of healthy economic competition.

Social mobility requires conditions where technologies needed for economic activity and commerce are available to anyone with the competence and motivation to seek them out. In 2023, this is no longer feasible. The most talented pharmacist or individual entrepreneur who wants to embark on drug development cannot access the powerful AI tools now being used to develop and identify new drugs through incredibly mathematically powerful calculations. There will never again be another Alexander Fleming - the man who discovered penicillin - as all future medicines will be discovered by AI, leaving social mobility much harder even for the most qualified individuals in the pre-AI paradigm. The casualties of this state of affairs are obvious: individual citizens do not enjoy equality in access to wealth-generating technologies in a post-AI world, and social mobility as we know it is therefore no longer possible, at least in extent.

Countermeasures

It is important to recognize that AI, whether in the form of GAIMs or something more, has the potential to provide immense benefit to any society that can successfully harness it for the common good. If used wisely, AI could become a game-changing technology that brings prosperity to all. But such utopian outcomes are very far from guaranteed.

In March, a group of academics and scientists published an open letter,[19] calling for a 6-month moratorium on the research of advanced AI systems. As of now, it has been signed by more than 27,000 experts in fields related to artificial intelligence, including Elon Musk, Andrew Yang, Steve Wozniak, and Rachel Bronson, who is the president of the Bulletin of the Atomic Scientists (the organization behind the Doomsday Clock).[20] The letter states:

"Contemporary AI systems are now becoming human-competitive at general tasks, and we must ask ourselves: Should we let machines flood our information channels with propaganda and untruth? Should we automate away all the jobs, including the fulfilling ones? Should we develop nonhuman minds that might eventually outnumber, outsmart, obsolete and replace us? Should we risk loss of control of our civilization? Such decisions must not be delegated to unelected tech leaders. Powerful AI systems should be developed only once we are confident that their effects will be positive and their risks will be manageable." [sic]

The concerns raised here are legitimate, but without legal prohibitions and enforcement mechanisms, there is no way for any party to implement the proposed 6-month moratorium. At present, there are no intergovernmental bodies with the authority to oversee AI deployment, and no international guidelines on how to regulate private companies whose business is in AI development.

Although extreme, it is possible that a countermeasure to forestall the consequences assessed here could be found in the United Nations. A UN vote on the freeze of AI development by governments and/or by private companies could be the first step in such a process, perhaps followed by a forcible buyout of private companies like StabilityAI, OpenAI, and Google AI (currently owned by Alphabet Inc.). International bodies akin to the UN Security Council could be established to investigate AI practices that violate international law (much like the procedures used for suspected WMD violations), and to

sanction offenders by subjecting them to criminal trials in international courts. A new declaration of human rights could even be drafted by the international community, stipulating the rights of human beings in relation to AI technologies, and establishing firm restrictions on what AIs can be legally allowed to do to, or for, an individual person. The idea of a world in which the tremendous power of AI is managed by a body of competent and democratically appointed representatives is an optimistic one, and it is worth striving for. But even having achieved such a world, could we still preserve liberal democracy? More importantly, would we even want to?

Endnotes

[1] Bill Gates: "The Age of AI has begun," Gates Notes, March 21 2023, https://www.gatesnotes.com/The-Age-of-AI-Has-Begun.
[2] Wael Taji, 'Stable Diffusion and the Pitfalls of Innovation: How Our Creativity Might Kill Itself,' *Hungarian Conservative,* Vol. 2, No. 6 (2022), pp. 74-83
[3] To say that a revolution is coming, or is inevitable, is trivial insofar as change is a constant of human society and historical cycles, but this is distinct from the claim that change is indeed already here.
[4] Note that Bostrom predicted the emergence of a superintelligent AI in the first third of the 21st century as early as 1997: https://nickbostrom.com/superintelligence
[5] See Marx, Das Kapital, Schumpeter, Business Cycles, Turchin & Nefedov, Secular Cycles, Kuhn, The Structure of Scientific Revolutions.
[6] J. A. Schumpeter, *Business Cycles: A Theoretical, Historical and Statistical Analysis of the Capitalist Process*, abridged with an Introduction by R. Fels (Philadelphia: Porcupine Press, 1939).
[7] This is demonstrated by the fact that the U.S. Constitution, and its amendments in the Bill of Rights, continue to be read, interpreted, and legally applied by all three branches of the United States government today, with no modifications to the original text.
[8] A description of the UK reform act can be found on the British Parliament's website: https://www.parliament.uk/about/living-heritage/evolutionofparliament/houseofcommons/reformacts/overview/reformact1832/
[9] Mass urbanization is attested in census and taxation data from the United Kingdom; it began taking off in the late 18th century and, unlike the United States, continues today.
[10] Graham Law, The Routledge Handbook to Nineteenth-Century British Periodicals and Newspapers (Routledge, September 2016).
[11] Hsu & Schombert 2016, Nonlinear Psychometric Thresholds for Physics and Mathematics. Preprint, available at: https://arxiv.org/pdf/1011.0663.pdf
[12] Wael Taji, The Dangers of Ignoring Cognitive Inequality. Quillette 2018, available at: https://quillette.com/2018/08/25/the-dangers-of-ignoring-cognitive-inequality/
[13] Article referenced is Denver7 News: Oregon governor passes law that suspends math, reading proficiency requirements for HS graduates. Available at: https://www.denver7.com/news/national/oregon-governor-passes-law-that-suspends-math-reading-proficiency-requirements-for-hs-graduates
[14] This is paralleled by trends in higher educational institutions within the United States; the abolishing of GRE, LSAT, and MCAT testing requirements in an increasing number of universities and postgraduate institutions.
[15] US President Joe Biden suggested that coal miners in Appalachia could 'learn to code' after losing their jobs due to outsourcing and automation – a sentiment that was echoed by Vox and the New York Times among many other legacy media outlets in the country. This saga is described by Intelligencer here: https://nymag.com/intelligencer/2019/12/coding-jobs-wont-save-coal-country.html
[16] See also the effect of calculators, personal computers, and the iPhone on income inequality; theoretical research on this abounds but experimental analyses are difficult to obtain.
[17] See also the efforts by the Catholic Church to break up clan structures in Early Medieval Europe.
[18] There is no point in quoting one particular article or another in reference to the capabilities of GPT-4, as these articles are increasing in number at an exponential rate, as is the alarming nature of the claims made regarding its capabilities. To provide an example though, see this article by Mashable: https://mashable.com/article/gpt4-freaky-uses-versus-gpt3#:~:text=GPT%2D4%20is%20more%20accurate,images%20as%20well%20as%20text.

[19] Futureoflife.org, "Pause Giant AI Experiments: An Open Letter," available at: https://futureoflife.org/open-letter/pause-giant-ai-experiments/
[20] Other notable signatories are referenced in this New York Times article here: https://www.nytimes.com/2023/03/29/technology/ai-artificial-intelligence-musk-risks.html

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