Data Driven Democracy?
Automated Decision-making, Difference and Preferences*

[ Draft†]

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20200824

Abstract

The mass adoption of the Internet has produced a deluge of data, a phenomenon termed as the ‘new oil’ of the digital economy. When this data is combined with algorithms, it enables the creation of computer systems capable to take decisions depending on context. Initially used as ‘expert’ systems in controlled environments only, they are now starting to enter the public space in the form of devices such as self-driving cars or drones, but also increasingly as part of decision making systems with direct political effects. For example, public opinion can be influenced through the algorithmic selection of information shown in their news feed to match their preferences. This works similarly as online stores offering products based on prior purchases and search terms, but instead of affecting just purchase decision they can affect voting, therefore opening the possibility of electoral manipulation. Similarly, machine learning techniques are combined to produce ‘recidivism scores’ which are used by judges to assess their decisions. These technologies are increasingly seen as the source of destabilizing phenomena in contemporary democracies such as political polarisation, hate speech and the emergence of extremist and authoritarian regimes. In this paper, we evaluate the destabilization potential of algorithmic decision making looking at the normative foundations of the theory of democracy, focusing on the contributions of preference formation with an emphasis on diversity and inclusion.

Keywords: data-driven democracy, Artificial Intelligence, Franchise, decision processes

*Prepared for the panel "New Directions and Emerging Technologies" at the 2020 American Political Science Association (APSA) Annual Meeting, held August 29 - September 1 in Washington, DC (US).
†Draft, not ready to be quoted or forwarded. Your comments are more than welcome!
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1 Introduction

In 1955 Isaac Asimov published a short science fiction story entitled Franchise. In the story, set in the USA, a dystopian presidential election process is described. A single voter, selected by computers, can by himself elect the Presidential winner thanks to the assistance of the powerful Multivac computer. The story describes the transition from elections in which everybody exercised the right to vote (in liberal democracies), to a new system in which a single representative citizen, with the assistance of a computer, actually votes. The mystery of the election under one single voter is an anti-climatic process with two main actors, a citizen from Indiana, named Muller, and a special machine, Multivac. The machine already has most information but it needs to ask the protagonist a few questions about his attitude

and feelings to reach a final decision. One individual representing all, as the story concludes that the sovereign citizens of the first and greatest Electronic democracy had through Norman Muller exercised its free and untrammeled franchise (Asimov 1955:15). This is a highly distressing conclusion, since Muller does not formally cast his vote, or has the opportunity to express his opinions or values through the election. He is a passive agent that provides but a few among a myriad of inputs to a computer so that a decision can be reached. Asimov's future (2008 in the fiction), has already come into existence and so have some features of this imaginary data-driven democracy. Nevertheless, the current expectations about the role of Artificial Intelligence in democratic systems, and in particular, in decision making in democracies, are possibly too high. This fiction is the starting point for our discussion. In this paper we explore the compatibility of the principles of AI and democratic systems in decision making processes. The structure of the paper is as follows: First, we introduce the principles of democracy and democratic decision making under majority rule. Second, we define and describe the AI and its current state of the art. We conclude the discussion with a critical discussion on the role of current AI systems for decision making processes.
2 Democracies, voting and decision making process

Political Science has paid special attention to the definition and concept of political regimes. Since Aristotle presented his typology of virtuous and vicious regimes, constructed upon two criteria: who governs and how this government is exercised, one of the central pillars of academic work has been devoted to the definition of political structures, in particular the historical development of liberal (representative) democracies of the Western type.

Until the 1960s the literature commonly divided regimes as democracies and totalitarian states. In Problems of Democratic Transition and Consolidation Linz and Stepan (1996) elaborated pre-existing typologies, to further add two non democratic types within the context of the so called third wave of democratization (Huntington 1992). The expectation was that democracy became the dominant political regime in the world. Central to the principle of democratic systems is the idea that a majority rules and individual values and tastes are determinant to the construction of a social welfare function by aggregating individual choices (Arrow 1963:103). According to Arrow, in a capitalist democracy there are two methods by which social choices can be made: voting to make political decisions and the market mechanism to make economic decisions (Arrow 1963:1). Borda, Condorcet and Arrow, among others, have theorized on the methods to arrive 2 collective decision making and the problems and paradoxes from individual preferences to collective ones (Arrow 1963). Harari argues that political structures are increasingly defined as systems for data processing (Harari 2017:406). In his typology of political regimes, he asserts that the main difference between dictatorship and democracy is the centralized or distributed data processing systems, the latter performance more functioning (p.406). Harari joins Asimov in his future expectations about the basic erosion of democratic systems. As the conditions for data processing will change in the XXI century, democracy could decay and even disappear as volume and speed grow, institutions such as elections, political parties and parliaments would become obsoletes (Harari 2017:406). Hararis point is not based on ethics, rather on the efficiency of alternative methods. Technological revolutions have surpassed
political processes, both parliaments and voters lose political control. In Harari’s view, within the next decades more revolutions, similar to internet, will take place in which technology will win over politics. For Harari traditional democratic politics loses control over events as it cannot provide meaningful visions of society (Harari 2017:408). Thus, we face a situation of power vacuum in which cutting edge technology goes hand in hand with myopic politics. If traditional political structures cannot process data, he argues, then new political structures will appear out of evolution and without a resemblance of dictatorship and democracy. Asimov’s story puzzles us, eliciting a reflection on the shaky boundaries between dictatorship and democracy. Democracy is a political regime rule by the people through free and fair elections. The fundamental of democracy is popular sovereignty, the idea that people are the ultimate authority and the source of authority. Free elections are thus essential to democracy. Franchise is a right to vote in the election of public officials, not a computerized decision process based on of probing the average citizens attitudes and feelings, as in Asimov’s tale. Democracy since the French Revolution is associated with majority rule (and minority rights). Individual values are here taken as data and are not susceptible of being altered by the nature of the decision process itself (Arrow 1963:7). Arrow considers that the process by which society makes its choice is a value in itself (Arrow 1963: 89). According to Arrow, there are different mathematical forms of the social utility function in terms of individual utilities or their product or the product of their logarithms, or the sum of their product, taken two at a time (4). In the following section, we provide an overview of AI systems in order to provide a basis of discussion for their integration in political decision processes.

3 Discussion

Democracy needs to deal, by its nature, with conflicting choices. Even though AI systems can be used to assist us in the resolution of such conflicts, they cannot be used to avoid our responsibility, as members of a political community, in making such choices. While it is a fact
that AI systems are developed on the basis of sound mathematical theories, it in does not follow
that for this reason they are neutral, objective, or fair. The use of data in the design of such
systems does not necessarily make them more objective, or less susceptible to manipulation
and error. On the contrary, there is ample evidence that data-driven models can reproduce and
even amplify biases. The quest for fairness in machine learning is an open area of research,
one that highlights a severe limitation of current AI systems. More substantial difficulties are
encountered in the design systems that can deal with general reasoning problems (Strickland,
2019). Some researchers have called the attention of the AI community to the fact that a more
comprehensive approach is needed to address even commonsense reasoning (Davis & Marcus
2015). AI systems, at least at the current stage of development, can, and probably should be used
as support tools in the decision process in contemporary democracies. However, they cannot be
used to curtail or supplant the citizens involvement in the democratic process. In particular, they
should be explicitly avoided in providing shortcuts to voting processes. Given Searles (1980)
observation that a mere instantiation of a program in a computer cannot exhibit intentionality, it
is hard to envision a future in which an AI system can be used to fulfill the central role humans
play in the democratic decision process, unless, in Searles own words, these AI systems do
'duplicate the causal powers of the human brain.

In summary, conflict cannot be avoided or resolved through technology. As a political body
we need to assume the complexity of integrating the disparate goals of individual into collective
decisions. No simple solution can be applied, because the existence of this tension constitutes
the core of democracy.

4 References


