Algocracy:
Governance Through Algorithms

Paulo Nuno Vicente
http://orcid.org/0000-0002-1952-6016
Universidade Nova de Lisboa, Portugal

ABSTRACT

This article examines algocracy, a governance model where algorithms are central to decision-making. Stemming from the Greek concept of kratia (power), algocracy adapts this idea, using algorithms instead of humans to govern. By leveraging data analytics and machine learning, algocratic practices are based on algorithmic recommendations and decisions across various spheres of social life, including private companies and public services. It operates at local, national, and international levels. Key characteristics include data-driven decisions based on analysis rather than intuition; automation, which reduces human intervention; efficiency, as algorithms process information faster than humans; scalability, enabling management of extensive data across regions. This governance model promises increased efficiency and objectivity in administrative and labor functions. However, it also faces criticism for potentially favoring asymmetry of information and power in social relations, fostering social control, surveillance, and micromanagement.

INTRODUCTION

This chapter investigates the concept of algocracy, which is defined as a form of governance where algorithms play a central role in decision-making. In Ancient Greece, the exercise of power was termed *kratia*, from which the concept of government by the people, *demokratia* (democracy), is derived. The contemporary regime that incorporates algorithms in the exercise of power has come to be known as algocracy. Essentially, this means the administration or governance of power through algorithms. This governance model leverages data analytics and machine learning to generate recommendations and decisions across various areas of social life. Algocracy can function at multiple levels, from local government initiatives to national policies. Key characteristics of algocracy include *data-driven decision-making*, where decisions are based on data analysis rather than intuition or solely human judgment; *automation,* which minimizes the need for human intervention in many processes; *efficiency*, as algorithms can process information and make decisions faster than humans; and *scalability*, enabling algocracy to manage large-scale data and implement solutions across different regions and sectors.

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Background

The roots of algocracy can be traced back to the early use of computational methods in governance. The introduction of computers in the mid-20th century laid the groundwork for data-driven decision-making (e.g. Langhe & Puntoni, 2024). Governments and corporations began using computers to handle large datasets, allowing for more efficient and informed decisions. The development of algorithms has significantly evolved from simple mathematical formulas to complex AI-driven models. Initially, algorithms were used for straightforward calculations and data sorting. However, with the advent of machine learning and neural networks, algorithms now have the capability to analyze vast amounts of data, recognize patterns, and make predictions with minimal human intervention.

The integration of AI in governance marks a pivotal shift towards algocracy (e.g., Issar & Aneesh, 2022; Marrone, 2022). AI systems can process and analyze data at scales and speeds unattainable by humans, providing insights and recommendations that influence policymaking (Starke & Lünich, 2020; West & Allen, 2020), urban planning (Sanchez et al., 2023; Son et al., 2023), healthcare (Alhur, 2024; Loh et al., 2022), and various other fields.

The study by A. Aneesh (2009), titled "*Global Labor: Algocratic Modes of Organization*," is one of the pioneering works in the utilization of the concept of algocracy. It examines the transformation in labor integration facilitated by algocratic systems, focusing particularly on the connection between workers in India and corporations in the United States. This new mode of labor integration is considered distinct from traditional bureaucratic and market systems, as it relies heavily on software programming and data servers to manage and organize globally dispersed labor.

Aneesh's investigation addresses the growing practice of online work, where workers in India undertake projects for American corporations without direct bureaucratic oversight. This arrangement raises questions about the mechanisms governing such distributed labor practices. The study proposes that the governance of this globally distributed labor is achieved through the design of software programming schemes, which organize labor through data servers. This form of labor organization (algocracy) is contrasted with bureaucracy and the market, each characterized by its ruling principle: bureaucracy by legal-rational authority, the market by price, and algocracy by programming or algorithmic control.

Unlike traditional bureaucratic or market systems, algocratic systems embed governance mechanisms within the design of the work process itself. This is exemplified by the software applications developed for various industries, such as banking, where the work performance of employees is guided and constrained by the programmed structure of the software. The study underscores the notion that in an algocracy, authority is embedded in the programming code, reducing the relevance of subjective rule-following by workers.

On a later work, Issar and Aneesh (2022) consider that algorithmic governance can be traced back to the universal Turing Machine, emphasizing the increasing institutional capacity to shift contestable issues into spaces with limited negotiability. This shift raises significant concerns regarding social asymmetry, inequity, and inequality. Issar and Aneesh identify three main areas where algorithmic governance threatens social negotiability: power (surveillance), discrimination (social bias), and identification (system identity). Surveillance technologies enabled by algorithms can impose compliance and commodify behavior patterns, exacerbating social inequalities. Social bias in algorithmic systems can perpetuate and amplify existing inequalities, as seen in facial recognition technologies (J. A. Buolamwini, 2017; J. Buolamwini & Gebru, 2018) and predictive policing (Brantingham et al., 2018; DaViera et al., 2024). Algorithmic governance also impacts individual identity by creating system identities that individuals