
Prepared for the Congressional Progressive Caucus's Tech Algorithm Briefing: How Algorithms Perpetuate Racial Bias and Inequality on April 18, 2018

What is an algorithm?

An algorithm is a set of instructions for how a computer should accomplish a particular task. They are used by many organizations to make decisions and allocate resources based on large data sets. Algorithms are most often compared to recipes, which take a specific set of ingredients and transform them through a series of explainable steps into a predictable output. Combining calculation, processing, and reasoning, algorithms can be exceptionally complex, encoding for thousands of variables across millions of data points.

Four key takeaways about algorithms:

Big decisions about people's lives are increasingly made by software systems and algorithms. Among many applications, algorithms are used to:

- **sort résumés** for job applications
- **allocate** social services
- decide **who sees advertisements** for open positions, housing, and products
- decide **who should be promoted or fired**
- estimate a **person's risk of committing crimes**, or the length of a prison term
- assess and **allocate insurance and benefits**
- obtain and determine **credit**
- **rank and curate news and information** in search engines

These **software systems are often "black boxes"** with little transparency or accountability.

- Software systems are **often trained with large pools of personal data** in ways that even machine learning experts cannot explain.
- **Decisions made by a computer are not fundamentally more logical and unbiased** than decisions made by people. It is possible to make computer systems that are less biased, but in fact, bias is routinely introduced into software systems in many ways, including the use of biased training data.
- **Human decision makers are increasingly encouraged to defer to software systems** even when there is evidence that a system is making incorrect, unjust, or harmful decisions.
- When an algorithm's output causes harm, **the responsibility lies with humans who designed the systems**—it is always incorrect to blame the algorithm.

Critically, there are **few consumer or civil rights protections** that limit the types of data used to build data profiles or audit algorithmic decision-making.

- Algorithmic systems can **make decisions on the basis of protected attributes like race, income, or gender**—even when those attributes are not referenced explicitly—because there are many effective proxies for the same information.
- **“Technological redlining” is a form of digital data discrimination**, which uses our digital identities and activities to bolster inequality and oppression.
- **Decisions-embedded-in-design have significant ramifications** for those who are already marginalized and discriminated against.

While independent auditing could be used to detect bias in algorithmic systems, so far **independent auditing is underutilized**, citing a lack of industry standards or guidelines for assessing social impact.

- **Standards and enforcement for fairness, accountability, and transparency are long overdue** for algorithms that allocate housing, healthcare, hiring, banking, social services as well as goods and service delivery.
- **Americans need robust policies for algorithmic accountability** to ensure that algorithms serve the public good.

Data & Society

Data & Society is a nonprofit 501(c)(3) research institute focused on the social and cultural issues arising from data-centric technological development. D&S is committed to identifying issues at the intersection of technology and society, providing research that can ground public debates, and building a network of researchers and practitioners that can offer insight and direction.

Contact

info@datasociety.net
Data & Society Research Institute
36 West 20th Street, 11th Floor New York, NY 10011
646.832.2038
datasociety.net