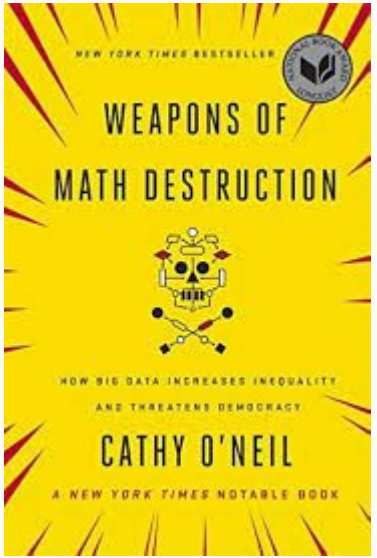
Daniel Kagramanov, Kynan Lewis

5/30/25

Weapons of Math Destruction



What Are We Talking About?

- Weapons of Math Destruction is a book by Cathy O'Neil that sheds light on the fact that mathematical models that our government created directly impacts our lives, and sometimes, in a very negative way.

- These models she has nicknamed WMDs (Weapons of Math Destruction)

- The characteristics describing a WMD are:
    a. They operate on a large scale
    b. They have the potential to damage lives
    c. They create concerning feedback loops, that may continue affecting lives negatively if not addressed

What Does This Mean For Us?

- The issue that arises here is that when these models are made, they basically put people into big boxes on some factors that the people creating the algorithm decided was important.
    - This can definitely lead to conflict of interests, as people may frame these algos in order to benefit them most
    - Statistics shows that these big algos more often than not affect people from worse socioeconomic backgrounds on average much more than those from wealthier ones
- On the other hand, there is an argument to be made that we want to use tech to make our lives easier, and that not doing this would take a lot of manpower and a lot of time.
    - Analyzing people's situations to make a 'good' determination (i.e. sentencing in courts, credit scores, job screenings) would reduce overall government efficiency, as it's not feasible to do this one by one for every person

Examples

The algorithms we are focusing on are those employed by the government or large corporations:

- One example is financial aid, which uses all sorts of information which may not actually be relevant to the financial situation of the individual.
  - In the case of student aid, the income of parents is an important factor. However, students receive varying amounts of financial support from their parents, with some receiving none at all.
  - Data such as ZIP codes may be used to make generalizations.

- Content Creation: Social media platforms use algorithms to decide how to treat uploads.
  - For example, Youtube flags videos for things like demonetization, age-restriction or Youtube Kids. These judgements are often arbitrary and incorrect, yet they can significantly harm the creator's income.
  - However, it would be impossible to manually review and flag every video that gets uploaded.

- Example from book: Washington school district's value-added model
  - In 2009, an algorithm was developed to evaluate teachers' performances, with the purpose of firing those who were underperforming. It did so by comparing the scores of students and seeing how much they improved.
  - One teacher, Sarah Wysocki, received excellent reviews from her students' parents and the school's principal. However, she received a low score in the evaluation, and was fired regardless.

Man vs Machine

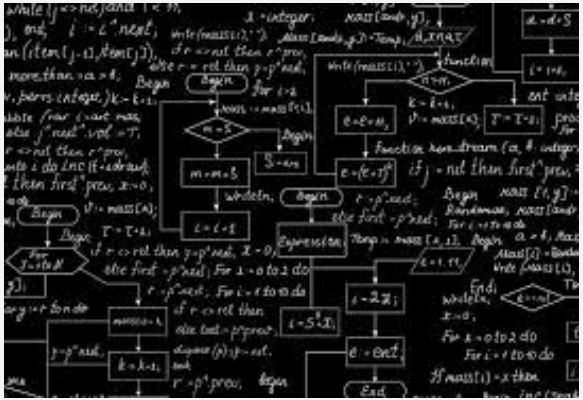
- Leaving every choice in the hands of an algorithm is ignorant of the “human” side of things.
- Every choice will be binary, with no room for context or rational judgment. The possibilities of statistical outliers and variation are largely disregarded.
- The workings of these algorithms will not be well understood by those that they affect, leaving them no opportunity to question it.

The implementation of algorithms is supposed to be objective, and eliminate biases from decision making. However, is this truly the case?

- Algorithms are created by people, and their biases may appear in the design.
- Designers are not capable of divining “objective truths” and may make mistakes in their implementation.
- On the other hand, the existence of designers is important, since it allows these algorithms to be iterated upon and perfected over time.

“Like gods, these mathematical models were opaque, their workings invisible to all but the highest priests in their domain: mathematicians and computer scientists. Their verdicts, even when wrong or harmful, were beyond dispute or appeal.”

O'Neil, Cathy. Weapons of Math Destruction (p. 3). Crown. Kindle Edition.



These choices are life-altering for many people.
Would it be more fair to judge from a relativistic standpoint, rather than a flawed “objective” one? Is that realistic to achieve?

Other Ethical Theories & Their Reactions

Existentialism

- These models, being created by other people, relinquishes an individual's right to choose. As such, they should not exist.

Utilitarianism

- The needs of the many outweigh the needs of the few. Since not using algorithms means a loss in efficiency of government operations, using them is a better option.

Kantianism

- The intent of these algorithms is to benefit the masses, so it does not matter if it ultimately causes problems.
- However, the system is morally negligent, since it is using people's data to reach a practical end, and does not respect the individual.

Contractualism

- Being a citizen of a country, you inherently agree to follow its rules and stipulations. The government put this in place because they feel it's right, and it should stay that way.

Let’s Pose a Question:

Is it still ethical to use large scale math models in order to regulate these processes, knowing that the oversight and updates to these systems are not up to par?