Technocrats and tech moguls are members of a new global technocracy that shapes political policies, economies, and socio-cultural tastes. Their political, economic, and cultural power in modern society continues to grow as more people turn to technological advances. In the political sphere, a technocratic class wields significant political power in Japan and in much of Europe, particularly through institutions like the European Union but also in national governments like that of France. In the United States, the technocracy is most visible in economic sectors and particularly social media platforms. This situation leads to several questions examining the impact of disruptive technology on inequality. Does the influence of modern technocracy threaten representative democracy or bolster it? Are there, or should there be democratic controls over the development and implementation of modern technology? How does the cultural influence of social media shape political preferences and organizational capacities in democracies like the United States? With the growth of a technocratic class and a broader “meritocracy,” will the income gap widen or shrink in the West? What should be the balance between an individual’s freedom to pursue innovation and influence, and society’s political and socio-economic well-being?

Inequality Past and Present

To begin our discussion of disruptive technology and society, we need to establish two points of agreement. The first is that no society has ever existed that has not had some form of inequality. The second is that technology has always disrupted the existing form of society. Despite pervasive beliefs that America is a classless society, America has always been an unequal society and that inequality has grown since the 1970s for a variety of reasons. With the drastic shifts in manufacturing overseas as well as the ongoing digital disruption of society through technological replacement of traditional jobs with apps and other innovations, society is facing a future that involves greater inequality, not less.

There is a pervasive belief that technology, machine learning and artificial intelligence will save us from our all too human biases rooted in race, ethnicity, gender and class. But as research has consistently demonstrated, technology is not value neutral. Instead of removing biases from decision making, many machine learning algorithms in fact reinforce existing inequalities, just as hiring practices do not result in hiring people who end up disrupting companies but rather, hire those who best “fit” the company culture.

Reducing Complex Society to Simple Variables

One of the ways these biases are captured is in the very nature of reducing everyday life into a binary code. Every dataset involves creating a variable to describe some aspect of life through the use of proxy variables. These variables encode many beliefs about someone based on how
many years they’ve been alive on this planet. A 44-year-old woman is going to have a different set of experiences, attributes, skills and knowledge than a 24-year-old man. Adding another variable about “race” is going to capture further socially-constructed information so that our 44-year-old woman is going to be perceived differently if her racial category is white compared to Black or Asian. As we’ll discuss later, race as a variable has significant impacts when it comes to technology reinforcing biases rather than eliminating them.

**Bias in Machine Learning**

Furthermore, current machine learning techniques use existing datasets to “train” their algorithms to look for patterns. These algorithms can’t explain why the patterns that they find in their data exist – they can only replicate the patterns. And yet, these machine learning algorithms increasingly are used to make important decisions about people’s lives and do so based on existing data without necessarily considering that certain patterns may be illegal to include. Take for example the case of a company called COMPAS, which helps “make decisions about pretrial release and sentencing,” which on the surface seems like it would reduce risks of people being incarcerated while awaiting their trials. The problem, however, is in the training data used to train algorithms like COMPAS and other predictive policing apps like PREDPOL. The training data these companies use are based on arrest records and include normal demographic information such as race, age and gender but also tend to include things like age at first arrest, number of relatives who have also been arrested, and so on. Very quickly race becomes a driving factor in the patterns these algorithms detect, even though use of race in sentencing is illegal because Black Americans are more likely to be arrested at a younger age, more likely to have family members who have been arrested and more likely to live in neighborhoods that have higher crimes rates. Yet using an algorithm to decide sentencing guidelines feels less biased because the black box nature of the algorithm conceals the underlying decision-making process from the users.

Another example of bias encoded in machine learning involves Amazon’s attempts to scroll resumes to hire new employees only to discover that if it was trying to match on its current employees it was less likely to hire women. The algorithm gave lower scores to resumes that included “women’s” activities, in part because the training data used to build the algorithm was based of Amazon’s current employees which were predominantly men. Anyone familiar with the classic article “Are Emily and Greg More Employable than Lakesha and Jamal” should not be surprised that machine learning algorithms replicated bias by simply changing a name on a resume and yet, techno optimism continually places more faith in algorithms than is warranted because they are perceived as unbiased.

Were these two systems designed to reproduce these biases on purpose? Most likely the answer is no. And yet failure to interrogate the training data they are built on results in replicating some of the more harmful aspects of social inequality across a wide variety of domains. Healthcare is an area where inequality has some of the greatest impacts and yet, machine learning is being incorporated across the domain without adequate understanding of the ways in which the underlying existing data are biased.
Inequality in Healthcare

Women, for example, have only been included in clinical trials since the 1990s and research has demonstrated that women are not, in fact, small men but have unique and complex systems that often result in symptoms for ailments being dismissed, ignored or unrecognized. Women’s heart attacks were significantly more likely to be misdiagnosed or unrecognized in part because women frequently reported different symptoms than men largely because women’s symptoms were presenting differently. This difference in symptoms was only recognized after a study funded by the National Institutes of Health in 2007. Leveraging existing medical training data would likely result in developing a diagnostic tool that would recreate existing missed diagnoses rather than identify them. The algorithm cannot understand that women’s missing symptoms are not because they aren’t presenting symptoms but that the symptoms themselves are different. Algorithms cannot infer what isn’t there. Women also make up over 60% of medically unexplained symptoms, meaning that any algorithm trained on data sets that include these diagnoses are more likely to replicate these findings rather than break the pattern. Recently, a study in Boston revealed that an algorithm recommended fewer Black patients for kidney transplants than white patients. This result can be traced to the impact of poverty and chronic conditions which disproportionately impact Black Americans. Because Black Americans suffer from higher rates of chronic and untreated conditions, the algorithm used these patterns to discount Black patients from being eligible for transplants. Race also impacts the diagnosis of diseases. A widespread belief in the medical field is that Lyme disease, for example, is a more severe ailment for Black Americans than for the white population. But a study recently found that it was simply diagnosed later in the disease progression because doctors were trained to recognize the telltale bullseye on white skin and therefore missed diagnosing it earlier on darker skin tones. Any app that is developed to diagnose skin conditions will likely miss diagnosing conditions on darker skin because nearly all training data available for skin conditions in medical texts are on lighter skin.

Automating Housing Discrimination

Housing is another area that exhibits historic impacts of inequality due to redlining as well as the denial of Black WWII veterans their GI Bill benefits and contract leasing loans. It is illegal to consider race in the housing lending process. Yet study after study demonstrate race is still a significant predictor of what homes will be shown to a prospective lender, how much a home will be appraised for, and the quality of loans applicants will be offered. Facebook has come under repeated fire because it was allowing realtors to target whites for listings, a violation of the Fair Housing Act, a fact that was revealed not through internal auditing or government oversight but investigative reporting into Facebook’s targeted advertising practices. Designers at Facebook clearly never anticipated that race would be used as a discriminator in their advertising platform and therefore never took action to prevent illegal discriminatory behavior until it was publicly revealed.

Replacing People with Machines

Machine learning is not the only pathway through which technology exacerbates existing inequalities. Despite popular belief that the vast majority of manufacturing jobs have gone
overseas, the reality is that more manufacturing jobs are lost due to automation than off
shoring. As more jobs are done by machines, fewer jobs are left for real people. Further,
automation limits access to the remaining jobs to those who have the requisite, more technical,
skills. Farming, for example, is an unexpected place where automation and technology prompt
economic and labor tensions under the rules for right to repair. Currently, farm equipment
manufacturers like John Deere are requiring operators to return to a dealer for software updates
or repairs and are not allowing equipment owners to repair the equipment on their own or take it
to their preferred repair shop. This has saddled farmers with costly maintenance subscriptions
that add to the original purchase price of the equipment. Further, dealers are invoking the Digital
Millennium Copyright Act as means of preventing “software modification” that’s typically part
of electronic repairs under the guise of piracy fears. The implications for inequality are
significant: first, electronic repair is a different skillset than machine-based repairs, requiring
mechanics to be familiar with software code in order to fix these machines. Second, as
equipment becomes more computerized, there will be fewer mechanical parts to be rebuilt in the
first place.

By one estimate, automation will negatively impact or eradicate nearly 50% of US jobs by
2050. Trucking, the backbone of the transportation and logistics infrastructure in America, is
already targeted for disruption by self-driving trucks. While true autonomous vehicles appear to
be a few decades off, companies that can safely replace drivers with automated vehicles are
likely going to do so, particularly if it reduces risks on the road, reduces medical and insurance
costs and speeds delivery. That’s the potential loss of hundreds of thousands of jobs and only a
few companies left to earn income from a transformed industry. Further, with the loss of so
many drivers, the gas stations and truck stops that employ waitresses and retail workers will
require less staff and so on, underscoring how the loss of jobs in one sector ripples into the loss
of jobs in others.

**Eroding Privacy**

Surveillance and privacy are one of the largest but often unexamined disruptions in society due
to technological change. Children are growing up online as proud parents share photos from their
daily lives. While these seem innocuous and innocent, companies are using these photos –
without clearly written permission. They claim that people do consent but this is merely what
Harvard professor emeritus Shoshana Zuboff “consent washing” which is when the terms and
conditions are so complex and opaque that they can’t be understood by anyone without a legal
degree. Companies are seeking to use facial recognition to grant access to buildings, log into
computers and phones and even identify people who are suspected of committing crimes.
However, facial recognition software that’s been tested only works reliably on one demographic:
white males. The accuracy rates plummet for women and minorities. A teenage Black girl was
recently banned from a skatepark because the facial recognition software misidentified her as
someone else who had been banned from the location.

Furthermore, all the data collected on individuals is used by companies to shape the world they
observe online. People no longer read the same news, watch the same shows, or even get the
same version of public events. These disagreements – based on contrasting views of reality – are
not merely semantic – they strike at the ability to engage in collective actions together such as shared governance or the collective effort required to overcome a public health crisis like the COVID-19 pandemic. Microtargeted misinformation means that individuals may have completely different understandings of the same event: the difference between believing COVID-19 is a hoax vs believing it’s a serious threat. Social media companies are redrawing the boundaries of communities, dividing them in the name of connecting people. They never thought about how connecting people could be weaponized or abused.

The Cambridge Analytica whistleblower observed that privacy is not about hiding something but about the quality of human agency. It’s about the ability to decide in private who we want to be, to move on from the choices and relationships we’ve had in the past and determine who we want to be in the present and the future. As more and more of our everyday lives are captured in digital systems that can never be erased, privacy becomes more imperiled. Few people want something they said a decade or more to appear in public without their permission, particularly old embarrassing photos or bad behavior. And yet, all this information is being aggregated and stored beyond the realm of meaningful consent or oversight.

Despite all of these documented issues, companies are continually rolling out these systems based on untested and unvalidated claims that have real impacts on people’s everyday lives and will likely increase and entrench social inequality as these systems become more ubiquitous. It is already incredibly difficult to demonstrate disparate racial or gender bias in the courts. It becomes even more daunting if one has to explain algorithmic math to judges who have little to no knowledge of how technologies can impair the capacity of courts to adjudicate cases fairly. Consider the seeming futility of parents trying to prevent the surveillance economy from hoovering up information about their children by companies like Google and yet forced to use Google or other surveillance systems at home or in their children’s classrooms.

**Regulation and Accountability**

All is not lost, however. Several states have recently banned facial recognition technology and other municipalities have severely limited whether police can use it. The Aspen Institute has launched Power and Progress in Algorithmic Bias – a roadmap for a digital bill of rights. The federal government recently produced a report on bias in facial recognition and found significant bias in the products submitted for review and the Department of Defense is now investigating these issues further before rolling out facial recognition at government installations. “National Delete Student Data Day,” a day focused on deleting student data no longer needed, is gaining traction in school districts around the country as parents become more tuned into the problems of increasing surveillance in schools. Millions of users left WhatsApp earlier in 2020 because of changes to the encryption that would allow Facebook to gather data on messages. Movies like the Social Dilemma highlight just how much our attention is worth to these companies and the negative consequences of digital manipulation.

All of these efforts have become possible because people have begun challenging the claims of tech-enabled utopia which frequently turn out to be dystopian instead. There is nothing that requires constant surveillance and data collection from online usage and other tools – the current
status quo is the result of market choices. Much more work needs to be done to continue to reclaim privacy rights from ubiquitous surveillance and to carve out spaces where people can be free from the all-seeing eye of the tech companies. Details about our daily lives are currently being harvested and sold for profit with little to no meaningful consent. This is not automatic and can change – but it takes all of us recognizing what’s at stake and pushing back to reclaim our autonomy.

There are several good reads to dive deeper into these issues.


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