How Algorithms Influence Human Behavior

By Ira Wexler

What was anticipated to be a didactic discussion of "algorithms"- what they are, how they affect us – evolved into something deeper as the implication of the subject became clearer. Here is a brief presentation of some of the considerations that arose from reflecting on this subject.

Algorithms, embedded in larger computer programs, affect every phase of everyday life everywhere, whether we are aware of it or not.[1] They are subroutines of code that require some response from the user before the program can proceed to its next step. Not all require human input; some operate autonomously, using data collected from thousands of previous users of the program. Code that operates in this way can be self-correcting; it loops back on itself and is changed if the end result does not satisfy given initial conditions. These are programs labeled, "artificial intelligence." But however a program operates, it's algorithms limit and shape what the end result will be. Algorithms, after all, are "simply a tool humans have devised – but a tool shaped by the priorities and prejudices – conscious and unconscious – of the people who design them."[2] Algorithms can enhance the quality of life but still, we may not want them regulating all facets of our lives. Two examples of algorithm programs affecting the quality of life, for good or for bad, are text analytic software and facial recognition software.

1

1. For everyday examples of AI see https://www.techemergence.com/author/gautam-narula/

2

Gal Beckerman, "Kicking the Geeks Where It Hurts," Sunday New York Times Book Review, June 10, 2018, BR 14.
https://www.nytimes.com/2018/06/04/books/review/edward-tenner-the-efficiency-paradox.html

Text Analytic Software

Should machines determine what we read? The question is not abstract. In 2017, two Chinese software programmers employed by the Washington Post unveiled an algorithmic program that predicted which stories readers would 'prefer'; i.e., would read end to end. The program makes its determination and then alerts the layout editor to give extra space to the selected article.[3] This is not a one-off; the New York Times notified its readers in a full-page ad (Sunday, June 3, 2018, A7) that it also was testing a version of such software.

Now, a reasonable person might consider this to be an example of commercial expediency; newspapers must present stories that attract the attention of its readers in order to hold on to them and secondarily generate ad revenue. But here we are speaking about machine interpretation of what a reader would like, not a poll, and on the basis of that the reader is steered to stories and ads strategically placed to attract her attention. The implication of this has been clearly explained by Gal Beckerman, [3] in his book review of Edward Tenner's, "The Efficient Paradox: "Gadgets built with a single-minded focus on efficiency can often backfire, subverting their purpose. Algorithms designed to dish up the news and information we most prefer and end up blinkering us to all but a narrow slice of political and social reality. Silicon Valley's mistake is not in developing efficient algorithms from which we all benefit, but in encouraging the illusion that algorithms can and should function in the absence of human skills." The idea of an algorithm labeling a rosewater pistachio cake recipe as "political news" would seem funny, but not when it happens during an election year - the program gets to decide which ads are political and which are not. So, algorithms can make mistakes, especially when it comes to deciding what is valid news. Recently, a Facebook algorithm tagged as "political activism" - and rejected – benign ads for a hairdresser, vegetarian restaurant and day care center; actions that, when discovered, necessitated Facebook's hiring hundreds of extra workers to look for further mistakes in all the ads the algorithm had rejected. Separately, Facebook also faced considerable criticism from major news outlets when its News Feed algorithm mischaracterized and demoted legitimate news articles.[4]

---

3 https://www.oreilly.com/ideas/inside-the-washington-posts- popularity- prediction-experiment/

4 Kevin Roose, Ads Mislabeled On Facebook as 'Political', New YorkTimes, June 25, 2018. https://www.nytimes.com/2018/06/21/business/facebook-political-ads.html

Ben Sisario, "Facebook's New Political Algorithms Increase Tension With Publishers," New York Times, Business B3, June 15, 2018. https://www.nytimes.com/2018/06/14/business/media/mark-thompson-facebook-algorithm.html

Text analytic software called "Knowledge Engineering" is now being used by some American Universities to vet student enrollment and interest in their course offerings; using algorithms that incorporate "complex human behavior" into the decision-making process, The aim is to eliminate "dead-end" courses, like sociology and political science and philosophy and English, in order to (apparently) enhance the student's chance for employment. Commenting on this in a wistful op-ed piece, Frank Bruni asked, "suppose the desired end result were an educated mind, as traditionally defined? Algorithms after all filter and thereby restrict choices: Colleges needn't abandon majors in order to give students breadth and nimbleness. And they shouldn't downgrade the non-vocational mission of higher education: to cultivate minds, prepare young adults for enlightened citizenship, give them a better sense of their perch in history and connect them to traditions that transcend the moment." Transcend the moment, indeed – and how is "complex human behavior" translated into machine language, anyway? "The infinite distractions, short attention spans and staccato communications of the smartphone era...young people need to be shown the rewards of sustained attention and taught how to hold a thought."[5]

Facial Recognition Software.

Facial recognition software is heavily dependent upon algorithms. Millions of faces have been scanned by surveillance cameras all over the world; these have been matched to known identities or simply recorded and stored in a huge database which has been made available to Google, Facebook, Microsoft and the like. As reported by Cade Metz In 2014,[6] Mark Zuckerberg and four experts from Facebook's A.I. (Artificial Intelligence) division came together to convince Elon Musk, of Tesla, to shed his doubts about A.I.: "I genuinely believe this is dangerous," Musk is reported to have said. "If we create machines that are smarter than humans, they could turn against us." Zuckerberg later tended to poo-poo Musk's misgivings: "[Musk's views on A.I.] are pretty irresponsible. Panicking about A.I. now, so early in its development, could threaten the many benefits that come from things like self-driving cars

---

5 Frank Bruni, "Aristotle's Wrongful Death," New York Times , Sunday Review, May 27, 2018, SR#.3. https://www.nytimes.com/2018/05/26/opinion/sunday/college-majors-liberal-arts.html

6 Cade Metz, Moguls and Killer Robots, Business Section, New YorkTimes, June 10, 2018, B1. https://www.nytimes.com/2018/06/09/technology/elon-musk-mark-zuckerberg-artificialintelligence.html?rref=collection/issuecollection/todays-new-york-times&action=click&contentCollection=todayspaper&region=rank&module=package&version=highlights&contentPlacement=1&pgtype=collection/

and A.I. Healthcare...” But in a chilling aside, Metz also reminds the reader of events initiated by the dawn of atomic energy: “...consider the unintended consequences of what we are creating before we unleash it on the world.” Google, working with the Pentagon, has developed Algorithms that use facial recognition software incorporated into autonomous weapons to identify and eliminate a target – any target - without any human actually pulling a trigger.” Microsoft, not present at that meeting between Musk and Zuckerberg, has now publicly voiced its reservations about the uses A.I. Facial recognition software can and has been put to.[7]

To Sum Up

What do you do when you have nothing to do? It is apparent algorithms, embedded in computer programs, can be used to track us, to transport us, to make decisions for us – and also put us out of work. That's the substance of this discussion - what is the social, emotional and mental cost to people of not having work to do? From university professor to sewer worker, computers have brought us to the point of no longer needing humans to make the world operate. What, then, do we do when there is no such thing as a meaningful career - ever? Work defines us, but why train for a career knowing that a machine can and shortly will do it better? What career would you recommend your grandchild embark on? Thumbing one's nose at A.I. by proclaiming software cannot, as yet, duplicate the human mind when it comes to creativity, or to feelings like sadness, or empathy, is all well and good but that assertion seems hollow when one realizes it doesn't put bread on the table.[8] Nor would a guaranteed annual wage, as championed by former Labor Secretary Robert Reich,[9] offer much consolation – it might lift a person above the poverty line, technically, but food stamps and housing subsidies would still be necessary and there isn't a great deal of satisfaction in that. Reich suggests the newly freed time be put to useful end such as attending the elderly, or tutoring kids with special needs, or perhaps starting a new business. If life, in fact,

---

7 Natasha Singer, Microsoft Urges Rules for Facial Recognition. New York Times Business Section, B1, July 14, 2018. https://www.nytimes.com/2018/07/13/technology/microsoft-facial-recognition.html

8 Marcus, Gary and Davis, Ernest, A.I. is Harder Than You Think”, NewYork Times Op-Ed, May 19, 2018, https://www.nytimes.com/2018/05/18/opinion/artificial-intelligence-challenges.html

9 Reich, Robert, Barely Afloat in America, Book Review Section, New York Times, July 15, 2018, B1 https://www.nytimes.com/2018/07/09/books/review/annie-lowrey-give-people-money-andrew-yang-war-on-normal-people.html?rref=collection%2Fissuecollection%2Ftodays-new-york-times&action=click&contentCollection=todayspaper&region=rank&module=package&version=highlights&contentPlacement=1&pgtype=collection

is to be one long glorious retirement, how would you choose to spend it? If you are elderly, playing pinochle in a sunny garden? Or reading? Or visiting grandchildren? And if you are not old, how do you go about creating new forms of what it means to work?

What does a successful and satisfying life mean, anyway?

APPENDIX
EXTENDED DISCUSSION OF CITATIONS

#2. Gal Beckerman THE EFFICIENCY PARADOX - What Big Data Can't Do, By Edward Tenner
https://www.nytimes.com/2018/06/04/books/review/edward-tenner-the-efficiency-paradox.html
Hypocrisy thrives at the Waldorf School of the Peninsula in the heart of Silicon Valley. This is where Google executives send their children to learn how to knit, write with chalk on blackboards, practice new words by playing catch with a beanbag and fractions by cutting up quesadillas and apples. There are no screens — not a single piece of interactive, multimedia, educational content. The kids don't even take standardized tests. While Silicon Valley's raison d'être is making platforms, apps and algorithms to create maximum efficiency in life and work (a "friction-free" world, as Bill Gates once put it), when it comes to their own families (and developing their own businesses, too), the new masters of the universe have a different sense of what it takes to learn and innovate — it's a slow, indirect process, meandering not running, allowing for failure and serendipity, even boredom. Back in 1911, the English philosopher Alfred North Whitehead said that "civilization advances by extending the number of important operations which we can perform without thinking about them." By that metric, Uber and Google and Amazon Prime have given us a whole lot of civilization. And there's no doubt our lives are better for it. (Ordering Chinese takeout in 30 seconds on an app might not be up there with Shakespeare or the incandescent light bulb, but it's pretty great.) This unrelenting drive for efficiency has, however, blotted out a few things we all know intuitively but seem to be forgetting. To create a product or service that is truly efficient often involves a lot of inefficiency — more like learning to knit than pressing a button. Likewise, gadgets built with a single-minded focus on efficiency can often backfire, subverting their purpose. Algorithms designed to dish up the news and information we most prefer end up blinkering us to all but a narrow slice of political and social reality. Our smartphones untether us from the office, saving us energy on travel, but also allow our lives to be interrupted nearly 24 hours a day, chewing up any productive idle time. This all seems fairly obvious. But, as Edward Tenner writes in "The Efficiency Paradox," "we sometimes need to be reminded of the obvious." Tenner has made a career worrying about unintended consequences. His 1996 book, "Why Things Bite Back," dealt with phenomena like the overuse of antibiotics leading to resistant bacteria and the introduction of football helmets causing an increase of neck and spine injuries. In 2003, he published "Our Own Devices," in which he turned to what he called body technologies — sandals, office chairs, computer keyboards — and how they had impaired as much as enhanced us. In short, for every three steps forward, he sees the two steps back. With the internet now a dominant social force, Tenner is ready with his wet blanket. But he is not a cyber-pessimist or a fetishizer of the analog. He is, instead, a staunch moderate: "Silicon Valley's mistake is not in developing efficient algorithms from which we all benefit, but in encouraging the illusion that algorithms can and should function in the absence of human skills." The dehumanizing effects of big data are well known and Tenner adds no groundbreaking insight here. (Books like Cathy O'Neil's "Weapons of Math Destruction" and Evgeny Morozov's "To Save Everything, Click Here" were more pioneering on this front.) But what Tenner brings is a new frame. Unlike critiquing the denizens of Silicon Valley for deepening social and economic inequality, destroying our brains or helping to undermine democratic norms (issues that seem to matter to us more than them), questioning efficiency is truly kicking the geeks where it hurts. Drawing on an eclectic bunch of anecdotes and studies, Tenner makes his way through four sectors in which "intuition, skill and experience" have been effectively crushed by "big data, algorithms and efficiency": media and culture, education, transportation and medicine. A few of his examples: Search

algorithms have extended the ability to find scientific journal articles and books dating to the 19th century. In principle, this means scholars may encounter a broad range of research and discovery, dredge up forgotten work and possibly connect important dots. But in reality, as one sociologist found after studying citations in 35 million scientific journal articles from before and after the invention of the internet, researchers, beholden to search algorithms' tendency to generate self-reinforcing feedback loops, are now paying more attention to fewer papers, and in general to the more recent and popular ones — actually strengthening rather than bucking prevailing trends. GPS is great for getting from one point to another, but if you need more context for understanding your surroundings, it's fairly useless. We've all had experiences in which the shortest distance, as calculated by the app, can also be the most dangerous or traffic-clogged. Compare the efficiency of GPS with the three years aspiring London cabdrivers typically spend preparing for the arduous examination they must pass in order to receive their license. They learn to build a mental map of the entire city, to navigate under any circumstance, to find shortcuts and avoid risky situations — all without any external, possibly fallible, help. Which is the more efficient, ultimately, the cabby or Google Maps? In the early 2000s, electronic medical records and electronic prescribing appeared to solve the lethal problem of sloppy handwriting. The United States Institute of Medicine estimated in 1999 that 7,000 patients in the United States were dying annually because of errors in reading prescriptions. But the electronic record that has emerged to answer this problem, and to help insurers manage payments, is full of detailed codes and seemingly endless categories and subcategories. Doctors now have to spend an inordinate amount of time on data entry. One 2016 study found that for every hour doctors spent with patients, two hours were given over to filling out paperwork, leaving much less time to listen to patients, arguably the best way to avoid misdiagnoses. Faced with all these "inefficiently efficient" technologies, what should we do? Tenner wants more balance. Let's not put the brakes on the drive for efficiency. These tools are good. But they should give way a bit to human sensibility, to our own instincts and insights, which could help them work even better. "Analog experience can enhance digital efficacy," he writes. "Digital tools can improve analog access. We don't have to choose between the two."

#3. Inside the Washington Post's popularity prediction experiment

A peek into the clickstream analysis and production pipeline for processing tens of millions of daily clicks, for thousands of articles.

https://www.oreilly.com/ideas/inside-the-washington-posts-popularity-prediction-experiment

In the distributed age, news organizations are likely to see their stories shared more widely, potentially reaching thousands of readers in a short amount of time. At the Washington Post, we asked ourselves if it was possible to predict which stories will become popular. For the Post newsroom, this would be an invaluable tool, allowing editors to more efficiently allocate resources to support a better reading experience and richer story package, adding photos, videos, links to related content, and more, in order to more deeply engage the new and occasional readers clicking through to a popular story. Here's a behind-the-scenes look at how we approached article popularity prediction.

Data science application: Article popularity prediction

There has not been much formal work in article popularity prediction in the news domain, which made this an open challenge. For our first approach to this task, Washington Post data scientists identified the most-viewed articles on five randomly selected dates, and then monitored the number of clicks they received within 30 minutes after being published. These clicks were used to predict how popular these articles would be in 24 hours. Using the clicks 30 minutes after publishing yielded poor

results. As an example, here are five very popular articles: (5 articles can be seen in actual web page) . Table 1 lists the actual number of clicks these five articles received 30 minutes and 24 hours after being published. The takeaway: looking at how many clicks a story gets in the first 30 minutes is not an accurate way to measure its potential for popularity: In this prediction task, *Washington Post* data scientists have explored four groups of features: metadata, contextual, temporal, and social features. Metadata and contextual features, such as authors and readability, are extracted from the news articles themselves. Temporal features come mainly from an internal site-traffic collection system. Social features are statistics from social media sites, such as Twitter and Facebook. Figure 6 lists all of the features we used in this prediction task. (More details about these features can be found in the paper, on which we we collaborated with Dr. Naren Ramakrishnan and Yaser Keneshloo from Discovery Analytics Center Virginia Tech, "Predicting the Popularity of News Articles.") Figure 7 illustrates the process that we used to build regression models. In the training phase, we built several regression models using 41,000 news articles published by the *Post*. To predict the popularity of an article, we first collected all features within 30 minutes after its publication, and then used pre-trained models to predict its popularity in 24 hours. To measure the performance of the prediction task, we conducted two evaluations. First, we conducted a 10-fold cross validation experiment on the training articles. Table 2 enumerates the results of this evaluation. On average, the adjusted R2 is 79.4 (out of 100) with all features. At the same time, we realized that metadata information is the most useful feature aside from the temporal clickstream feature. Washington *Post* journalists monitor predictions using real-time Slack and email notifications. The predictions can be used to drive promotional decisions on the *Post* home page and social media channels. We created a Slack bot to notify the newsroom if, 30 minutes after being published, an article is predicted to be extremely popular. Figure 11 shows Slack notifications with the current number and forecasted number of clicks in 24 hours. We also automatically generate emails that gather that day's predictions and summarize articles' predicted and actual performance at the end of the day. Figure 12 shows an example of these emails. This email contains the publication time, predicted clicks, actual clicks in first 30 minutes, actual clicks in first 24 hours, and actual clicks from social media sites in first 30 minutes. In addition to this being a tool for our newsroom, we are also integrating it into *Washington Post* advertising products such as PostPulse. PostPulse packages advertiser content with related editorial contents, and delivers a tailored, personalized advertisement to the target group. Figure 13 shows an example of this product in action, in which an advertiser's video on 5G wireless technology is paired with editorially produced technology articles. A member of the advertising team puts the package together and receives candidate editorial articles as recommendations to include in the package. These articles are ranked according to relevance and expected popularity. Moving forward, we will explore a few directions. First, we want to identify the time frame in which an article is expected to reach peak traffic (after running some initial experiments, the results are promising). Second, we want to extend our prediction to articles *not* published by the *Washington Post*. Last but not least, we want to address distribution biases in the prediction process. Articles can get much more attention when they are in a prominent position on our home page or spread through large channels on social media.

#4. Kevin Roose, *A Day Care and a Dog Rescue Benefit: On Facebook, They Were Political Ads,* https://www.nytimes.com/2018/06/21/business/facebook-political-ads.html

What do a day care center, a vegetarian restaurant, a hair salon, an outdoor clothing

maker and an investigative news publisher have in common? To Facebook, they looked suspiciously like political activists. Facing a torrent of criticism over its failure to prevent foreign interference during the 2016 election, the giant social network recently adopted new rules to make its advertising service harder to exploit. Under the new rules, advertisers who want to buy political ads in the United States must first prove that they live in the country, and mark their ads with a "paid for by" disclaimer. Any ad Facebook deems to contain political content is stored in a searchable public database.

The new rules are meant to illuminate the sometimes shadowy world of politics on social media and help prevent fraud and abuse by organizations like Russia's Internet Research Agency. But many advertisers, including small businesses and news organizations, are complaining that Facebook's detection system has mistakenly miscategorized their ads as political. All ads that have political content — including the miscategorized ones and ads that are taken down after running — are included in the public database. Michelle Benson, who runs a children's day care center in Shirley, N.Y., tried to spend $100 to circulate an ad on Wednesday. The ad said that she had openings for more children this summer. "I will beat anyone's rates and accommodate parents according to their schedule," it read. The ad contained no reference to any political candidate or issue. But Ms. Benson received a notification from Facebook that her ad had been rejected because she was not "authorized to run ads with political content."

A similar thing happened to Jamila Zaidi, who manages a hair salon in Frederick, Md. Ms. Zaidi was surprised when her Facebook ad for a store special — "$100 for a full highlight or color service for all new clients!" — was deemed an unlabeled political ad.

The Wild Cow, a vegetarian restaurant in Nashville, felt the effects of the new policy as well, when Facebook took down an ad for a fund-raising show the restaurant was hosting for a local dog rescue group. The ad included information about the show along with a photo of a handsome pit bull. "I was wondering why that didn't get approved," Melanie Cochran, the Wild Cow's co-owner, said when a reporter told her that the ad had appeared in Facebook's political ad archive. "I assumed it had to do with the picture."

Rob Leathern, Facebook's director of product management, said that in all three of these cases, the company's review process had simply not worked as intended.

"These ads were mistakenly marked as political, and those decisions have been overturned," Mr. Leathern said. "These are new policies, and it's not going to be perfect at the start."

He added, "We think it's better than doing nothing at all."

The flagged ads were not part of large or lucrative campaigns, but they illustrate a growing problem for Facebook, which has said it is trying to safeguard elections around the world while not disturbing its hugely profitable advertising business, which generated $40 billion in revenue last year. Facebook's new review system uses a combination of artificial intelligence and human reviewers to determine if an ad is political in nature. The company said it looks at text and images in the post itself, as well as the ad's target audience and other attributes, to make a determination.

Ads flagged as political are kept offline until the advertiser goes through the verification process, which can take several days. It requires the advertiser to submit a photo identification, the last four digits of his or her Social Security number, and a code that is sent in the mail. "We believe that these tools, which make our mistakes very visible, are working," Mr. Leathern said.

Facebook's advertising business is still largely automated. But after the 2016 election, the company pledged to more carefully monitor the ads in its system. It has hired additional moderators to manually screen political ads, and is devoting so many resources to the effort that Mark Zuckerberg,

Facebook's chief executive, has said that he expects to lose money on political advertising during this campaign cycle.

But the social network's new system also appears to be allowing clearly partisan content to slip through. In a Democratic primary race this month in California's Fourth Congressional District, Facebook allowed a progressive advocacy group, Sierra Nevada Revolution, to run negative ads against one candidate, Regina Bateson. Despite their endorsement of Ms. Bateson's rival, the ads were not flagged as political.

The new ad policies have been especially contentious within the news industry. Facebook has angered publishers by classifying some opinion columns and news articles — including some about issues like immigration — as political content. When publishers pay to raise the visibility of those columns and articles on Facebook, they have been held to the same standards as campaign ads and other partisan posts.

Last week, Mark Thompson, the chief executive of The New York Times Company, accused Facebook of "supporting the enemies of quality journalism" by sometimes labeling news as political content. And on Wednesday, Reveal, a nonprofit investigative journalism organization, complained about Facebook's decision to reject an ad for a story it had published about the treatment of children in immigrant detention centers. "Hi there, @facebook. This is not political content. This is journalistic content that deals with policy. There's a difference," the organization wrote on Twitter. Rob Goldman, Facebook's vice president of ads, wrote on Twitter that the company was trying to prevent the disguising of partisan content as legitimate news. He also said that publishers could continue to promote their stories with Facebook ads as long as they went through the authentication process. "News and advocacy are different, and we'll be showing them separately in the transparency archive — but we flag both to prevent workarounds for bad actors," Mr. Goldman wrote.

Some advertisers are being more patient, perhaps seeing a glitchy advertising filter as better than none at all.

Patagonia, the outdoor clothing company, has seen several of its Facebook ads rejected for mysterious reasons. Still, Scott Carrington, Patagonia's digital and social media marketing manager, seemed to forgive the mistakes.

"While Facebook has more work to do to improve transparency among its users and advertisers, we applaud the steps the company is taking to prevent Russian bots from running and ruining our democracy," Mr. Carrington said.

#4. Ben Sisario Facebook's New Political Algorithms Increase Tension With Publishers June 14, 2018,
https://www.nytimes.com/2018/06/14/business/media/mark-thompson-facebook-algorithm.html

News publishers have long had a fraught relationship with Facebook. But tensions have become more public in recent weeks, with news organizations openly criticizing the tech giant for new policies that they say are harmful to journalism.

The most recent salvo came on Thursday, when Mark Thompson, the chief executive of The New York Times Company, accused Facebook of unintentionally "supporting the enemies of quality journalism" by using algorithms that can mischaracterize news as partisan political content. Mr. Thompson was speaking at a panel discussion in New York, which also included Campbell Brown, Facebook's head of global news partnerships. Ms. Brown defended a policy Facebook recently introduced in response to criticism over how its ad network was able to be manipulated during elections. Ms. Brown cited the importance of safeguarding elections and said the problems with political ads were "something we are

deeply concerned about. We hear you." In criticizing Facebook, Mr. Thompson showed two advertisements that The Times had recently purchased on the platform. Both had been flagged as political.

One ad promoted a news article about President Trump's summit with Kim Jong-un, the North Korean leader. By calling it political content, Mr. Thompson said, Facebook was blurring the line between reporting on politics and politics itself. The other ad was a promotion for The Times's NYT Cooking site, with manicured image of a pistachio rose water cake. There was no indication why that had been labeled political content by the algorithm. Tensions between Facebook and publishers have been building since at least January, when the social network changed its News Feed algorithmin a way that demoted content from publishers in favor of posts from a user's friends.

Executives like Robert Thomson, the News Corp. chief and lieutenant of Rupert Murdoch, and Jonah Peretti of BuzzFeed have consistently called for increased payments from Facebook — which, along with Google, has been gobbling up more of the online advertising revenue that publishers need to survive.

But the latest fight has more to do with the treatment of content than the economics of the media industry. Last month, with public and political pressure growing over Facebook's role in the 2016 election, the company unveiled a policy that created a publicly searchable archive for ads that its algorithms deemed to be political. In addition, Mark Zuckerberg, Facebook's chief executive, said the company would start ranking publishers by their perceived "trustworthiness."

"I don't want trust to be a popularity contest decided by users of Facebook," Lydia Polgreen, the editor in chief of HuffPost, said at the panel discussion, which was held at Columbia University's Graduate School of Journalism.

The panel, moderated by Emily Bell, the director of the Tow Center for Digital Journalism at Columbia, also included Erica Anderson of Google News Lab and Rasmus Kleis Nielsen, the director of research at the Reuters Institute for the Study of Journalism, who presented the institute's annual Digital News Report.

Publishers have been vocal in their protests of being included in the same archive as political ads. This month, organizations representing more than 20,000 publishers in the United States wrote to Facebook to object to the policy, and some outlets, like New York Media and The Financial Times, have vowed to suspend their paid promotions on Facebook if the policy is not changed.

Facebook has agreed to create a distinction between publishers' content and political ads, but it has not yet built a separate archive.

Moves like those have only inflamed tensions with publishers, said Jason Kint, the chief executive of Digital Content Next, a trade group that represents entertainment and news organizations, including The Times, and who signed the publishers' letter last month."Facebook communicated poorly," Mr. Kint said. "They have not built trust with publishers."

Although Facebook remains a vital outlet for publishers, its power has diminished. According to data from Chartbeat, an online analytics company, publishers' traffic from Facebook has declined about 15 percent in the last year. At the same time, traffic from Google is up 20 percent since last August.

During the discussion on Thursday, Mr. Thompson sparred with Ms. Brown, who was an NBC News correspondent and a CNN anchor before joining Facebook.

In response to his complaints about the ad policy, Ms. Brown said there was a "fundamental misunderstanding" of the policy, adding that "The New York Times does not want to be transparent about the money they spend" on ads.

Mr. Thompson also called Mr. Zuckerberg's comments on trust "terrifyingly naïve," echoing a speech

he gave on Tuesday at the Open Markets Initiative in Washington.
In that speech, Mr. Thompson accused Facebook of trying to "set itself up as the digital world's editor in chief, prioritizing and presumably downgrading and rejecting content on a survey- and data-driven assessment of whether the provider is 'broadly trusted' or not."

#6 Frank Bruni, "Aristotle's Wrongful Death," New York Times , Sunday Review, May 27, 2018, SR#.3.
https://www.nytimes.com/2018/05/26/opinion/sunday/college-majors-liberal-arts.html
History is on the ebb. Philosophy is on the ropes. And comparative literature? Please. It's an intellectual heirloom: cherished by those who can afford such baubles but disposable in the eyes of others.
I'm talking about college majors, and talk about college majors is loud and contentious these days. There's concern about whether schools are offering the right ones. There are questions about whether colleges should be emphasizing them at all. How does a deep dive into the classics abet a successful leap into the contemporary job market? Should an ambitious examination of English literature come at the cost of acquiring fluency in coding, digital marketing and the like?
Last Sunday The Chronicle of Higher Education published a special report that delved into this debate. One of the stories described what was happening at the flagship campus of the University of Illinois and at Assumption College in Worcester, Mass., casting these developments as different harbingers for higher education.
Illinois is pairing certain majors in the liberal arts — for example, anthropology and linguistics — with computer science. Assumption is oing away with a host of traditional majors in favor of new ones geared to practical skills. Goodbye, art history, geography and, yes, classics. Hello, data analytics, actuarial science and concentrations in physical and occupational therapy. Assumption is hardly an outlier. Last year the University of Wisconsin at Superior announced that it was suspending nine majors, including sociology and political science, and warned that there might be additional cuts. The University of Wisconsin at Stevens Point recently proposed dropping 13 majors, including philosophy and English, to make room for programs with "clear career pathways."
While these schools are swapping out certain majors for others, some higher education leaders are asking whether such devotion to a single field of study — and whether a college experience structured around that — are the right way to go.
"The future of work calls for something more radical: the elimination of academic majors as we have come to know them," Jeffrey Selingo, the founding director of the Academy for Innovative Higher Education Leadership, wrote in a column that was part of The Chronicle's special report. He advocated a college education that spans "all academic disciplines."
Selingo is the author of several books about the rightful role and uses of college, the most recent of which, "There Is Life After College," illustrates how thoughtful he can be on these matters.
But I worry that he's suggesting an either/or where there needn't be one. I worry that the current conversation about majors is part of a larger movement to tug college too far in a vocational direction. And I worry that there's a false promise being made. The world now changes at warp speed. Colleges move glacially. By the time they've assembled a new cluster of practical concentrations, an even newer cluster may be called for, and a set of job-specific skills picked up today may be obsolete less than a decade down the road. The idea of college as instantaneously responsive to employers' evolving needs is a bit of a fantasy.
Eric Johnson, an education policy analyst in Chapel Hill, N.C., agrees that majors may well be "a poor way of organizing career preparation."

“But that’s because *college* is a poor way of organizing career preparation,” he told me. “Deep, discipline-focused learning is simply a different goal than being adequately skilled to serve mercurial employers.”

Johnson wasn’t saying that colleges should be oblivious to job readiness and career placement. Nor am I. That notion, too, belongs to some fantasyland in which college doesn’t demand the time and money that it does and in which good incomes are easily secured.

But colleges needn’t abandon majors in general or supposedly arcane majors in particular in order to propel graduates into the work force. They could do better at encouraging and arranging something that they already promote and that savvy students already embrace, which is the considered, concerted use of research projects, extracurricular activities, part-time employment, internships and networking to set up first jobs.

Colleges needn’t abandon majors in order to give students breadth and nimbleness. That’s what general-education requirements are for. So why don’t more colleges expand or toughen those? That would additionally help to create shared experiences and common points of reference in a dangerously fractured society. Interdisciplinary majors already exist, though colleges could be better at making that clear to students who’d benefit from them. And students with humanities majors are already choosing, as minors, computer science and the like.

Part of the skepticism toward traditional majors reflects a correct feeling that at some schools, some fields of study and course offerings are preserved largely because the faculty have a selfish investment in the status quo. If seats in the classroom are perpetually empty and money is sorely needed elsewhere, colleges shouldn’t ignore that.

But it’s a balancing act, because colleges shouldn’t lose sight of what makes traditional majors — even the arcane ones — so meaningful, especially now. And they shouldn’t downgrade the nonvocational mission of higher education: to cultivate minds, prepare young adults for enlightened citizenship, give them a better sense of their perch in history and connect them to traditions that transcend the moment. History, philosophy and comparative literature are bound to be better at that than occupational therapy. They’re sturdier threads of cultural and intellectual continuity. And majoring in them — majoring in *anything* — is a useful retort to the infinite distractions, short attention spans and staccato communications of the smartphone era. Perhaps now, more than ever, young people need to be shown the rewards of sustained attention and taught how to hold a thought. That’s what a major does. There’s a reason that it’s often called a *discipline.*

“Becoming versed in the intricacies of a complex thing is itself a worthwhile skill,” Johnson said. I agree. It also underscores what real knowledge and true perspective are. In a country that’s awash in faux expertise and enamored of pretenders, that’s no small thing.

Students interested in using their education for expressly vocational purposes should have an array of attractive options in addition to college, which isn’t right for everyone and is hardly the lone path to professional fulfillment. Some of those options should be collaborations with employers grooming the work force they need.

But students who want to commune with Kant and Keats shouldn’t be made to feel that they’re indulgent dilettantes throwing away all hope of a lucrative livelihood. They’re making a commitment to a major that has endured because its fruits are enduring.

#6. Cade Metz, Moguls and Killer Robots, Business Section, New York Times, June 10, 2018, B1.
mark-zuckerberg-artificial-intelligence.html?rref=collection/issuecollection/todays-new-york-times&action=click&contentCollection=todayspaper&region=rank&module=package&version=highlig

hts&contentPlacement=1&pgtype=collection
As the tech moguls disagree over the risks presented by something that doesn't exist yet, all of Silicon Valley is learning about unintended consequences of A.I.

#7. Natasha Singer, *Microsoft Urges Congress to Regulate Use of Facial Recognition*
https://www.nytimes.com/2018/07/13/technology/microsoft-facial-recognition.html
Microsoft on Friday became the first tech giant to join a growing call for regulations to limit the use of facial recognition technology.
In a lengthy blog post about the potential uses and abuses of facial recognition, Bradford L. Smith, the company's president, compared the technology to products like medicines and cars that are highly regulated, and he urged Congress to study it and oversee its use.
"We live in a nation of laws, and the government needs to play an important role in regulating facial recognition technology," Mr. Smith wrote. He added: "A world with vigorous regulation of products that are useful but potentially troubling is better than a world devoid of legal standards."
Tech giants rarely advocate regulation of their innovations, and Mr. Smith's unusual entreaty illustrates how powerful technologies involving artificial intelligence — including facial recognition — have set off a contentious battle among tech executives. These technologies have the potential to remake industries. They could also reduce workers' job prospects or result in unequal opportunities for consumers, leading some to argue that the products are too risky for tech companies to deploy without government oversight. Mr. Smith's appeal also comes as Silicon Valley is facing withering scrutiny from lawmakers and privacy experts. Several companies have been harshly criticized in recent months for their role in spreading false information during the 2016 election, and exploiting users' personal data. In response, some businesses, like Facebook, have expressed more openness to regulation of practices like political advertising.
With many of its rivals under fire, Microsoft has aggressively tried to position itself as the moral compass of the industry. Company executives have been outspoken about safeguarding users' privacy as well as warning about the potential discriminatory effects of using automated algorithm to make important decisions like hiring. Now that facial recognition has become a new lightning rod for critics, Microsoft is taking the lead in calling for some regulatory restraint.
The powerful technology can be used to identify people in photos or video feeds without their knowledge or permission. Proponents see it as a potentially important tool for identifying criminals, but civil liberties experts have warned that the technology could enable mass surveillance, hindering people's ability to freely attend political protests or go about their day-to-day lives in anonymity.In April, privacy groups filed a complaint with the Federal Trade Commission saying that Facebook had turned on new face-matching services without obtaining appropriate permission of users. Facebook has denied the groups' accusations.
In May, the American Civil Liberties Union and other civil rights groups asked Amazon to stop selling its face-matching service, Recognition, to law enforcement agencies. (The New York Times recently used Amazon's services to help identify attendees at the royal wedding of Prince Harry and Meghan Markle.)
In calling for government oversight of facial recognition, Microsoft may be trying to get ahead of any new state efforts to tightly regulate the technology. Mr. Smith, the company's president, suggested that governments around the world examine both law enforcement and commercial uses of the technology.
"Should law enforcement use of facial recognition be subject to human oversight and controls?" he

wrote. “Should the law require that companies obtain prior consent before collecting individuals’ images for facial recognition?”

In the European Union, many of these questions have already been settled.

A tough new data protection law there generally prohibits companies from collecting the biometric data needed for facial recognition without first obtaining users’ specific consent. Illinois has similar restrictions. In his blog post, Mr. Smith said Congress should appoint a commission to study the issue and make recommendations on potential regulations. The Federal Trade Commission has already examined facial recognition, recommending in a 2012 report that certain companies “provide consumers with an easy-to-use choice not to have their biometric data collected and used for facial recognition.” But Congress never took up those recommendations and enacted them into law. Civil liberties and privacy advocates said they both welcomed and felt wary of Microsoft’s push for government regulation, questioning how committed the company was to strong user privacy controls. In May, for instance, Satya Nadella, Microsoft’s chief executive, said at a company developer conference that privacy was a “human right.” Yet in June, Microsoft donated $195,000 to an effort to defeat a consumer privacy bill in California.

“People have a right to go about their lives without having their faces scanned in secret — by companies or the government,” said Alvaro Bedoya, director of the Center on Privacy & Technology at Georgetown Law, who has studied facial recognition. “Will Microsoft agree that companies should never scan your face without your permission? Will it agree that government face scans should be tightly controlled and in some cases banned?”

April Isenhower, a spokeswoman for Microsoft, said that the company had long been committed to privacy, including pushing for a national consumer privacy law in the United States since 2005.

Tech companies are spreading facial recognition in part because it provides a powerful way for them to connect consumers’ online and real lives. Over the last few years, Amazon, Apple, Facebook, Google and Microsoft have each filed face recognition patents. Last year, Apple introduced Face ID, a service that enables iPhone X owners to unlock their phones with their face. Many Windows laptops have a similar feature.

Earlier this year, Google’s Art & Culture app created a craze after it added a feature that could match users’ selfies with similar faces in well-known paintings. Google also recently introduced a camera, called Google Clips, with facial recognition. In addition to using facial recognition for its own consumer services, Microsoft — like Amazon — also sells the software to others.

Microsoft markets technology that can detect faces in photos, as well as facial features like hair color, and emotions like anger or disgust, according to its website. It also sells facial recognition software that “enables you to search, identify, and match faces in your private repository of up to one million people,” the site said. Uber has used the technology to verify drivers’ identities, according to Microsoft marketing materials.

Mr. Smith wrote in the blog post that Microsoft was examining its own development and marketing of the technology.A recent study led by an M.I.T. researcher found that facial recognition software from Microsoft and IBM was much more accurate in identifying white men than darker-skinned females. Mr. Smith said the company was working to improve the accuracy of its facial recognition and to reduce the potential for bias. He also said Microsoft had rejected facial recognition requests from certain customers “where we’ve concluded that there are greater human rights risks,” and that the company was committed to “establishing a transparent set of principles” for the technology.

Microsoft employees recently protested the company’s contract with Immigration and Customs Enforcement, the federal agency that has been involved in the separation of migrant children from

their families at the border. In his blog post, Mr. Smith wrote that the company's contract with that agency "isn't being used for facial recognition" or to separate families.
Ms. Isenhower, the Microsoft spokeswoman, declined to answer questions about whether the company provided facial recognition services to other government agencies or whether it had put any specific restrictions on its customers' use of the technology. She also declined to discuss the company's position on consumer consent for facial recognition.

#8. A.I. Is Harder Than You Think By Gary Marcus and Ernest Davis
https://www.nytimes.com/2018/05/18/opinion/artificial-intelligence-challenges.html
The field of artificial intelligence doesn't lack for ambition. In January, Google's chief executive, Sundar Pichai, claimed in an interview that A.I. "is more profound than, I dunno, electricity or fire."
Day-to-day developments, though, are more mundane. Last week, Mr. Pichai stood onstage in front of a cheering audience and proudly showed a video in which a new Google program, Google Duplex, made a phone call and scheduled a hair salon appointment. The program performed those tasks well enough that a human at the other end of the call didn't suspect she was talking to a computer.
Assuming the demonstration is legitimate, that's an impressive (if somewhat creepy) accomplishment.
But Google Duplex is not the advance toward meaningful A.I. that many people seem to think.
If you read Google's public statement about Google Duplex, you'll discover that the initial scope of the project is surprisingly limited. It encompasses just three tasks: helping users "make restaurant reservations, schedule hair salon appointments, and get holiday hours."
Schedule hair salon appointments? The dream of artificial intelligence was supposed to be grander than this — to help revolutionize medicine, say, or to produce trustworthy robot helpers for the home.
The reason Google Duplex is so narrow in scope isn't that it represents a small but important first step toward such goals. The reason is that the field of A.I. doesn't yet have a clue how to do any better.As Google concedes, the trick to making Google Duplex work was to limit it to "closed domains," or highly constrained types of data (like conversations about making hair salon appointments), "which are narrow enough to explore extensively." Google Duplex can have a human-sounding conversation only "after being deeply trained in such domains." Open-ended conversation on a wide range of topics is nowhere in sight.
The limitations of Google Duplex are not just a result of its being announced prematurely and with too much fanfare; they are also a vivid reminder that genuine A.I. is far beyond the field's current capabilities, even at a company with perhaps the largest collection of A.I. researchers in the world, vast amounts of computing power and enormous quantities of data. The crux of the problem is that the field of artificial intelligence has not come to grips with the infinite complexity of language. Just as you can make infinitely many arithmetic equations by combining a few mathematical symbols and following a small set of rules, you can make infinitely many sentences by combining a modest set of words and a modest set of rules. A genuine, human-level A.I. will need to be able to cope with all of those possible sentences, not just a small fragment of them.
The narrower the scope of a conversation, the easier it is to have. If your interlocutor is more or less following a script, it is not hard to build a computer program that, with the help of simple phrase-book-like templates, can recognize a few variations on a theme. ("What time does your establishment close?" "I would like a reservation for four people at 7 p.m.") But mastering a Berlitz phrase book doesn't make you a fluent speaker of a foreign language. Sooner or later the non sequiturs start flowing.
Even in a closed domain like restaurant reservations, unusual circumstances are bound to come up.

("Unfortunately, we are redecorating the restaurant that week.") A good computer programmer can dodge many of these bullets by inducing an interlocutor to rephrase. ("I'm sorry, did you say you were *closed* that week?") In short stylized conversations, that may suffice. But in open-ended conversations about complex issues, such hedges will eventually get irritating, if not outright baffling.
To be fair, Google Duplex doesn't literally use phrase-book-like templates. It uses "machine learning" techniques to extract a range of possible phrases drawn from an enormous data set of recordings of human conversations. But the basic problem remains the same: No matter how much data you have and how many patterns you discern, your data will never match the creativity of human beings or the fluidity of the real world. The universe of possible sentences is too complex. There is no end to the variety of life — or to the ways in which we can talk about that variety.
So what should the field of artificial intelligence do instead? Once upon a time, before the fashionable rise of machine learning and "big data," A.I. researchers tried to understand how complex knowledge could be encoded and processed in computers. This project, known as knowledge engineering, aimed not to create programs that would detect statistical patterns in huge data sets but to formalize, in a system of rules, the fundamental elements of human understanding, so that those rules could be applied in computer programs. Rather than merely imitating the results of our thinking, machines would actually share some of our core cognitive abilities.
That job proved difficult and was never finished. But "difficult and unfinished" doesn't mean misguided. A.I. researchers need to return to that project sooner rather than later, ideally enlisting the help of cognitive psychologists who study the question of how human cognition manages to be endlessly flexible.
Today's dominant approach to A.I. has not worked out. Yes, some remarkable applications have been built from it, including Google Translate and Google Duplex. But the limitations of these applications as a form of intelligence should be a wake-up call. If machine learning and big data can't get us any further than a restaurant reservation, even in the hands of the world's most capable A.I. company, it is time to reconsider that strategy.

#9. Robert B. Reich July 9, 2018, GIVE PEOPLE MONEY
How a Universal Basic Income Would End Poverty, Revolutionize Work, and Remake the World
By Annie Lowrey
https://www.nytimes.com/2018/07/09/books/review/annie-lowrey-give-people-money-andrew-yang-war-on-normal-people.html?rref=collection%2Fissuecollection%2Ftodays-new-york-times&action=click&contentCollection=todayspaper&region=rank&module=package&version=highlights&contentPlacement=1&pgtype=collection
If climate change, nuclear standoffs, Russian trolls, terrorist threats and Donald Trump in the White House don't cause you feelings of impending doom, you might think about artificial intelligence. I'm not just referring to big-brained robots taking over civilization from us smaller-brained humans, but the more imminent possibility they'll take over our jobs.
It's already happening. Robots and related forms of artificial intelligence are rapidly supplanting what remain of factory workers, call-center operators and clerical staff. Amazon and other online platforms are booting out retail workers. We'll soon be saying goodbye to truck drivers, warehouse personnel and professionals who do whatever can be replicated, including pharmacists, accountants, attorneys, diagnosticians, translators and financial advisers. Machines may soon do a better job than doctors at scanning for cancer. This doesn't mean a future without jobs, as some doomsayers predict. But robots will almost certainly push down wages in all the remaining human-touch jobs (child care, elder care,

home health care, personal coaches, sales and so on) that robots can't do because they're not, well, human. Even today, with technology having already displaced many workers, there's no jobs crisis. The official rate of unemployment is at a remarkably low 3.8 percent. Instead, we have a *good* jobs crisis. The official rate hides millions of people working part time who would rather have full-time jobs, along with millions more who are too discouraged to look for work (many ending up on disability), college grads overqualified for their jobs and a growing army of contingent workers with zero job security. Blanketing all are stagnant or declining wages and vanishing job benefits. Today's typical American worker earns around $44,500 a year, not much more than what the typical worker earned in 1979, adjusted for inflation. Nearly 80 percent of adult Americans say they live from paycheck to paycheck, many not knowing how big their next paycheck will be.

Advancing technologies aren't the only cause of this predicament, but notwithstanding Trump's claim to the contrary, technology is a bigger culprit than trade. The economy keeps growing yet most economic gains are going to a few — largely financiers and, increasingly, inventors and owners of the digitized devices that are replacing good jobs. Our economic system isn't designed for this. If the trend continues, it's unclear who will even earn enough to buy all the future robots.

Economic change on this scale doesn't happen without something cracking. The shift from farm to factory featured decades of bloody labor conflict; the move from factory to office and other sedentary jobs caused more upheaval. What will happen when robots push most people out of steady work and into lower-wage gig jobs? I doubt we'll see a revolution. A more likely scenario is a slow slouch toward authoritarianism and xenophobia. We may already be there.

What's the answer? Here in the Bay Area where I live, where inventors and engineers are busily digitizing everything, many civic and business leaders are touting something called a universal basic income, or U.B.I. It's universal in the sense that everyone would receive it, basic in that it would be just enough to live on and cash income rather than voucher-based, like food stamps or Section 8 housing. To the rest of America, a U.B.I. may seem like a pipe dream, but from my vantage point some form of it seems inevitable. Several recent books have provided good background briefings for what a U.B.I. could be, including those by the labor leader Andy Stern, the Facebook co-founder Chris Hughes and the Belgian academics Philippe Van Parijs and Yannick Vanderborght. To these offerings, Andrew Yang, an entrepreneur, adds his own, somewhat breathless version in "The War on Normal People." Annie Lowrey, a contributing editor for The Atlantic, provides a similarly upbeat, although more measured, assessment in "Give People Money." Both are useful primers on the case for a U.B.I. The two books cover so much of the same terrain that I'm tempted to wonder whether they were written by the same robot, programmed for slightly different levels of giddy enthusiasm. Both cite Martin Luther King Jr., Richard Nixon and Milton Friedman as early supporters of a U.B.I. Both urge that a U.B.I. be set at $1,000 a month for every American. Both point out that with poverty currently defined as an income for a single adult of less than $12,000 a year, such a U.B.I. would, by definition, eliminate poverty for the 41 million Americans now living below the poverty line. It would also improve the bargaining power of millions of low-wage workers — forcing employers to increase wages, add benefits and improve conditions in order to retain them. If a U.B.I. replaced specific programs for the poor, it would also reduce government bureaucracy, minimize government interference in citizens' lives and allow people to avoid the stigma that often accompanies government assistance. By virtue of being available to all, a U.B.I. would not only guarantee the material existence of everyone in a society; it would establish a baseline for what membership in that society means.

U.B.I.'s critics understandably worry that it would spur millions to drop out of the labor force, induce

laziness or at least rob people of the structure and meaning work provides. Both Yang and Lowrey muster substantial research to rebut these claims. I'm not sure they need it. After all, $12,000 a year doesn't deliver a comfortable life even in the lowest-cost precincts of America, so there would still be plenty of incentive to work. Most of today's jobs provide very little by way of fulfillment or creativity anyway. A U.B.I. might give recipients a bit more time to pursue socially beneficial activities, like helping the elderly or attending to kids with special needs or perhaps even starting a new business. Yang suggests it would spur a system of "social credits" in which people trade their spare time by performing various helpful tasks for one another. (I.R.S. be warned.) Surely a U.B.I. would help compensate many people — especially women — for the unpaid labor they already contribute. As Lowrey points out, some 40 million family caregivers in America provide half a trillion dollars of unpaid adult care annually. Child care has become so expensive that one of every three stay-at-home mothers today lives below the poverty line (compared with 14 percent in 1970).

But how could America possibly afford a U.B.I.? A $1,000-a-month grant to every American would cost about $3.9 trillion a year. That's about $1.3 trillion on top of existing welfare programs — roughly the equivalent of the entire federal budget, or about a fifth of the entire United States economy. Both Yang and Lowrey come up with laundry lists of potential funding sources — from soaking the rich (raising the top tax bracket to 55 percent, enlarging the estate tax and implementing new taxes on wealth, financial transactions and perhaps even the owners of the robots and related devices that are displacing jobs), to instituting a carbon tax or a value-added tax.

Whatever the source of funds, it seems a safe bet that increased automation will allow the economy to continue to grow, making a U.B.I. more affordable. A U.B.I. would itself generate more consumer spending, stimulating additional economic activity. And less poverty would mean less crime, incarceration and other social costs associated with deprivation. "You know what's really expensive?" Yang asks. "Dysfunction. Revolution." If these measures still aren't enough to foot the bill, Lowrey suggests making a U.B.I. less universal by taxing away U.B.I. payments to high-income earners and reducing other forms of social insurance (for example, eliminating food stamps and welfare programs). As a last resort, she writes, a U.B.I. could be implemented as a kind of negative income tax, by which government simply ensures that every person or household has a certain minimum yearly income. This is what Richard Nixon and Milton Friedman had in mind. Lowrey figures that the cost of such a guarantee would approximate the current total costs of the earned-income tax credit, supplemental security income, housing assistance, food stamps and school lunches. She notes that the simplest way to achieve this would be to transform existing antipoverty programs into unconditional cash transfers. But there's a logical flaw in her argument. Once a U.B.I. is no longer universal or even basic (what if the poor are worse off when other forms of assistance are stripped away?), it's hard to see the point of having it in the first place. More troubling is Lowrey's blurring of the distinction between a U.B.I. that redistributes resources from the superrich to the growing number of vulnerable lower-income Americans and one that merely turns programs for the poor into cash assistance. The latter may be warranted, but it wouldn't touch America's growing scourge of inequality and economic insecurity, which will be made worse as robots take over good jobs.

A core challenge in the future will be how to redistribute money from the ever richer owners of the robots and related technologies to the rest of us, who are otherwise likely to become poorer and less secure. This is not just an economic challenge but also a political one. As we know from recent history, vast fortunes translate directly into political power, and such power effectively resists redistribution. Sadly, neither of these authors discusses how to deal with this paradox.

A world inhabited only by robots, their billionaire owners and a large and increasingly restive

population is the plotline for countless dystopian fantasies, but it's a reality that appears to be drawing closer. If we continue on the path we're on, we will need to make fundamental choices about how to support human livelihoods and ensure equal participation in our economy and society. Most basically, we will have to confront the realities of vastly unequal economic and political power. Even if we manage to enact a U.B.I., it will not be nearly enough.

Robert B. Reich, a former secretary of labor and a professor of public policy at Berkeley, is the co-creator of the Netflix documentary "Saving Capitalism" and the author of "The Common Good."