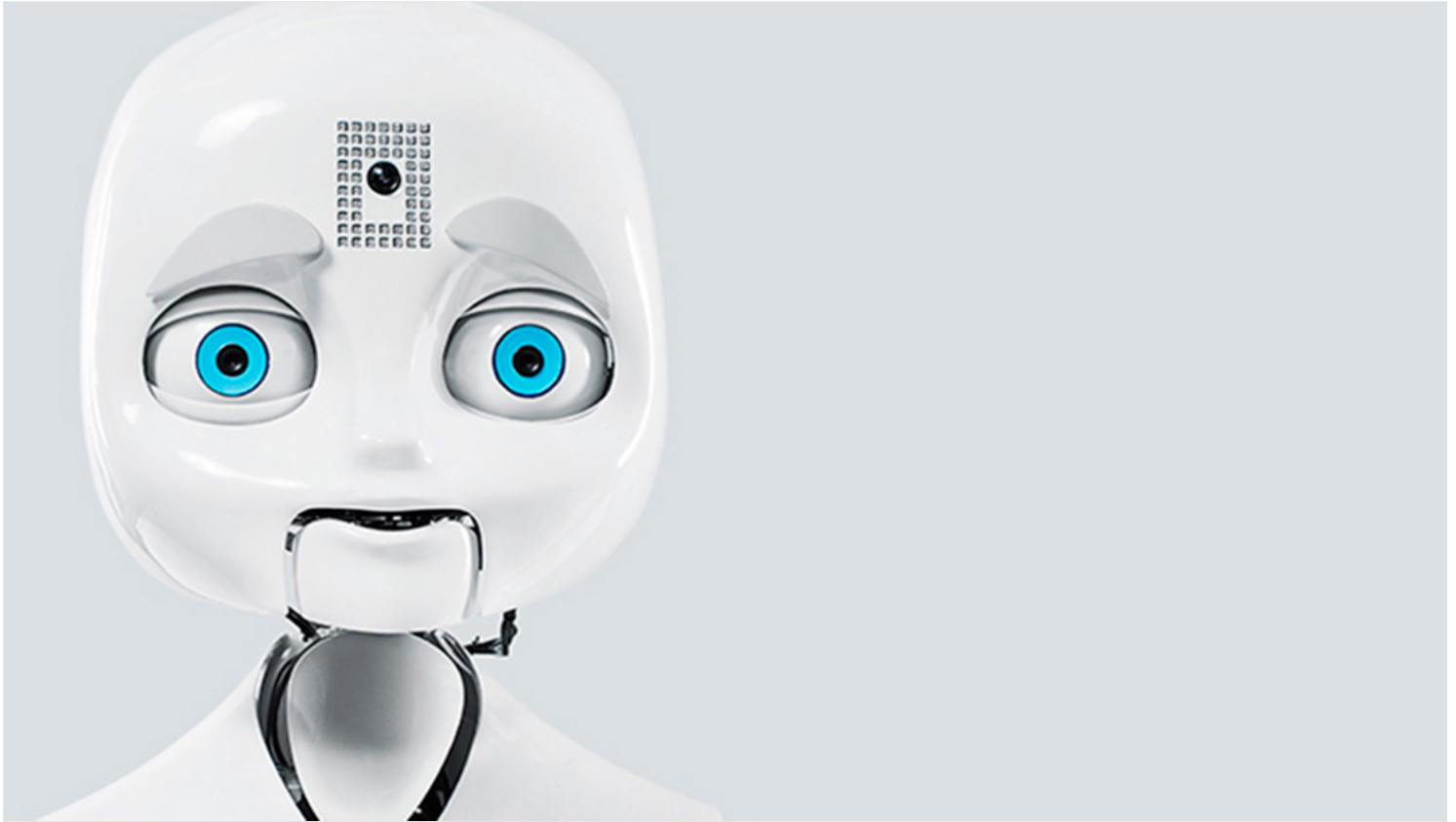


The Robots Are Here



Isaac Asimov, the astonishingly prolific science fiction writer, died in 1992, but he foresaw much about American politics today. One of his most profound works is the neglected short story “Franchise,” written in 1955, in the days when computers were bulky, room-sized machines powered by vacuum tubes and operated by a high priesthood of punch card-wielding technicians. For a work of fiction, it is stunningly prescient.

In Asimov’s tale, set in November 2008, democratic elections have become nearly obsolete. A mysterious supercomputer said to be “half a mile long and three stories high,” named Multivac, absorbs most of the current information about economic and political conditions and estimates which candidate is going to win. The machine, however, can’t quite do the job on its own, as there are some ineffable social influences it cannot measure and evaluate. So Multivac picks out one “representative” person from the electorate to ask about the country’s mood (sample query: “What do you think of the price of eggs?”). The answers, when combined with the initial computer diagnosis, suffice to settle the election. No one actually needs to vote.

Asimov was on to something: American political campaigns have indeed become extraordinarily sophisticated data-mining operations driven by smart computers, harvesting and sifting through vast virtual warehouses of demographic information and consumer preferences to manipulate and shape the electorate. They may not do the voting for us, but this new generation of intelligent machines can do just about everything else. And when it comes to humans actually casting their ballots, well, we hardly are surprised by the results: Computer-powered data jocks such as Nate Silver can predict the outcomes of most races and often the margins of victory as well. We’re not too far off from the world of Asimov’s protagonist, an Indiana department-store clerk dragooned into being America’s lone “voter.” “From the way your brain and heart and hormones and sweat glands work, Multivac can judge exactly how intensely you feel about the matter,” the machine operators tell him. “It will understand your feelings better than you yourself.”

Nearly 60 years after Asimov anticipated a decidedly dramatic intrusion of machines into our politics, we may not (yet) be offloading our democratic responsibilities to computers, but we are empowering them to reshape our economy and society in ways that could be just as profound. The rise of smart machines—technologies that encompass everything from artificial intelligence to industrial robots to the smartphones in our pockets—is changing how we live, work and play. Less acknowledged, perhaps, is what all this technological change portends: nothing short of a new political order. The productivity gains, the medical advances, the workplace reorganizations and the myriad other upheavals that will define the coming automation age will create new economic winners and losers; it will reorient our demographics; and undoubtedly, it will transform what we demand from our government.

You see, Linda, till about forty years ago, everybody always voted.”... “How did all the people know who to vote for? Did Multivac tell them?”

Matthew’s eyebrows hunched down and he looked severe. “They just used their own judgment, girl.” —Isaac Asimov, *Franchise*

The rise of the machines builds on deeper economic trends that are already roiling American society, including stagnant growth since 2001 and a greater openness to trade and foreign outsourcing. But it’s the rapid increase in machines’ ability to substitute for intelligent human labor that presages the greater disruption. We’re on the verge of having computer systems that understand the entirety of human “natural language,” a problem that was considered a very

tough one only a few years ago. We're close to the point when we can fit the (articulable) knowledge of the entire world into the palm of our hands. Self-driving cars are making their way onto streets in [California](#) and [Nevada](#). Whether you are a factory worker or an accountant, a waitress or a doctor, this is the wave that will lift you or dump you.

Even the robots so familiar from vintage science fiction are now really making their mark. Worldwide annual shipments of industrial robots have more than doubled in the past decade, according to the International Federation of Robotics. Taiwan's Foxconn, the world's largest contract electronics manufacturer, announced in 2011 that it would increase the use of robots in its factories one hundredfold, bringing its total to [1 million](#) robots by 2014. South Korea is [experimenting](#) with robotic prison wardens that patrol and report inmates who do something wrong; Japanese restaurants are [deploying](#) fast-food robots to make and serve sushi. Meanwhile, lower-level tasks are now being automated by software programs, changing newsrooms, law firms, hospitals and countless other workplaces. Automation and other productivity improvements are expected to have eliminated 2.2 million business-services jobs in the United States and Europe from 2006 to 2016, at a rate of about 200,000 jobs annually, [according to](#) the Hackett Group, a Miami-based consultancy.

As one joke making the rounds has it, "A modern textile mill employs only a man and a dog—the man to feed the dog, and the dog to keep the man away from the machines." That is the world in which we now live.

The rise of intelligent machines will spawn new ideologies along with the new economy it is creating. Think of it as a kind of digital social Darwinism, with clear winners and losers: Those with the talent and skills to work seamlessly with technology and compete in the global marketplace are increasingly rewarded, while those whose jobs can just as easily be done by foreigners, robots or a few thousand lines of code suffer accordingly. This split is already evident in the data: The median male salary in the United States was [higher](#) in 1969 than it is today. Middle-class manufacturing jobs have been going away due to a mix of automation and trade, and they are not being replaced. The most lucrative college majors are in the technical fields, such as engineering. The winners are doing much better than ever before, but many others are standing still or even seeing wage declines.

These trends will only accelerate in the years to come, rewriting America's social contract in the process. We will move from a society based on the pretense that everyone is given a decent standard of living to one in which people are expected to fend for themselves. I imagine a world in which, say, 10 to 15 percent of the citizenry (or more, in due time) is extremely wealthy and has fantastically comfortable and stimulating lives, equivalent to those of current-day millionaires, albeit with better health care.

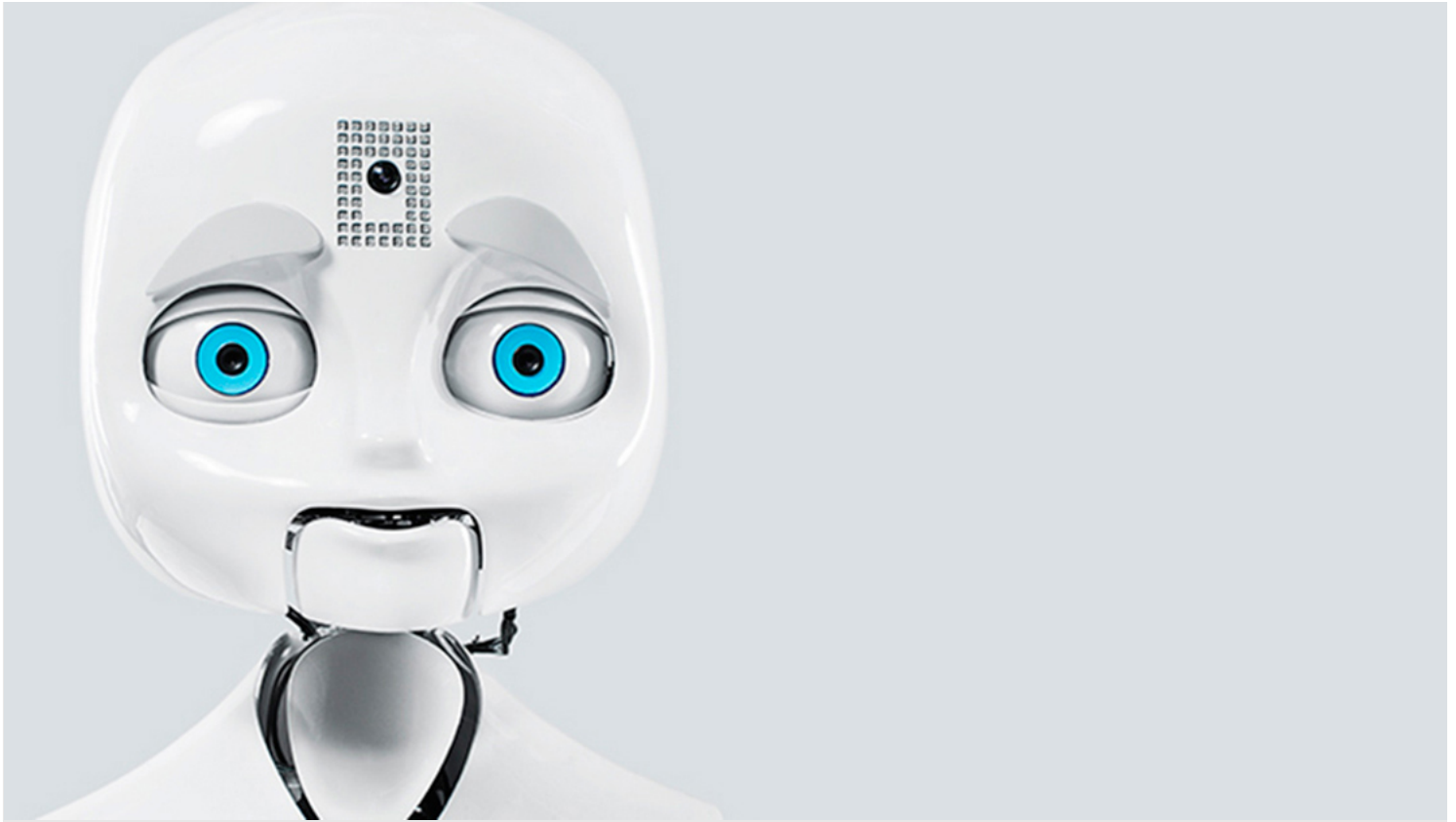
Much of the rest of the country will have stagnant or maybe even falling wages in dollar terms, but they will also have a lot more opportunities for cheap fun and cheap education. Many of these people will live quite well—especially those who have the discipline to benefit from all the free or nearly free services that modern technology makes available. Others will fall by the wayside.

The slogan "We are the 85 percent!" probably won't sound as compelling as the Occupy Wall Street version. It will become increasingly common to invoke "meritocracy" as a response to income inequality—whether you call it an explanation, a justification or an excuse is up to you. Since the self-motivated will find it easier to succeed than ever before, a new tier of people from poor and underprivileged backgrounds will claw their way to the top—Horatio Algiers for the automation age.

This new digital meritocracy will prove self-reinforcing. Worthy individuals will rise from poverty on a regular basis, but that will only make it easier to ignore those left behind. The wealthy class will grow larger over time, and more influential. And the increasingly libertarian values of the wealthy will shape the public debate, strengthening the upper class's grip on the commanding heights of the economy and society, and pulling policy in their favor.

You might think the 85 percent would rise up in protest. Many commentators, influenced by widening income inequality and the Occupy Wall Street and Tea Party movements, are predicting exactly that scenario: an America torn by unrest and maybe even political violence. I do think we'll see some outbursts of trouble, but in the long run the picture will be fairly calm and indeed downright ordinary. Expect a society that will be more conservative, both politically and in the more literal sense of that term.

Page 1



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