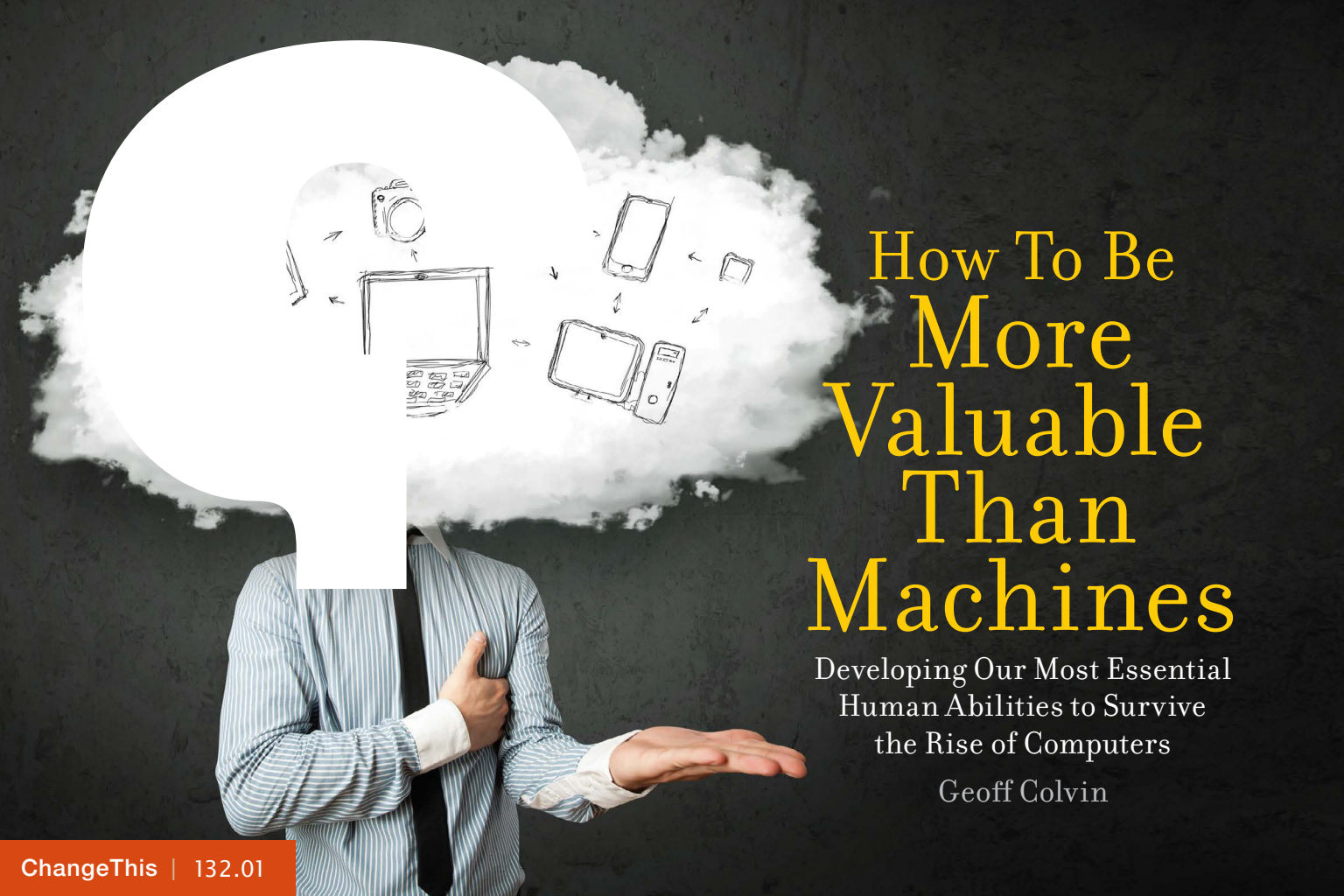

How To Be More Valuable Than Machines

Developing Our Most Essential Human Abilities to Survive the Rise of Computers

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A few years from now, what will you do better than a computer?

Answer honestly. Keep in mind what you're up against already:

- **Computers perform discovery in lawsuits better than human lawyers do,** reading documents and classifying them by relevance. Across hundreds of thousands of memos, emails, contracts, and other documents, the software can spot patterns that no human could notice. The computer never gets tired or distracted. It's faster and cheaper than humans, doing the work of 100 to 500 lawyers. It's replacing workers who have three years of post-graduate education and who are among the highest paid in our society.
- **Researchers at UC-Berkeley are training robots to identify and cut out cancerous tissue** during surgery. Unlike today's surgical robots, which aren't robots at all but rather tools used by human surgeons, these machines are being trained to work entirely on their own, performing tasks that require even more education than lawyering does.
- **As the Pepper robot from Softbank scurries about your home or office, it reads your emotions** by your words, tone of voice, facial expressions, and body language. It then

responds in all those ways; its hands and posture in particular are remarkably expressive. If you think emotions are beyond the competencies of robots, you were right for a long time. But no more.

- **Software can predict the likelihood that criminals will re-offend** more accurately than human juries can. Other software can predict Supreme Court decisions more accurately than human legal experts can.
- **A robot can prepare, cook, and serve a hamburger,** even arranging lettuce and tomato on the bun, more reliably than a human burger flipper can.
- **Daimler recently began testing the first self-driving semi truck** on the roads of Nevada. The number 1 job among American men, held by 2.9 million of them, is truck driver.

There's more, much more, but the trend is clear. It leads to an inescapable question: Is any human worker safe?

The answer is yes, but not for those who still think of valuable skills in the way we've always thought of them. What I urgently want you to understand is that we're entering an era in which the skills that make you valuable are not only changing—they comprise a fundamentally different kind of skills from those that have made people economically valuable up to now.

As the economy is transformed, some people will do great, and plenty of others will suffer. The winners will be those who conceive of skills and value in a fundamentally new way, different from what we're used to.

In trying to figure out how humans will add value as technology gallops ahead, we've mostly been looking in the wrong place. We ask what kind of work a computer will never be able to do. While that seems like common sense, the lesson of history is that it's dangerous to claim there are any skills that computers cannot eventually acquire. The trail of embarrassing predictions goes way back—computers would never be able to translate languages decently (Google does it well and is getting better every day, for free) or play chess above a mediocre level (ask Garry Kasparov) or drive a car.

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The pattern is clear. Extremely smart people note the overwhelming complexity of various tasks, including some like driving that people handle almost effortlessly, and conclude that computers will find mastering them terribly tough. Yet it's just a matter of time until the feat is accomplished, often less time than anyone expects. Year after year, we reliably commit the same blunder of underestimating what machines will do.

A better strategy is to ask, What are the activities that we humans, driven by our deepest nature, will simply insist be performed by other humans, even if computers could do them? We are above all social beings, hardwired from our evolutionary past to equate personal relationships with survival. No connection can be more powerful. We want to work with other people in solving problems, tell them stories and hear stories from them, create new ideas with them, because if we didn't do those things on the savanna 100,000 years ago, we died.

The evidence is clear that the most effective groups are those whose members most strongly possess the most essentially, deeply human abilities—empathy above all, social sensitivity, storytelling, collaborating, solving problems together, building relationships. We developed these abilities of interaction with other people, not machines, not even emotion-sensing, emotion-expressing machines. We may enjoy the Pepper robot, but we didn't evolve to interact with it.

We want to follow human leaders, even if a computer could say all the right words, which is not an implausible prospect. We want to hear our diagnosis from a doctor, even if a computer supplied it, because we want to talk to the doctor about it—perhaps just to talk and know we're being heard by a human being. We want to negotiate important agreements with a person, hearing every quaver in his voice, noting when he crosses his arms, looking into his eyes.

To look into someone's eyes—that turns out to be, metaphorically and quite often literally, the key to high-value work in the coming economy.

Since the dawn of the Industrial Revolution—the machine age—much human success has derived from our being machine-like. For decades, most of the physical work in factories and the mental work in offices was repetitive and routine. It was designed to be that way; that's why Henry Ford complained, "Why is it every time I ask for a pair of hands, they come with a brain attached?" It was the kind of work for machines to do, only the machines of the era couldn't do it. The machines improved, slowly at first, then rapidly, driven by the ever quickening advance of InfoTech. Now they can actually do most of the machine work of our world.

As a result, the meaning of great performance has changed. It used to be that you had to be good at being machine-like. Now, increasingly, you have to be good at being a person. Great performance requires us to be intensely human beings.

To put it another way: Being a great performer is becoming less about what you know and more about what you're like.

The emerging picture of the future casts conventional career advice in a new light, especially the non-stop urging that students study coding and STEM subjects—science, technology, engineering, math. It has been excellent advice for quite a while; eight of the ten highest-paying college majors are in engineering, and those skills will remain critically important. But important isn't the same as high-value or well-paid. As InfoTech continues its advance into higher skills, value will continue to move elsewhere. Engineers will stay in demand, it's safe to say, but tomorrow's most valuable engineers will not be geniuses in cubicles; rather they'll be those who can build relationships, brainstorm, collaborate, and lead.

As a changing economy revalues human skills, it seems logical to see the trend as the latest step in a long progression: For centuries people have improved their living standards by mastering new skills that a new economy rewards. But the skills that are becoming most valuable now, the skills of deeply human interaction, are not like those other skills. Learning to be more socially sensitive is not like learning algebra or how to operate a lathe or how to make a well-functioning blog in WordPress. Those skills, and virtually all the skills that ever-changing economies have

rewarded in the past, are about what you know. The skills that become increasingly valuable as technology advances are about what you're like.

Reordering what is valuable means reordering who is valuable. Specifically:

- **Women are just better at the newly valuable skills** than men are, on average. Psychologists have been measuring empathy, social sensitivity, relationship-building, and related abilities for decades, and it's resoundingly clear that women overall score higher than men. Do we really need the research? Don't we all know this already? There's no need to argue over whether the differences are innate or acquired; they're clearly both, which means they're deep and powerful. Advice to men: Face reality but don't despair; you're not doomed to irrelevance. Not all women are better than all men at these abilities. On the contrary, differences within genders are extremely wide; that's why I keep saying women are better than men "on average." In addition, all these abilities can be developed (see below). Improving might be a challenge for you. Deal with it.

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- **People who grew up in large families tend to be better** at some of these abilities. People (men or women) who grew up with more sisters tend to be better, as do people who grew up in rural or small-town settings. Note that average family size is shrinking worldwide, and people everywhere are increasingly living in big cities, possibly diminishing the supply of these valuable abilities—and making them still more valuable.

- **"Givers," a term coined by Wharton professor Adam Grant, do better** than "takers." Givers are those who show a prosocial orientation, a fundamental wish to help others even without any prospect of receiving a gain for themselves.

Even though some people seem to bring early propensities for the new high-value skills, all these abilities can be trained and developed. That's important to remember. Many of us consider them traits, not skills—personality features that you've either got or you don't. But it isn't true. A number of organizations have seen the future and are training people in these skills today:

- **The Cleveland Clinic trains all employees and contractors in empathy** through a path-breaking and highly effective program that it created. Patient-experience ratings have rocketed. Staff members bring their toughest cases to the program and then work through them, with instructors following the classic approach to teaching any skill: Explain how it's done; show someone doing it well, in this case with videos; ask the trainees to do it;

give them feedback. The basic skill in this case is building an empathetic relationship, a simple idea that required some getting used to. Dr. Adrienne Boissy, who runs the programs, says, “The premise is that what we’re doing in health care is creating relationships. To most health care providers, that’s not what they think they’re doing.” It’s a good example of how the new high-value skills are deeply different from the old ones.

- **Stanford, Harvard, and other top business schools are radically reforming their curricula** to produce graduates who will succeed in the coming environment. Increasingly they’re moving away from classroom teaching of subjects like finance, economics, and accounting—old high-value skills that now are more easily taught online—and instead are putting students through experiences of personal interaction. “We’re changing how students interact,” Stanford business school dean Garth Saloner told me, “and it starts in their first quarter.” That’s when they’re required to work as small teams in exercises and simulations of high-pressure business situations, then analyze their own behavior. That first quarter culminates in a day-long event when the teams must engage in high-stakes interactions with groups of experienced alumni who take the role of boards of directors; the teams are told their assignments in advance, “but there’s always a curve ball thrown in,” said Saloner. Then the students get detailed assessments of their behavior—listening, speaking, attention to body language—from the alumni and faculty.

- **The U.S. Army is revolutionizing its training** to recognize that military success is being transformed in much the same way as business success. Modern warfare is conducted in five domains, land, sea, air, space, and cyberspace, but top leaders plan increasingly for another domain—the human domain. "Planning for success in the Army 'involves the intersection of land power and the human domain,'" Lt. Gen. Keith Walker has said, as reported by the military news site military.com. At the time he spoke, Walker was head of the Army's "futures center," responsible for adapting the Army to tomorrow's world. The number 1 factor, he realized, was social. "'The rising velocity of human interaction' through the Internet and social media 'makes influencing human behavior the centerpiece of military strategy.'" Success will come through "recognizing the physical, cognitive, and social influences on a civilian population targeted by an insurgency." Generals didn't used to talk that way. They now realize that in their world, as in the world generally, technology and knowledge are wonderful advantages but no longer the decisive advantages. "I hope we never have to fight our enemies, but if we do, I want to do it fast—in a matter of days or weeks, not months," Ashton Carter told me not long before he became U.S. Secretary of Defense in 2015. "What will winning mean? Not maximum destruction. World War Two was the apogee of the destructive war, where you won by destroying the enemy's productive capacity and in the process large parts of his society. In future wars, winning will mean having a victory that is widely accepted, including by the defeated. So you won't win by mowing down millions of people. You'll win by having people at the front edge who have human skills."

The greatest anxiety troubling workers today is embodied in the simple question we started with: A few years from now, what will you do better than a computer? We humans have good reason to be uneasy. Don't minimize the economic transformation we're all going through. But please realize that you and your kids can prosper in this new world.

> *“Even though some people seem to bring early propensities for the new high-value skills, all these abilities can be trained and developed. That's important to remember.*

Success requires thinking about skills and value in a fundamentally new way.

It requires accepting that value is less about what you know and more about what you're like.

It demands that you look not only outward for the skills you need, as we have always done, but also inward.

If you do all that—and only if you do all that—you'll have little to worry about. You can be more valuable than any machine.

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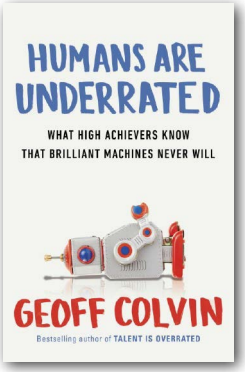

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ABOUT THE AUTHOR | Geoff Colvin is *Fortune*'s Senior Editor-at-Large and one of America's most respected journalists. He lectures widely on significant trends in business—the infotech revolution, leadership, globalization, wealth creation—and is the regular lead moderator for the Fortune Global Forum. He also appears daily on the CBS Radio Network, reaching over seven million listeners each week. His previous book, *Talent Is Overrated: What Really Separates World-Class Performers From Everybody Else*, was a national bestseller and has been translated into a dozen languages.

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