Learning to Love Intelligent Machines

Garry Kasparov

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It was my blessing and my curse to be the world chess champion when computers finally reached a world championship level of play. When I resigned the final match game against the IBM supercomputer Deep Blue on May 11, 1997, I became the first world champion to be defeated in a classical match by a machine.

It is no secret that I hate losing, and I did not take it well. But losing to a computer wasn’t as harsh a blow to me as many at the time thought it was for humanity as a whole. The cover of Newsweek called the match “The Brain’s Last Stand.” Those six games in 1997 gave a dark cast to the narrative of “man versus machine” in the digital age, much as the legend of John Henry did for the era of steam and steel.

But it’s possible to draw a very different lesson from my encounter with Deep Blue. Twenty years later, after learning much more about the subject, I am convinced that we must stop seeing intelligent machines as our rivals. Disruptive as they may be, they are not a threat to humankind but a great boon, providing us with endless opportunities to extend our capabilities and improve our lives.

Many of the great early figures in computer science dreamed of creating a machine that could play chess. Alan Turing published the first chess program in 1953. A computer to run it didn’t yet exist, so he flipped through pieces of paper to run his algorithm, a “paper machine” that could actually play a recognizable game of chess.

It took much longer than most early experts thought it would for machines to challenge the best human chess players. But by the early 1980s, it was becoming clear that it was only a matter of time before ever-faster hardware would crunch positions fast enough to do the job. It turned out that a computer did not need to mimic human thought to play like a chess grandmaster.

Deep Blue didn’t think like I did about which move to play any more than a calculator needs a pencil and paper to perform long division. The ingredients are similar—a combination of memory, evaluation and calculation—but while a grandmaster uses experience to focus on the most relevant factors, the machine grinds through every possible move for both sides, going deeper and deeper with each pass.

During my 20 years at the top of the chess world, from 1985 to 2005, chess-playing machines went
from laughably weak to the level of the world champion. It was a startling transformation to experience firsthand, and it was impossible not to feel unsettled, even threatened, by their rapid progress.

These are the same sensations that many are feeling today, as intelligent machines advance in field after field. Few people will experience the dramatic, head-to-head competition against a machine that I experienced, of course, but the sensation of being challenged, surpassed and possibly replaced by an automaton, or an invisible algorithm, is becoming a standard part of our society.

Speaking from painful personal experience, I would suggest that this is the wrong frame of reference to approach the issue, and it is having a negative influence when we desperately need more optimism. The “human versus machine” narrative rose to prominence during the industrial revolution, when the steam engine and mechanized automation in agriculture and manufacturing began to appear at large scale. The storyline grew more ominous and pervasive during the robotics revolution of the 1960s and 1970s, when more precise and intelligent machines began to encroach on unionized jobs in manufacturing. The information revolution came next, culling millions of jobs from the service and support industries.

Now we have reached the next chapter in the story, when the machines “threaten” the class of people who read and write articles about them. We see headlines every day about how the machines are coming for the lawyers, bankers, doctors and other white-collar professionals. And make no mistake, they are. But this is good news.

Every profession will eventually feel this pressure, and it must, or else it will mean that humanity has ceased to make progress. Waxing nostalgic about jobs lost to technology is little better than complaining that antibiotics put too many gravediggers out of work. The transfer of labor from humans to our inventions is nothing less than the history of civilization. It is inseparable from centuries of rising living standards and improvements in human rights.

What a luxury to sit in a climate-controlled room with access to the sum of human knowledge on a device in your pocket and lament that we don’t work with our hands anymore! There are still plenty of places in the world where people work with their hands all day, and also live without clean water and modern medicine. They are literally dying from a lack of technology.

There is no going back, only forward. We don’t get to pick and choose when technological progress stops or where. People whose jobs are on the chopping block of automation are afraid that the current wave of tech will impoverish them, but they also depend on the next wave of technology to generate the economic growth that is the only way to create sustainable new jobs.

I understand that it is far easier to tell millions of newly redundant workers to “retrain for the
information age” or to “join the entrepreneurial economy” than to be one of them or to actually do it. And who can say how quickly all that new training will also become worthless? What professions today can be called “computer proof”?

Many jobs today didn’t even exist 20 years ago, a trend that will continue and accelerate. Mobile app designer, 3-D print engineer, drone pilot, social media manager, genetic counselor—to name just a few of the careers that have appeared in recent years. And while experts will always be in demand, more intelligent machines are continually lowering the bar to creating with new technology.

Compare what a child can do with an iPad in a few minutes to the knowledge and time it took to do basic tasks with a PC just a decade ago. These advances in digital tools mean that less training and retraining are required for those whose jobs are taken by robots. It is a virtuous cycle, freeing us from routine work and empowering us to use new technology productively and creatively.

Machines that replace physical labor have allowed us to focus more on what makes us human: our minds. Intelligent machines will continue that process, taking over the more menial aspects of cognition and elevating our mental lives toward creativity, curiosity, beauty and joy. These are what truly make us human, not any particular activity or skill like swinging a hammer—or even playing chess.

—Mr. Kasparov is the chairman of the Human Right Foundation and a senior visiting fellow at the Oxford Martin School. This essay is adapted from his new book, “Deep Thinking: Where Artificial Intelligence Ends and Human Creativity Begins,” which will be published by PublicAffairs on May 2.

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