President's Corner
I am Not a Robot
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You've seen the wavy, distorted text to translate on log-in pages on the web. You've had to match images to words to be allowed to buy concert tickets. You've even had to check a box that says "I am not a robot" to sign up for a web service. What's going on here? Why must we be inconvenienced? Are robots taking over the world?

The problem is not with robots, at least in the traditional sense. Robots are machines that can perform a complex series of actions, under computer or program control. These include industrial machines, military UAVs (unmanned aerial vehicles) and the Roomba cleaning your floor. Google is not trying to keep C-3PO from signing up for a Gmail account.

A computer running a program could also be considered a kind of robot, as it is a machine performing an action. An ATM machine is a kind of robot, programmed to provide you with cash (if you have money in your account). Programs that catalog the web could be considered robots. These kinds of robotic programs can help us find things. Unfortunately, there are more unsavory applications for these web robots, like spreading spam and capturing user information. If there is a limited amount of something desirable for sale on the web, a program could be written to go out on the web and buy up all of it the instant it goes on sale - concert tickets, for instance. It is not the poor robot program that is at fault, but the bad people behind its actions.

To prevent these misdirected online bots from buying all the tickets, spamming all the blogs and signing up for all the email addresses, tests were developed to try to filter out the bots and only let real humans sign up on web pages. Initial tests used CAPTCHA codes; CAPTCHA stands for Completely Automated Public Turing test to tell Computers and Humans Apart. These tests involved things that humans should be able to do, like recognize numbers and letters that appear melted, but that are difficult for machines or programs to understand and complete. After going through several different types of these tests to defeat ever-smarter AI (artificial intelligence) web bots, Google has gone to a test where the way you click on a box that indicates "I am not a robot" can reveal your humanity.

This may help protect your opportunity to go to Comic-Con, but it does nothing to stop the proliferation of robots in our society. The capabilities and uses of robotic devices and their programs keep increasing as advancements are made in AI. Robots are just like any other technology we use; they can have benefits and drawbacks.

Like recognizing melted letters, it is commonly thought that there are things that only humans can do. These things usually involve creativity, like writing a novel or painting a

masterpiece. Computers may be able to quickly make decisions and complete calculations but lack an aesthetic sense and artistic capability. As processing power, memory capacity and algorithm sophistication all increase, computers will get better at these things as well.

I would have loved to have a robot writer to write my newsletter column this month, as I started on this article way past my normal deadline. There now are news-writing bots that can quickly create basic stories for newspapers and magazines, using AI. While a great tool for journalists, some are concerned it could also be their replacement. Computers and AI are making inroads in other fields, such as law, where they are increasingly used to sift through documents for passages relevant to their casework. Computers are even using AI to claim some of that creativity that humans hold dear; there are programs that claim to create art, compose music and write novels.

Are we ready to accept more robots into our workplaces and our lives? The robots referenced in our popular culture are mostly the same - usually somewhat humanoid in configuration, often good, sometimes evil. Gort from the film The Day the Earth Stood Still, Robby the Robot from the 1956 film Forbidden Planet, the Robot from Lost in Space, the droids C-3PO and R2-D2 from Star Wars and the Terminator robots have all shaped our perception of what a robot is. Yet we now have many robots among us, and few have a humanoid appearance.

AI has helped computers beat humans at their own games. Watson, the IBM computer that competed and won against human contestants on the TV quiz show Jeopardy, is now being used to improve healthcare delivery and weather forecasting, among other things. Deep Blue was an IBM chess-playing computer that beat a reigning world champion human. AlphaGo, a program using Google's DeepMind AI, was able to beat top-ranked human players.

Other robots use AI to navigate, build and answer our questions. Self-driving cars are in development and testing by many companies. If successful and accepted by consumers, they will be a transforming technology in our society. They promise to reduce traffic, free up our time spent traveling, increase road safety and provide transportation for those that cannot drive. They may greatly change our driving-oriented car culture and affect our lives in ways we cannot anticipate. Robotic trucks are also under development, with the goal to make shipping safer and less expensive.

We already have UAVs and drones, many of which can take off, fly and land under computer control. Our robotic space probes have surveyed all the planets and even left the solar system. Our robotic rovers continue to drive around on Mars, helping us explore and learn about our neighboring planet. Back on Earth, robots help us build cars in our factories. Our Roombas sweep and mop our floors. Voice operated assistants like Amazon's Echo and Google's Home Assistant provide support in our lives.

All these robots touch our lives every day in positive ways. Perhaps we should not be so ready to segregate into us and them. Just as John F. Kennedy expressed solidarity with the citizens of West Berlin in his 1963 speech, saying “Ich bin ein Berliner”, perhaps we should be saying

49 20 61 6D 61 72 6F 62 6F 74 2E

[Translation from ASCII Hexadecimal: I am a robot.]