

Directions:

1. Mark your confusion.
2. Show evidence of a close reading. Mark up the text with questions and comments.

"New Technology Source: The Week Magazine"

Source: *The Week Magazine*

## 1. The Pentagon's 'freakily fast' robo-cheetah

A galloping robot set a new speed record for multi-legged machines — clocking in at 18 mph. This robo-cheetah was just clocked at 18 mph, easily beating the previous legged robot record of 13.1 mph.

The awkward march of the military's Robo-mule was sturdy, if inelegant. Now, the newest animal-inspired robot sponsored by the Pentagon's Defense Advanced Research Projects Agency (DARPA) takes its cues from a much faster beast: The cheetah. Built by robotics firm Boston Dynamics, robo-cheetah just set a new speed record for multi-legged robots, clocking in at 18 miles per hour. The machine's cat-like spine actually flexes and extends to maximize the robot's stride, and the galloping machine is "constantly tipping forward, falling and regaining equilibrium with every step" — just like real animals. Soon, robo-cheetah will be "running much faster and outdoors," says Boston Dynamics' Alfred Rizzi. "We really want to understand the limits of what is possible for fast-moving robots."

The reaction: Robo-cheetah is "freakily fast," says Katie Drummond at *Wired*. Consider human world-record holder Usain Bolt, "who clocked an amazing 28 mph during the 100-meter sprint in 2009." Robo-cheetah is right on his heels, and may surpass Bolt soon. At this rate, says Andy Greenberg at *Forbes*, such robots may one day "leave flesh-and-blood animals in the dust, too."

## 2. South Korea's mood-sensing robotic prison guards

In the overcrowded prisons of Pohang, jail officials will soon have an unlikely watchdog to help patrol corridors. A robotic guard patrols the halls of a prison in Pohang, South Korea: The robots will help relieve overworked prison guards, and hopefully reduce labor costs.

South Korea's robotic prison guards, charged with monitoring prison cells for suspicious activity, have arrived — and they look a lot less friendly than the last time we saw them. The autonomous, mood-sensing droids are touted by Reuters as the "world's first robotic prison guard," and will be used to relieve overworked guards of **mundane** patrolling duties. The 5-foot tall "Robo-guard" comes equipped with advanced 3-D cameras and microphones to detect signs of **erratic** or dangerous behavior — to prevent things such as suicide attempts — and can summon human allies when necessary. The bots are controlled from either a computer terminal or an iPad, and can serve as a two-way communications console between prison staff and inmates. Best of all: When the machine's power dips down to 20 percent, it automatically returns to its charging station. Three "Robo-guards" will be field-tested in the South Korean city of Pohang at a cost of \$900,000, which officials hope will eventually cut down on labor expenses.

The reaction: "Robo-guard" looks "pretty different from the last time we saw it," says Dan Nosowitz at *Popular*

Science. The machines are "a little less cheerful, a little more Cylon-y" —like the robotic villains of Battlestar Galactica fame. But on the bright side, it's a good thing we don't have to worry about these machines taking over Terminator-style, says Sam Byford at The Verge. The most Robo-guard can do "is **summon** correctional officers to the scene to handle the problems themselves."

### **3. Geminoid F: The creepily lifelike singing fem-bot**

The world's most realistic female android makes her public debut in a Hong Kong shopping mall. The eerily realistic Geminoid F can make more than 60 facial expressions... and can be yours for just \$110,000. Renowned Japanese roboticist Hiroshi Ishiguro wants to make androids that are so realistic they fool humans. And his most advanced effort, Geminoid F — the "F" is for female — is in the midst of her coming-out party at a Hong Kong mall, showing off for, and even singing to, passing shoppers and robot enthusiasts gathered for an international Robots in Motion exhibition. (See Geminoid sing below.) The fem-bot can smile, frown, pout, and make about 60 other facial expressions, powered by 12 mechanical actuators situated under her rubber skin. Most of Ishiguro's androids sell for around \$1.2 million, but Geminoid F will be more accessible at \$110,000.

The reaction: "Girls, beware," says the Daily Bhaskar. This "gorgeous female-looking robot" is so freakishly realistic, you may soon have some stiff competition. Yes, Geminoid F "can talk and sing like a human," says John Walsh in Britain's The Independent. But it's not her "passive-aggressive sulk" or "blinking eyes and shy smile," that I found creepy at a recent press conference — it was her minder, the twentysomething Japanese woman after whom Geminoid F is modeled.

Stroking her android doppelganger's cheek and hair with an indulgent smile, it looked like the minder wasn't sure which one of them was the robot.

### **4. The 'DNA robots' that hunt cancer cells**

Harvard scientists invent a novel method of eliminating invasive tumors, employing nano-sized machines fashioned after white blood cells Harvard scientists have made complex bio-machines out of "DNA origami" that could help target cancer cells.

In a concept that sounds eerily similar to science fiction, researchers from Harvard University have created tiny nano-sized "DNA robots" that can be instructed to hunt and destroy cancer cells. Scientists created the bio-machines to carry out the duties normally reserved for immune system-boosting white blood cells, and the mini-robots could potentially lead to treatments for other autoimmune diseases.

How do these robots kill cancer? The tiny devices were constructed out of DNA strands and folded into a shape resembling a clamshell. Researchers call it the "DNA origami" method. The devices are pre-programmed to open up in the presence of cancerous cells. Once open, the robot releases a series of antibodies that cause its target to self-destruct. "The idea is based on the behavior of the body's immune cells," says Elizabeth Lopatto at Bloomberg Businessweek, "which recognize viruses or other invaders and attack them." And this really worked? In preliminary lab-controlled tests, a team of Harvard scientists, led by Shawn Douglas, used the DNA robots to identify and effectively kill leukemia and lymphoma cells in a petri dish. "In diseases such as cancer, we know if we can find every single last cell and kill or reprogram it, we can cure disease," said Douglas.

What's next for the cancer-killing bots? Researchers will test the robots in animals like mice. Introducing the robots into living bodies will present a new set of challenges, says The State Column, including figuring out how to minimize the robot's toxicity levels, and increasing the amount of time the robots can circulate in the

bloodstream, particularly because the DNA robots can't reproduce on their own. Commercial use of the robots is still years away.

AoW # 19- New Technology

---

---

---

Reading Questions

- Using the article, answer the following questions
  - If necessary, use outside sources to answer the questions
1. Which piece of technology is the most exciting to you? The most scary?
  2. How might any or all of these technologies change the way the world works? Predict the outcome.
  3. What are some alternative uses to these technologies that are not covered in the blurbs (small articles). Are they helpful or harmful? Explain.
  4. What ethical questions or concerns are raised by any of these developments?

Vocabulary builder

- Find each vocabulary word in the article. Copy down the sentence in which it appears. Make a guess as to the definition of the word. Find the dictionary definition. Finally, create an illustration or original sentence using the proper meaning of the word

<b>Word-</b>
<b>Context-</b>
<b>Guess-</b>
<b>Dictionary definition-</b>
<b>Illustration or original sentence-</b>

<b>Word</b>
<b>Context</b>
<b>Guess</b>
<b>Dictionary definition</b>
<b>Illustration or original sentence</b>

<b>Word</b>
<b>Context</b>
<b>Guess</b>
<b>Dictionary definition</b>
<b>Illustration or original sentence</b>