

Lesson 6

How Robots Can Help Combat COVID-19: Science Robotics Editorial

Can robots be effective tools in combating the COVID-19 pandemic? A group of leaders in the field of robotics, including Henrik Christensen, director of UC San Diego's Contextual Robotics Institute, say "yes", and outline a number of examples in an editorial in the March 25 issue of *Science Robotics*. They say robots can be used for clinical care such as telemedicine and decontamination; logistics such as delivery and handling of contaminated waste; and reconnaissance such as monitoring compliance with voluntary quarantines. "Already, we have seen robots being deployed for disinfection, delivering medications and food, measuring vital signs, and assisting border controls," the researchers write.

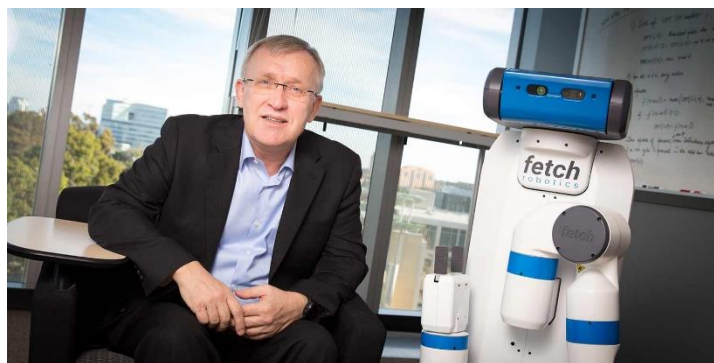
"For disease prevention, robot-controlled noncontact ultraviolet (UV) surface disinfection has already been used because COVID-19 spreads not only from person to person via close contact respiratory droplet transfer but also via contaminated surfaces," the researchers write. "Opportunities lie in intelligent navigation and detection of high-risk, high-touch areas, combined with other preventative measures," the researchers add. "New generations of large, small, micro, and swarm robots that are able to continuously work and clean (i.e., not only removing dust but also truly sanitizing/sterilizing all surfaces) could be developed."

In terms of telepresence, "the deployment of social robots can present unique opportunities for continued social interactions and adherence to treatment regimes without fear of spreading more disease," researchers write. "However, this is a challenging area of development because social interactions require building and maintaining complex models of people, including their knowledge, beliefs, emotions, as well as the context and environment of interaction."

"COVID-19 may become the tipping point of how future organizations operate," researchers add. "Rather than cancelling large international exhibitions and conferences, new forms of gathering - - virtual rather than in-person attendance -- may increase. Virtual attendees may become accustomed to remote engagement via a variety of local robotic avatars and controls."

"Overall, the impact of COVID-19 may drive sustained research in robotics to address risks of infectious diseases," researchers go on. "Without a sustainable approach to research and evaluation, history will repeat itself, and technology robots will not be ready to assist for the next incident."

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<https://today.ucsd.edu>



A-Skimming

Choose from the list A-F the main idea for paragraphs 1-5. There is one extra letter that you do not need to use.

- A. COVID-19 may change the way future organizations function. _____
- B. Robots may have spread COVID-19 among the population. _____
- C. Robots can be effective tools in combating the COVID-19 pandemic. _____
- D. New generations of robots that can sterilize all surfaces could be developed. _____
- E. Robots with social skills could be created for interacting with people. _____
- F. COVID-19 should encourage sustained research in robotics to address risks of infectious diseases. _____

B-Vocabulary

1.The noun “tools” in line 1 can be described as:

- a. enemies
- b. allies
- c. neighbors
- d. citizens

2.The verb “lie” in line 12 can be understood as:

- a. remain
- b. sit
- c. stop
- d. exist

3.The adjective “challenging” in line 18 can be replaced by:

- a. demanding
- b. interesting
- c. amusing
- d. large

4.The expression “tipping point” in line 21 can be explained as:

- a. critical point
- b. sore point
- c. point of no return
- d. PowerPoint

5. The noun “avatars” in line 24 can be described as:

- a. characters in a novel
- b. characters that perform in a play
- c. characters that represent online users
- d. characters that embody famous people

C-Comprehension Questions

1. What can robots be used for in combating the COVID-19 pandemic?

- a. Clinical care
- b. Logistics
- c. Reconnaissance
- d. All of the above.

2. What kind of robots could be developed to combat the COVID-19 pandemic?

- a. Robots that can pack boxes.
- b. Robots that can do the housework.
- c. Robots that can sanitize all surfaces.
- d. Robots that can assemble car parts.

3. Why is it difficult to develop social robots?

- a. Social interactions require building and maintaining complex models of people.
- b. Social interactions among robots have not been tried before.
- c. Robots get distracted easily when interacting with other robots.
- d. Robots prefer to work alone.

4. Which of the following statements is NOT TRUE?

- a. Virtual gathering may increase.
- b. People may become accustomed to remote engagement.
- c. Large international exhibitions and conferences should be cancelled.
- d. The deployment of social robots can represent unique opportunities for continued social interactions.

5. One can imagine that robots someday...

- a. will give people medicine.
- b. will handle contaminated waste.
- c. will monitoring compliance with voluntary quarantines.
- d. will interact with people.

6. The BEST title for this passage would be

- a. Robots are against COVID-19
- b. COVID-19 has changed the way organizations operate
- c. How robots can help combat COVID-19
- d. COVID-19 may drive sustained research in robotics

D-Reference

Write the referent word(s) at the end of each sentence.

1. What does the subject pronoun “they” in line 4 refer to?
2. Find a synonym for the transitional device “for example” in line 5.
3. What does the noun phrase “the researchers” in line 11 point to?
4. What does the relative pronoun “that” in line 14 denote?
5. What does the demonstrative pronoun “this” in line 18 stand for?
6. What does the possessive adjective “their” in line 19 indicate?

E- Video watching

How robots are helping in the battle against COVID-19



Watch the video and answer the following questions

1. Why is Tommy the robot being used in the most infectious wards in Italy?
2. What vital information can robots like Tommy help relay between patients and doctors remotely?
3. What are hospitals in Belgium testing with robots equipped with ultraviolet lights?
4. What is the robotic equipment in India being used for?
5. What is Robocop doing in Tunisia's capital during the coronavirus lockdown?