

## Animals key to human-robot relationships

Now even Elon Musk has discovered the humanoid robot as a new field of activity. The idea of creating an artificial image of a human being was around long before the term “robot” emerged. But today new technologies are making it easier to create humanoids, which can hardly be distinguished from real people. Will these machines be our partners or competitors? Are they a dream come true or a horror vision?

Engineers have succeeded in designing and programming highly sophisticated humanoids, like Sophia, created by the Hong Kong-based company Hanson Robotics. She can imitate gestures and facial expressions and even hold simple conversations thanks to artificial intelligence (AI). In fact, Sophia is so human-like that Saudi Arabia granted her citizenship in 2017, making her the world’s first robot to receive this status. Japanese roboticist Hiroshi Ishiguro, together with his team from the University of Osaka, made a copy of himself in the form of a Geminoid – an android that is made to look like a specific person. Although the robot twin doesn’t imitate perfectly and needs to be controlled remotely by a computer, the illusion made by the mechanical doppelgänger is astonishing, with the emotions of observers swinging between fascination and horror. The same can be said of the robotic twin created by Henrik Schärfe, professor for computer-mediated epistemology at Denmark’s Aalborg University.

## Uncanny valley

To many people, the more human a robot appears, the greater the aversion. Masahiro Mori, a professor of engineering at the Tokyo Institute of Technology in the 1970s, proposed the now-famous concept of the “uncanny valley” to describe this phenomenon – namely that people would react with revulsion to humanlike robots whose appearance resembled, but did not fully replicate, that of a real human. The “valley” denotes a dip in the human observer’s affinity and has since been confirmed in numerous studies.

Martina Mara, a renowned technical psychologist and professor of robot psychology at the Johannes Kepler University in Linz, Austria, has been researching the special relationship between humans and robots for years. In a recent large-scale study of more than 20,000 images, she and her team of researchers concluded that the media often uses this threatening stereotype of humanoids to illustrate AI topics, explaining why many people feel uneasy about the technology.

## No need to replicate

Yet teaching robots personal capabilities such as empathy, creativity and irony is nearly impossible. Even getting them to walk like humans is challenging. That said, “robots do have their strengths in many other areas,” says Mara, adding that there is no need to replicate what humans can already do well. “In the medium term, we need to ask ourselves: What do we actually want to automate and what should humans do? And what tasks should be taken over by robots?”

## Animal insight

Kate Darling, a robotics ethicist at the MIT Media Lab, agrees with Mara: “Why recreate what we already have – namely our special human abilities?” And she offers an analogy that is as surprising as it is logical: We should view robots as being similar not to humans but to animals. Animals have special skills that go far beyond our own capabilities and have been utilized for millennia – on land, in water and in the air. Robots are well suited to perform tasks like tracking dogs, carrier pigeons, ferrets as pipe cleaners and rats as minesweepers. And they don’t require the same kind of care as trained animals. And their shape is irrelevant, as long as they perform their tasks perfectly.

Examples of such robots already exist like Sony’s robotic dog aibo and the therapeutic robot baby harp seal Paro developed by Japan’s National Institute of Advanced Industrial Science and Technology (AIST), an industrial automation pioneer. But Darling warns of legal questions that need to be addressed with such robots. For instance, in the event of an accident with self-driving cars or autonomous weapons, the manufacturer or user functioning as the “master” is responsible, not the robot as the “animal.” This point of view not only stifles fears of being sidelined by all-powerful artificial humans, but also offers the opportunity to accept robots as helpful partners as many already do with their pets.

