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Research in Graubünden

When will humanoid robots arrive?

Between science fiction and reality

Humanoid robots on the move for the Davos Tech Summit. Image: Lab42

Humanoid robots – that is, robots in human form – are no longer mere fiction from films, but a reality. Especially in China, where development is supported by the state, hundreds of companies are driving progress and presenting new models every week. Numerous videos circulate online showing robots dancing, loading dishwashers, vacuuming living rooms, or, in work environments, carrying boxes, assembling products, and operating machines.

On closer inspection, however, it often becomes clear that these robots are not yet autonomous: they are frequently remote-controlled by humans, and the scenarios are strictly adapted to the limitations of the machines. Even under these conditions, the robots still regularly fail, as can be seen at trade fairs such as CES (Consumer Electronics Show), for example when the demonstration model Atlas by Boston Dynamics comes to a standstill in the middle of operation. Overall, humanoid robots are therefore still currently in a phase of experimentation and further development. They are not yet a finished product that immediately makes our everyday lives or working lives easier.

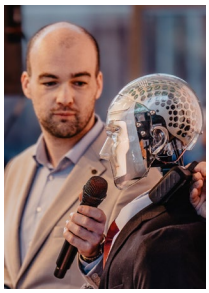
Nevertheless, humanoid robots are not a mere gimmick. On the contrary: they hold the potential to automate numerous physical tasks that currently still have to be carried out by humans. In particular, they are intended to take over dangerous or strenuous tasks, for example in mining, industrial production, or on construction sites. Robots in manufacturing are nothing new in themselves – one need only think of the huge production lines in car factories or of "dark factories," in which machines produce smartphones without any human involvement. The decisive advantage of humanoid robots, however, lies in the fact that they are designed for human environments and can be seamlessly integrated into them. This opens up fields of application in many areas that have so far remained inaccessible to existing robots.

From a societal perspective, this development raises important questions: how do we use the time gained when humanoid robots, especially in combination with artificial intelligence, take over many

professional and private tasks? Up to now, technological progress has usually led to a reduction in working hours while living standards increased at the same time – a development many of us welcome. However, these changes must not occur too abruptly, in order to avoid risks such as mass unemployment. In addition, work is meaningful for many people and a place of important social contacts. If the use of humanoid robots becomes more widespread, we must ensure that people do not suffer as a result, but that their quality of life is sustainably improved.

In order to discuss these questions, experience humanoid robots live, and provide insight into the current state of the technology, the Davos Tech Summit will take place from 1 to 4 July, allowing everyone – whether citizens, researchers, or entrepreneurs – to form their own picture.

Rolf Pfister, Director of Research, Lab42



Rolf Pfister
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