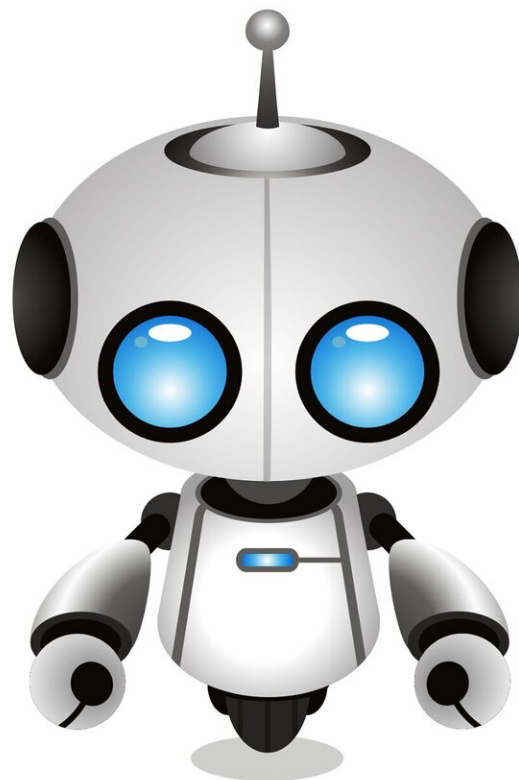


# What will it take for us to trust a robot?

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A robotic vacuum cleaner is easy to trust. We really need a lot more confidence in a robot that might be performing vital surgery on our body.

Medicine dispensing robots are already in use in home care. A [robot](#) sitting on the kitchen bench ensures that older people who live at home get the correct medicine dose every day.

"The medicine robot gives the home care nurse more time to other tasks," says Trenton Schulz.

Schulz has done research on how robots in our homes could perform even more tasks, for example in care of older people.

"The healthcare system in Norway is investing a lot in this area. There is a possibility that we can use technology to help older, senior citizens to live independently at home longer," Schulz told Titan.uio.no.

Schulz doesn't think that robots will end up taking over these health care jobs.

"There are some things that robots can easily do, but there are many things that are difficult," he says.

Schulz's first meeting with robots was on the farm he grew up on in northern Minnesota in the United States. His father invested in a robot that fed the cattle they had.

## **Trust calibration**

A stand-alone medicine dispensing robot or a robot feeding cows is one thing. It's quite another when the robot will move around an apartment and communicate with a real human.

"If you are going to start using a robot, you have to trust that the robot will do what you expect it to do. If something doesn't work, you will probably throw it out or leave it in a closet," says Schulz.

Trust is something that we normally have—or don't have—to other people. But companies and products—even robots—are also dependent upon trust.

"First and foremost, you have to have confidence in that the robot can do what it says it can do. And then you have to be able to trust what it says or does," Schulz says and compares it with trusting other people.

"If someone opens the door for you, you trust that that person is not going to suddenly close it on you as you begin to walk through."

At the same time, we need to keep our expectations in line with the robots' abilities. There's a big difference between our expectations of a robot vacuum cleaner and a robot that should perform advanced surgery.

### **It must admit mistakes**

Schulz has himself been involved in experiments where robots and humans should work together in a home environment. The participants grew quickly skeptical if the robot didn't manage to do what it was asked to do.

How can a robot rebuild trust? The first step is to admit it made a mistake.

"The robot must tell you if it made a mistake and try to correct the mistake if it can. It should say "I'm sorry, I cannot do this. Something happened here, and it might be my fault,"", says Schulz.

The researcher also thinks that it is okay that we don't have as much trust in a robot as we do in other people.

"You don't need to trust your home robot as much as a good friend or a spouse. If you have too much trust in a robot, it could give you bad advice," says Schulz.

### **Orange juice in a potted plant**

Perhaps the robot is selling something in disguise: That the robot is more useful to the company that sold it to you than it is at taking care of your needs.

Having too much trust in a robot also had strange effects in experiments. Schulz tells about an experiment where participants emptied orange juice on a potted plant because the robot told them to do it. Others gave their password to their computer without blinking. There is one thing to keep in mind, though:

"It's difficult to study [trust](#) in robots in experiments," Schulz says.

People in experiments often experience the situation as unrealistic. So when the robot gives a command, it might be interpreted as part of the experiment. They do what the robot says because they just assume that this is just an experiment with no personal risk.

### **What can robots actually help us with?**

Schulz believes that it will take many years before moving robots do complex tasks and become part of a [home care](#) nursing or any other branch.

"First, we need to find out more about which problems a robot actually

can help out with. I think people will use a robot when they see that there is something they can use it for."

He references his father back on his farm in Minnesota as an example.

"Why did my father buy that robot? He wanted more control over the feed for each cow so they could get the best nutrition, live well, and produce the best possible milk," says Schulz. "The good tasks where robots will work best at home are something we still are researching."

Provided by University of Oslo

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