

Can this robot build an IKEA chair faster than you?

By [Matt Warren](#) Apr. 18, 2018 , 2:00 PM

Although artificial intelligence systems may be able to [beat humans at board games](#), we still have the upper hand when it comes to complicated manual tasks. But now, scientists have created robots that can do something even most humans struggle with: Assemble an IKEA chair.

Putting together a chair requires a combination of complex movements that, in turn, depends on such skills as vision, limb coordination, and the ability to control force. Until now, that was too much to ask of even a sophisticated robot. But researchers have finally broken the dexterity barrier by combining commercially available hardware, including 3D cameras and force sensors, to build two chair-building bots.

To construct their IKEA masterpiece, the robots first took pictures to identify each part of the chair. An algorithm planned the motions the robots needed to manipulate the objects without causing any collisions; two robotic arms then performed those actions in concert. Feedback from force sensors also helped: When the robot needed to insert a pin into a hole, for example, it would slide the pin over the surface until it felt a change in force.

Altogether, [the robots put together the chair in a little over 20 minutes](#), the researchers report today in *Science Robotics*. That included 11 minutes and 21 seconds of planning time and 8 minutes and 55 seconds of actual assembly.

How does that compare with humans? We challenged several *Science* staffers to build the same chair, and they beat the robots' time—but only by 50 seconds.

Unlike our humans, the chair-building bots were not fully autonomous, as scientists needed to program the sequence of steps they took in advance. But the researchers say that with further advances in artificial intelligence, robots could work this out themselves by communicating with a supervisor—or even by reading the manual.