

Meet the most nimble-fingered robot ever built

May 29 2017, by Brett Israel



Credit: University of California - Berkeley

Grabbing the awkwardly shaped items that people pick up in their day-to-day lives is a slippery task for robots. Irregularly shaped items such as shoes, spray bottles, open boxes, even rubber duckies are easy for people

to grab and pick up, but robots struggle with knowing where to apply a grip. In a significant step toward overcoming this problem, roboticists at UC Berkeley have built a robot that can pick up and move unfamiliar, real-world objects with a 99 percent success rate.

Berkeley professor Ken Goldberg, postdoctoral researcher Jeff Mahler and the Laboratory for Automation Science and Engineering (AUTOLAB) created the [robot](#), called DexNet 2.0. DexNet 2.0's high grasping success rate means that this technology could soon be applied in industry, with the potential to revolutionize manufacturing and the supply chain.

DexNet 2.0 gained its highly accurate dexterity through a process called deep learning. The researchers built a vast database of three-dimensional shapes—6.7 million data points in total—that a [neural network](#) uses to learn grasps that will pick up and move objects with irregular shapes. The neural network was then connected to a 3-D sensor and a robotic arm. When an object is placed in front of DexNet 2.0, it quickly studies the [shape](#) and selects a grasp that will successfully pick up and move the [object](#) 99 percent of the time. DexNet 2.0 is also three times faster than its previous version.

Provided by University of California - Berkeley

Citation: Meet the most nimble-fingered robot ever built (2017, May 29) retrieved 19 April 2024 from <https://techxplore.com/news/2017-05-nimble-fingered-robot-built.html>

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