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News in Brief: Robotics, Technology

Octobot uses webbed arms to swim faster

Fish in Mediterranean Sea follow alongside the robot

BY Meghan Rosen
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UNDERWATER ROBOT A shoe box–sized robotic octopus with arms and a web made of soft silicone can speed through the water faster than bots without a web.

View the video

CHICAGO —Webbed underarms can turn a sluggish robotic octopus into a speed demon.

A squishy membrane connecting the machine's eight arms helps the bot scoot through water nearly twice as fast as octobots without webs, researchers reported at the IEEE/RSJ International Conference on Intelligent Robots and Systems on September 15.

Inspired by *Octopus vulgaris*, the well-known sea creature with arms connected by a fleshy, skirtlike mantle, computer scientist Dimitris Tsakiris and colleagues decided to give a makeover to the robotic octopus they had previously developed. The earlier, webless version could propel itself at up to 100 millimeters per second by slowly opening stiff plastic arms and then snapping them together.

But with arms and a web made of soft silicone, the shoe box–sized bot swam at up to 180 millimeters per second. The web helps the octobot generate more force, so it can push through water faster than using arms alone.

Skittish sea animals seem unfrightened by the lifelike bot, said Tsakiris, of the Foundation for Research and Technology- Hellas in Heraklion, Greece. When researchers took the faux octopus for a swim in the Mediterranean, tiny fish tagged along.

Tsakiris thinks biologists could use the robot to observe marine ecosystems. “We want to put a camera on it and see what we can do.”

View the video: https://www.youtube.com/embed/azumXwStahM

SPEEDY SWIMMER Adding a soft silicone web to a small robotic octopus helps the machine hit the gas. The first robot shown propels itself by snapping shut rigid plastic legs. The second bot uses flexible silicone legs and moves at about the same speed. The third robot zips along faster, using silicone arms and a web that helps it push through water. Credit: D. Tsakiris/Institute of Computer Science/FORTH

Citations

M. Sfakiotakis et al. Multi-arm robotic swimming with octopus-inspired compliant web. 2014 IEEE/RSJ International Conference on Intelligent Robots and Systems, Chicago, September 15, 2014.

Further Reading

M. Rosen. Soft robots go swimming. *Science News*. Vol. 185, April 19, 2014, p. 4.

M. Rosen. Chameleon-like robot can change hue.*Science News*. Vol. 182, September 22, 2012, p. 9.