

Rolling Robo-Worm

Stop, drop, and roll. Firefighters teach this to kids, but for some species of caterpillars it's a defense reflex. Confronted by a predator, the larvae spring into the air, assume a spiral shape, and hit the ground at top speed to wheel away from danger. The motion is thought to be one of the fastest wheeling behaviors in nature.

Hoping the technique will enable next-generation robots to go places that conventional crawling ones can't, researchers at Tufts University have built a soft-bodied robot that replicates the spiraling actions of larval *Pleuroptya ruralis*, a species from the U.K. Made of silicone rubber, the robot's four-inch-long body (below) is undergirded by metal coils that contract into a circle when electrified, propelling the contraption forward at nearly eight inches a second.

As in nature, the ballistic rolling motion can send the body in unpredictable directions. But, says lead researcher Huai-Ti Lin, the robot's ability to crawl or roll, depending on terrain, could one day have practical applications in environmental monitoring, building inspection, or even disaster search and rescue. —Bruce Falconer



In less than half a second, this caterpillar-inspired robot springs into a spiral—a defensive move in nature.



Watch the robot spring to life in a video on the iPad.