



## Microscopic Robot Hand Could Have Wide Application

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By Charles Q. Choi



A microscopic robot hand, made of silicon and plastic balloons, could help perform surgery and defuse bombs.

The "[microhand](#)" is so tiny that when clenched into a fist, it measures a little over one millimeter across, or roughly as thick as a dime.

It is made using silicon finger bones and balloons for joints that inflate and deflate to flex the fingers.

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The robot hand was designed by microelectromechanical systems scientist Yen-Wen Lu at [Rutgers University](#) in Piscataway, N.J., and mechanical engineer Chang-Jin Kim at [UCLA](#).

The prototype has four fingers arranged into a cross, each digit roughly a half-millimeter long, made via conventional semiconductor manufacturing techniques normally used to assemble electronics.

• [Click here to watch a video of the microhand in action.](#)

The microhand is gentle but strong enough to pluck a single delicate fish egg from a sticky egg mass.

"You could imagine this being used for microsurgery — at the end of a catheter, for instance. We found we could grab a nerve bundle with it," Kim told LiveScience. "We are also working with a company who said this could help disarm explosives. Right now the robotic manipulators used there are pretty crude, and a gentle and dexterous hand would be helpful."

Lu and Kim reported their findings online Oct. 16 via the journal [Applied Physics Letters](#).

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