Review

The article is headlined  
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In this article is given an interesting method of designing a robotic gripper that interact with the external environment by MIT engineers Edward Adelson and Sandra Liu.

The author sheds light on how the fin ray has become a popular item in soft robotics owing to a discovery made in 1997 by German biologist Leif Kniese. He noticed that when he pushed against a fish’s tail with his finger, the ray would bend toward the applied force, so the fin ray design became versatile because of its passive adaptation abilities.

Further the author points out that Adelson and Liu went beyond what others in the field had already done and included a rich tactile sensor into their gripper. The fingers typically used in soft robotics have supporting cross-struts whereas the MIT engineers hollowed out the interior region so they could create room for their sensory components.

In his work the author showed that the new robotic gripper has been tested on such objects as a plastic strawberry and a wine bottle. While the gripper was holding the fake strawberry, for instance, the internal sensor was able to detect the “seeds” on its surface. Nevertheless, some experiments were not that successful. Proper placement of wine glass occurred in seven out of 10 trials and, thankfully, no glass was harmed during the filming of this experiment. Moreover, hollowing a finger increased structural instability in the robot, so the researchers want to work on a better design to avoid that.

Upon reading the paper one realizes that the fin ray technology with tactile sensors is promising as most of the tests went successfully but it still has some vulnerabilities.

In my opinion the article is important because such robots can be very useful in industrial and household settings especially because the technology uses mostly inexpensive components: a camera, some gel, and some LEDs.