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May 30th 2015 | From the print edition



Antoine Cully/UPMC

Snap a wheel off a robotic vacuum cleaner and it will circle hopelessly. For a rover plunked onto a distant planet or a search-and-rescue robot sent into perilous surroundings, the consequences of damage can be more dire. A fixed number of contingency plans can be programmed into the device, but a research effort reported this week in *Nature* aims to teach robots how to compensate for any kind of damage.

Antoine Cully at Paris-Sorbonne University in France and his colleagues have developed software that permits a robot to build a three-dimensional map of every motion it can carry out, assigning a value to each—for not every joint and movement is as crucial to the machine's motion, or can be as easily compensated for, as every other.

Guided by this understanding of their physical selves, robots tested by the team could adapt to all manner of injuries. A six-legged robot reduced to five legs, as in the picture, or a robotic arm broken in any of 14 different ways, discovered how to carry on their missions in less than two minutes of adjusting to their new limitations.

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by Taboola



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