

Search input field with magnifying glass icon

- HOME
- USA
- AFRICA
- ASIA
- MIDEAST
- EUROPE
- SCIENCE & TECH
- HEALTH
- ENTERTAINMENT
- ECONOMY
- PROGRAMS

Listen

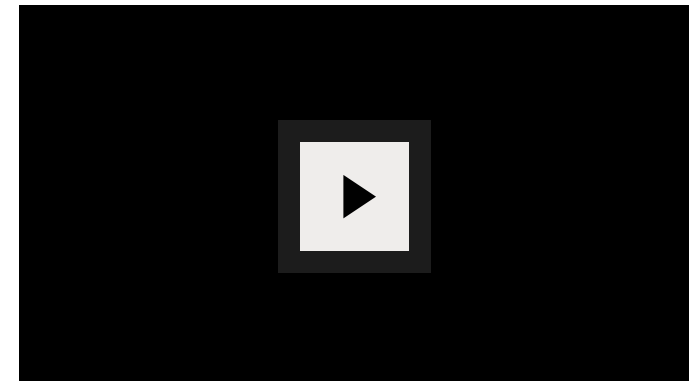
News / Science & Technology

# Scientists Develop Robots That Adapt to Damage, Keep Working

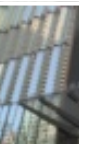
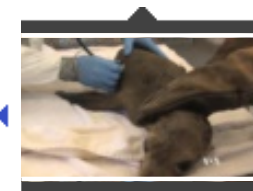
Print Comment Share:



## FEATURED VIDEOS



Rescue Teams Try to Save Wildlife Affected by California Oil Spill



## VOA BLOGS



This damaged robot tests different responses using a trial-and-error algorithm and can learn to get up and keep walking in about a minute. (Credit: Antoine Cully/Pierre and Marie Curie University)

Jessica Berman

May 27, 2015 4:02 PM



845



18



Robots are everywhere. They can build cars, play chess or clean your house, and someday they may drive your car.

Beyond this planet, Rovers named Spirit and Opportunity were sent to Mars on a continuing mission of exploration.

Robots also play vital roles in natural disasters, according to University of Wyoming computer scientist Jeff Clune with the Evolving Artificial Intelligence Lab.

Roving robots are deployed in search-and-rescue operations following an earthquake and may someday be used to sort through the wreckage of a nuclear accident like the one in Fukushima, Japan.

“The problem is that all of those types of situations and environments are extremely unpredictable and hostile,” he said. “And it is very likely that robots and humans in those situations become damaged. And when seconds count and lives are on the line, we definitely do not want robots to give up at the first sign of injury. We want them to be able to adapt and deal with any damage and injury they suffer to continue to perform their mission until they can be brought back in to be repaired.”

With this idea of adaptation in mind, Clune and colleagues in France have



### Stand Up and Move to Help Prevent Health Risks

by Rick Pantaleo



### All About America What Your Name Says About Your Age, Politics

by Dora Mekouar



### Sonny Side of Sports Nigeria's Ezeli in NBA Finals

by Sonny Young

## RELATED ARTICLES

- Scientists Say We Need Softer Robots
- High School Students Compete in Robot Building
- Physical Rehab Robot Helps Heal Muscle Damage

## DAY IN PHOTOS



## VOA SPECIAL REPORTS

added one more function to the skill set of robots operating under potentially harsh conditions.

In an article detailing their work in the journal *Nature*, Clune and French designers describe how they programmed a robot with six legs and a robotic arm to learn how to overcome injury.

"Once they become damaged," he said, "they use their intuition and that knowledge of how their body works to come up with hypotheses, like a scientist almost, saying, 'Oh, I think this might work. Oh, no, that did not work. Let me try something completely different. Oh, that does not work either. Let me try this third thing. Ah, that works fine despite the damage. Now, let me go about my business.' "

Clune said the robots are programmed with a childlike curiosity, and they use that primitive algorithm to figure out how to adapt to injury.

It takes about a minute for the robots, using the trial-and-error process, to figure out how to overcome damage.



***Water's Edge***  
**Shrinking River  
Threatens US Southwest**



***Central African Republic***  
**Diamonds Fuel A Cycle of  
Violence and Poverty**



***IS Recruits Somalis in US***  
**"Why He Chose To Leave  
This Good Land?"**



***Circumventing  
Censorship***  
**An Internet Primer for  
Healthy Web Habits**



***Boko Haram***  
**In The Home of Peace, A  
Siege of Fear**

**MORE SCIENCE & HEALTH NEWS**

 Print  Comment  Share:

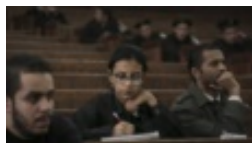


845

18

 Pin it

## YOU MAY LIKE



### **Egyptian Human Rights Activist Gets 15-Month Prison Term**

Well-known lawyer and human rights activist Mahinour el-Masry and two others have been sentenced to 15 months in prison on charges of attacking a police station [More](#)



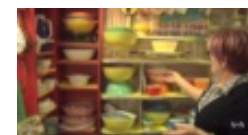
### **British Banks to Review of Possible Corrupt FIFA Payments**

Barclays, Standard Chartered among dozens of banks mentioned in US indictment last week charging 14 media and marketing executives and officials at FIFA [More](#)



### **India Heatwave Death Toll Crosses 2,000**

Showers and thunderstorms in parts of southern India Sunday brought some much-



### **Heat-resistant Glassware Celebrates 100th Anniversary**



### **Asia MERS Outbreak Alarms Authorities**



### **Google Tries to Demystify Privacy Controls with New Approach**



### **Bad Weather Forces Solar Plane to Land in Japan**



### **Cameroon Launches Mass Measles Vaccination Campaign**

[More Articles](#)

## BLOGS

### ***Science World***

- Stand Up and Move to Help Prevent Health Risks 5 hours ago
- Science Images from May 2015 2 days ago
- Paralyzed Man Wills Robotic Arm to Move 5 days ago

### ***Techtonics***

- Do You Know What Your Tech Toys Are Sharing About You? 3 days ago
- Digital Human Rights; Abuse Emojis; Google's I/O Show; the Robot Wars 4 days ago
- Printed Prosthetics; Green Chips; iPhone Blues; IoT: Instagram 5 days ago



needed relief but officials said the intense heat was likely to continue for another day  
[More](#)

[Comment on this forum](#)

## Comments

There are no comments in this forum. Be first and add one

### Most Viewed

1. Actor Matt Dillon Puts Rare Celebrity Spotlight on Rohingya
2. On a Paris Bridge, The End of a Love Too Heavy to Bear
3. Chinese Admiral Calls Island-Building 'Justified, Legitimate, Reasonable'
4. India Heatwave Death Toll Crosses 2,000
5. With Data Collection Halted, US Senate Debates Surveillance Reform

### Most Emailed

### Most Discussed

SERVICES:



Podcast



RSS



Mail Subscription



Mobile



VOANews.com

[USA](#)

[Africa](#)

[Asia](#)

[Mideast](#)

[Europe](#)

[Americas](#)

[Science & Technology](#)

[Health](#)

[Arts & Entertainment](#)

[Business & Economy](#)

[Blogs](#)

[Video](#)

[Editorials](#)

[About VOA](#)

[Media Relations](#)

[Contact Us](#)

[Job Opportunities](#)

[Terms of Use/Privacy Policy](#)

[Our Languages](#)

[Usage Requests](#)

[Our Partners](#)

[RFE/RL](#)

[Radio Free Asia](#)

[MBN](#)

[Radio Marti](#)

[Our Broadcasts](#)

[Frequencies and Schedules](#)

[Pronunciation Guide](#)

[Broadcast Programs](#)