

GELD DRUCKEN?



innovations report

Forum for Science, Industry and Business

Sponsored by:



more than 139,000 articles c

Search our Site:

Topic (optional):


[Home](#) [About us](#) [Deutsch](#)
[SCIENCE REPORTS](#) [SPECIAL TOPICS](#) [B2B AREA](#) [JOBS & OPPORTUNITIES](#)

REPORTS & NEWS

[Agricultural and Forestry Science](#)
[Architecture and Construction](#)
[Automotive Engineering](#)
[Business and Finance](#)
[Communications Media](#)
[Earth Sciences](#)
[Ecology, The Environment and Conservation](#)
[Health and Medicine](#)
Information Technology
[Interdisciplinary Research](#)
[Life Sciences](#)
[Machine Engineering](#)
[Materials Sciences](#)
[Medical Engineering](#)
[Physics and Astronomy](#)
[Power and Electrical Engineering](#)
[Process Engineering](#)
[Social Sciences](#)
[Studies and Analyses](#)
[Transportation and Logistics](#)

Additional Sponsors



Ads by Google

[Robot Tracks](#)
[Inventions](#)
[Tech Trends](#)
[Robot Kits](#)
[Hobby Robots](#)
[Home](#) → [Reports](#) → [Information Technology](#) → [Content](#)

Organized chaos gets robots going for the Advancement of Science

18.01.2010

[next article >](#)

Göttingen scientists develop an autonomous walking robot that flexibly switches between many different gaits by using "chaos control"

Even simple insects can generate quite different movement patterns with their six legs. The animal uses various gaits depending on whether it crawls uphill or downhill, slowly or fast. Scientists from Göttingen have now developed a walking robot, which - depending on the situation - can flexibly and autonomously switch between different gaits.

The success of their solution lies in its simplicity: a small and simple network with just a few connections can create very diverse movement patterns. To this end, the robot uses a mechanism for "chaos control". This interdisciplinary work was carried out by a team of scientists at the Bernstein Center for Computational Neuroscience Göttingen, the Physics Department of the Georg-August-University of Göttingen and the Max Planck Institute for Dynamics and Self-Organization. (Nature Physics, January 17th, 2010, advanced online publication)



Following the principle of chaos control, the robot produces regular leg movements when walking normally. In addition, it can use the uncontrolled chaotic movement pattern to free itself when its leg is trapped in a hole. Image: Network Dynamics Group, Max Planck Institute for Dynamics and Self-Organization

In humans and animals, periodically recurring movements like walking or breathing are controlled by small neural circuits called "central pattern generators" (CPG). Scientists have been using this principle in the development of walking machines. To date, typically one separate CPG was needed for every

B2B Search



- Product / Service
- Company / Organisation

Latest News

Breakthrough heart scanner will allow earlier diagnosis
28.01.2010 | [Medical Engineering](#)

Seabed biodiversity of the Straits of Magellan and Drake Passage
28.01.2010 | [Ecology, The Environment and Conservation](#)

Right-handed and left-handed people do not see the same bright side of things
28.01.2010 | [Studies and Analyses](#)

VideoLinks



Touch Bionics unveils world's first bionic finger



The Solar Impulse HB-SIA taxis down the runway!
Solar Impulse HB-SIA taxied down the runway powered by its own engines



PETMAN-Prototype
PETMAN will balance itself and move freely; walking, crawling and doing a variety of suit-stressing calisthenics during exposure to chemical warfare agents.

[More VideoLinks >>>](#)

Event News

Second Conference of the European Society for Early Modern Philosophy (ESEM)
27.01.2010 | [Event News](#)

3rd International Conference on Solid State Science and Technology 2010 (ICSST2010)
25.01.2010 | [Event News](#)

Climate 2010: 3rd global Online Climate Conference calls for papers
18.01.2010 | [Event News](#)