MACHINES CARRY OUT THE SAME EXPERIMENT
Friday 3 April 2009 19:45

**Robots are able to think like scientists**

If we can move ahead, someone zobaczylibysmy for several hundred years in a laboratory science? People in white fartuchach? Everything points to the fact that the great works rather reminiscent of factory machinery.

In the latest issue of "Science" we read about computers, which for the first time carry out the research and discover the law of physics known to us from school.

If Isaac Newton had a supercomputer with a kamerka could put him in Jabłonka, and the same go for a walk. After returning spostrzegby that during his absence the machinery observed apples falling on the ground and discovered that there is such thing as gravity. Science fiction? Nothing of the sort. The system of this type built Hod Lipson and Michael Schmidt of Cornell University.

Their computer - or rather algorithm, which is a computer program, in this case equipped with the advanced artificial intelligence - **got to watch a simple device - a double pendulum.** When scientists raised it to the computer started to run down the data on the location and speed of the device. The algorithm began to analyze this data, connect them with each other, until the jungle of numbers wyluskal fixed size. It turned out that **he discovered the law of conservation of momentum.**
In the next stage of work experience has also been accelerated by the data. After re-examined again, he discovered the law governing the movement of natural wahadełka. This time it was the dynamics of Newton's second principle.

The researchers point out that the machine did not have any knowledge about the rights of individuals, geometry and kinematics. Available for only the gigantic set of numbers. But the system - a developed version of the previous scholars Starfish robot, which was able to repair itself - has been able to penetrate through it and discover the fundamental principles that govern movement wahadełka.

Equally remarkable invention Ross King built from Aberystwyth University. Robot named Adam is able to carry out laboratory tests. In the experiment, the researchers conducted, Adam analyzed the metabolism of yeast cells of the species Saccharomyces cerevisiae and discovered a simple, but scientists have not known the rules which govern it.

What exactly did it? First, thanks to artificial intelligence has set the hypothesis that certain yeast genes contain the code - the recipe for the construction - specific enzymes. Adam then verified the hypothesis - bred at a special yeast medium collected and analyzed samples, and then repeated everything again, to confirm the results. "Automation is the process by which science becomes a more effective" - says the prof. King. "She was responsible for the technological progress in the nineteenth and early twentieth century, and everything seems to indicate that this will continue."

A scientist wants to build another robot now - Eve, who has dealt with finding a cure for malaria.

Is the threat of family scenario with a "Terminator"? Does the machine can expand so much that threaten humanity? For the time being, of course not. Although the works are now in a position to replace the work of scientists, and even discover the law of nature, it still is the man who makes the interpretation of experimental results and draw conclusions. This can not have any computer.

Created by the U.S. ROBOT speedier development of science

An interview with Michael D. Smith

Magdalena Salik: Let's imagine that moving the time of one hundred years, until the beginning of XXII century. What will you do umialy such as your computers?

* Michael D. Smith: For now, our system is observed natural phenomena - such as the movement of the pendulum - and discovers the law, which govern them. But it can not explain to their people. In the future, computers will not only describe the new law of nature, but also tell about his theories, interpret them and pull applications. Just as scientists do it now.

What areas can be used by such systems?

Wherever there are a lot of data and theoretical gap. So, especially in biology, where there is a lot of complicated, difficult to clarify the biochemical processes. At this time, for example, we adapt our computer to study what happens inside a single cell.

One of the futuristic theory assumes that the development of artificial intelligence will lead to the creation of curiosities - SI system so advanced that it will be able to deal with (as a substitute for human) technological development. Is your computer is not a case of curiosities embryos?

The algorithm that we built, actually in some way connected with the concept of curiosities.
Surely it can help accelerate the development of science, as well as identify additional barriers that divide us from the creation of truly advanced SI.

Do not you fear that soon the machine prześcigną us - just like in the movie "Terminator"?

Well, now there is a whole group of people - such as the elderly, for which technology is growing too fast to be learned from it to use. Preventive measure that can be taken, it is paradoxically the further development of technology. So, building systems such as ours to help us learn and maintain links to the most developed SI.

* Michael D. Smith, PhD Cornell University, co-work published in "Science"

Magdalena Salik