Scientists design a self-projection procedure laws of physics

In recent days, according to "Science" magazine online reported that Cornell University computer experts calculated Hod Lipson and Michael Schmidt biologists designed a set of powerful computer programs, and use it to complete the need for physicists to spend several centuries the completion of a feat: the pendulum swing from a movement in the law of projection. This is a computer without the slightest knowledge of physics or geometry help deduce the law of nature.

"Today, one of the biggest scientific development is how to, how many of the existing data but the gap between theory and identify the basic principles of the field. Because we do not know how some things are functioning, The computer will be running these things as an important tool for the law. "participate in the program prepared by Cornell University computer expert said Hod Lipson.

Carefully from the original data to extract rules, has long been seen as a keen insight into the duties of humanity, rather than the work of intelligent machines. Scientists and computer program calculated the common human capacity for analysis of the data set is too complicated, herald a new era.

Half a century ago, IBM's Herbert Gelernter prepared a program, allegedly reproduced the Euclidean geometry theorem, but critics say it is overly dependent on programmers to provide rule. The 20th century, 70s, Douglas Lenat's "auto-mathematician" automatically generated mathematical theorem, but proved largely useless. Stanford University's "expert system" program began in 1965 and continued for NASA spacecraft launched to collect measurements of the chemical up to 20 years. It is used to project the possible structure of organic molecules, but it ultimately failed to generate their own assessment of the future of a variety of answers. 20th century 80's, up to 100,000 U.S. dollars prize money of the Leibniz Prize (Leibniz) the establishment, want to grant the first to discover a "far-reaching implications" of the mathematical theorems of a computer program, but so far unclaimed.

Today, artificial intelligence experts say, Lipson and Schmidt might have achieved in this area distant aspiration. With the "automatic mathematician" and its follow-up is different, they just load the program in advance a set of simple mathematical functions and requirements based on its analysis of the data. And "expert systems" and its different stakeholders, they can be from a variety of procedures may be selected out of the interpretation of a small number of promising explanation. Moreover, it appears in an appropriate time - scientists have a theory than the data can not describe the data.

Lipson and Schmidt procedures designed to process data input to identify relevant factors, and then generated to describe the relationship between their equation. Program began the process of the basic mathematics of random combinations - add, subtract, multiply, divide, and some algebra.

University of Michigan computer scientist Martha Pollack said: "This is a powerful method of effectiveness, it has applied to the potential for a variety of dynamic systems, such as environmental systems, weather patterns, population genetics, cosmology and oceanography. Almost any natural science are this procedure are able to withstand the kind of structural inspection."

And may control the brain and compared the genome of the law, found the process very simple laws of motion. However, Lipson and Schmidt's procedure should be at a higher scale to play a role. Researchers have used records of the proceedings of the physiological state of individuals and their metabolism, recording the flow in our bodies, but one who remained atypical features of its protein in all cells - a theoretical description of the lack of data a perfect example. Lipson said: "The findings of the study has not been announced, however, we have found the law is not known. We are trying to explain these equations and their link with the existing knowledge, and strive to be decomposed into components in order to to obtain clues. "

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Michael Atherton cognitive scientists recently predicted: "the computer will not soon be replaced by intelligent human insight into the art and science. Creativity, technical expertise, as well as identify important still rely on human judgments."

Lipson also said: "Ultimately, we still need a scientist to consider this issue. In other words, humanity is still very important." (New-Wei Ke)

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