ISSN 1992-6502 (Print)
Vol. 18, no. 5 (66), pp. 114-117, 2014

Вестник УГАТУ
Vestnik UGATU

ISSN 2225-2789 (Online)
http://journal.ugatu.ac.ru

UDC 004.89

CREATIVITY IN SYSTEMS WITH ARTIFICIAL INTELLIGENCE

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Submitted 2014, June 10

Abstract. The article is devoted to the philosophical analysis of the creative process in systems with artificial intelligence. The creative process in systems with artificial intelligence seems to be a direct conversion, which implies reflecting any area of reality and construction of the new product. The creative process includes two stages: search and composition. It is noted that systems with artificial intelligence cannot yet compete with the person at the stage of the pilot phase, as they do not have a database, which can be compared with the database of common sense person. The authors argue there are no insurmountable obstacles to artificial intelligence, in principle, able to compete in the future with the man in the creative plan.

Keywords: artificial intelligence; creative process; knowledge base of common sense; machine works.

1. INTRODUCTION

In this article we aim to highlight the common methodological background modeling of the creative process in systems with artificial intelligence. Thus we distinguish the following questions: (1) Can, in principle, artificial intelligence to push (substitute) of a person in the process of creative activity? (2) Can the independent work of artificial intelligence to lead to creative breakthrough?

For purposeful design of intelligent systems is crucial choice of General prerequisites. These prerequisites specialists rely in the course of professional activity. Ultimately, these assumptions form the structure of the body of a new result. Philosophy as time and operates on a universal principles and categories, which are of General methodological value and define the orientation of educational process on the final results.

2.1. SYSTEMS WITH ARTIFICIAL INTELLIGENCE

The subject of cognition, as a rule, is in a condition that is characterized by varying degrees of uncertainty, as he has to operate with objects including a new, previously unknown content. This circumstance in many respects determines the creative content of cognitive activity, its complex, nonlinear and contradictory. Learning at the same time inherent in change and maintenance, the continuous emergence of new elements and their subsequent approval or elimination. The challenges facing the theory and practice of creation of systems with artificial intelligence, is very diverse.

Early developments in the field of artificial intelligence imitated logic step-by-step reasoning of man, which is most vividly manifested in situations permission puzzles, card and other table games. However, these intelligent systems were not suitable for solving the problems of the real world that are ambiguous. Faced researchers complexity is largely explained by the presence of significant differences between the human mind and the mind of the machine. Only man has the ability to do productive reasoning in terms of cognitive uncertainty, incompleteness and incomplete. The scientist is able to quickly understand the current conditions, focusing on existing research experience and common sense. Latitude of thought is a kind of intellectual capital. The knowledge base of the person includes data from various sectors and areas of activity covers the knowledge and their manifestations in the form of practical abilities, skills and abilities.

For example, a translation from one language to another is a difficult task and is solved with creative methods. Natural languages are not fit the concept of «formal system», and themselves speech statements are not subject to strict rules. It follows that the mechanization of linguistic translation requires either prior to formalization fundamentally neformaliojo complex dynamic system. Or mechanization of linguistic translation requires the establishment of systems that are able to work with normalizeusername systems, that is, to create systems with artificial intelligence. It should be noted

that systems with artificial intelligence, able to equal with the man to provide high-quality translation from one language to another, is not yet established. In particular, for solution of tasks language translation intelligent system must operate linguistic information syntactic and semantic two or more different cultures should operate on specific knowledge about the subject, methods, solutions that are based on the specific content of the task.

Cognitive research has shown that using similar reasoning people solve most of their problems. Many decisions cognitive tasks man finds unconsciously: instinctively, intuitively, building on existing skills, which have already applied to other problems. Due to all this specialist is able to decrypt distorted speech, illegible handwriting, concentrating only on the fact that, one way or another, leads to the solution. Even sophisticated machines created by the latest technology, not have the capacity and be totally unsuitable for such tasks.

In the end of XX century in the field of creation of artificial intelligence for solving various problems were actively used probabilistic methods and concepts. However, the carried out researches have shown the limitations of the probability approach in this area: the developed algorithms when solving very complex problems require huge computing resources. A similar situation can be described as «a combinatorial explosion»: the memory of the computer and the length of time required to solve become literally astronomical, and the problem goes far beyond the standard.

2.2. CREATIVE PROCESS

Generally speaking, the creative process means creating a new one. In this case, the person may not usurp the powers of creativity and thinking that it belonged to him alone. Subject so understand creativity is and nature, which have bright samples of creative achievements. However, when people talk about modeling of the creative process, mean exactly the person with his consciousness as the main character creation. Underlining the presence of consciousness leads to the idea that creativity is a conscious act. Then, presumably, in the process of creative work should be challenging goal. The creative process in systems with artificial intelligence can be represented as a purposeful transformation that involves reflection of any area of reality and construction of the new product. In the creative process can be divided into two stages: an exploratory stage and composition, each of which is characterized by its direction, and by the logic of development [1].

2.2.1. SEARCH STAGE OF THE CREATIVE PROCESS

At the first stage of the creative process you can select the primary phase of knowledge, which is a prerequisite for successful realization of the creative process. Although the phase of initial knowledge is the starting point of the creative process, however, it is here already there is a serious problem in systems with artificial intelligence. The main task in the field of artificial intelligence is to teach a computer program to think sensibly in an uncertain situation. Therefore, among the research projects in the field of creation of systems with artificial intelligence, in our opinion, the most promising are those where attempts to create machines knowledge base of common sense. But loading into the database machine is the system of knowledge, which is characterized as common sense man is a complicated task. It turned out that the number of atomic facts available to the average person, is huge, with many of the things that knows a person cannot be made explicit and expressed verbally. For example, for the art with just one glance at the statue to instantly aware that he's a fake.

The formation of ideological views, which form a picture of the world of man, due not only rational but also emotional sphere of a person [2]. For example, Professor of computer Robert H. Sloan, based at the University of Illinois at Chicago, says: «All of us know a huge number of things... As babies, we crawled around and yanked on things and learned that things fall. We yanked on other things and learned that dogs and cats don't appreciate having their tails pulled» [3]. Now features the most advanced to date supercomputer very modest. The intellect of such a machine corresponds to level four year old child.

Science and technology are still very far from creating an artificial system, endowed with common sense, which could compete in the intelligence of a man. «Cyc» the most known and implemented at the present time a project aimed at creating a knowledge base for software with artificial intelligence. In the first version of the knowledge base OpenCyc had available 6000 concepts and 60,000 facts; the latest version already contains 239000 concepts and 2093000 facts[1]. Although the program of artificial intelligence operates huge quantities of obvious facts and deal with certain tests, but at the same time, they are absolutely helpless before issues requiring support on experience and common sense.

[1] http://www.cyc.com/platform/opencyc

2.2.2. COMPOSITE STAGE OF THE CREATIVE PROCESS

The result of the creative process is to build a new, unique product. Much of human creativity can be represented as a new combination of existing ideas and objects. This vision allows us to simulate the work in systems with artificial intelligence as search methodology in the space of possible combinations. New combinations may arise from the structure or Union of the various components as a result of their stochastic transformations. You can select the General strategy of combinatorial creativity: the placement of a familiar object in unfamiliar surroundings, or an unknown object in a familiar atmosphere; mixing two outwardly different objects or genres; adding new and unexpected features to an existing object, the connection is incongruous in the same object.

An example of such combinatorial generation is machine works in the field of music. It is worth noting two directions of its development. The first is the creation of musical works for execution of a man. For example, today most advanced technological system for the production of such creative products is a design created in the University of Malaga (Universidad de Malaga) in Spain, called «Iamus» in honor of the mythical Greek prophet who could translate the birds singing. The system is based on Iamus lies Melomics technology, programmed to compose music without human intervention. This technology is based on the vast store of musical compositions, in the more than one billion. In the field of contemporary classical music Iamus is the first system that is able to create musical works in its own style, not imitating known classics (Bach, Beethoven, Mozart and others), as did previous technology. In September 2012 released his debut eponymous first album «Iamus», recorded by the London Symphony orchestra. This event became a sensation in the world of music and science, was described as «the first major work, computer-generated in the performance of the whole orchestra» [4].

The second direction of machine music focused on the generation of electronic music and its reproduction with the use of electronic musical instruments. This area is the area of engineering projects, which provide digital synthesis of musical sounds. Currently this kind of music is created using a special computer programs, is already independent genre, which has a specific sound and includes a variety of styles range from classic to pop music. Electronic music is experiencing a period of rapid development, and modern robots demonstrate creative improvisation, which is so important in jazz.

2.3. CREATIVE COMPETITION BETWEEN MAN AND MACHINE

Widely known classical objection lady Lovelace boils down to the assertion that the computer is not capable of independent creativity, as creativity is to receive a new result. However, computers cannot invent anything new; their fate is the strict implementation of the requirements specified by the person in written programs for them. Implicit precondition objections lady Lovelace is the classification of concepts new to all kinds of results, without regard to who these results receives. If we distinguish between the results of their subjects, you will get two rows of novelty: in the same row are new results, obtained by the person, and in another series – the new results, obtained by artificial intelligence. And compare it new with the old one in each row separately! It will not only be more logical, but it is more appropriate, because it is born creative competition generations of two subjects: human and artificial intelligence. In principle, it will be a race to the bottom, in the long term considering the possibility of natural selection.

Returning to the goals we set ourselves at the beginning of this article, we can note the absence of insurmountable obstacles in order to gradually growing artificial intelligence, in principle, was able in the future to compete with man in the creative plan.

3. CONCLUSION

The creative process always involves the creation of a new product.

In principle, we have to admit the absence of insurmountable obstacles to the competition between artificial intelligence and man.

The creative process includes two stages: search and composition.

Systems with artificial intelligence can not yet compete with the person at the stage of prospecting stage due to the absence at their disposal database comparable to human potential common sense.

At the stage of composite stage in systems with artificial intelligence creation is realized as programmed search option of a new product in the space of possible combinations.

The best for a human variant of the creative relationship between him and the machine is to intellectual progress of man was always ahead of imminent progress in artificial intelligence.

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METADATA

Название: Творческий процесс в системах с искусственным интеллектом

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Источник: Вестник УГАТУ. 2014. Т. 18, № 5 (66). С. 114–117. ISSN 2225-2789 (Online), ISSN 1992-6502 (Print).

Аннотация: Проводится философский анализ творческого процесса в системах с искусственным интеллектом. Творческий процесс в системах с искусственным интеллектом представляется как длящееся во времени целенаправленное преобразование, подразумевающее отражение какой-либо области действительности и конструирование нового продукта. В творческом процессе выделяются два этапа: поисковый и композиционный. На стадии поискового этапа главной проблемой остается создание искусственной системы, наделенной здравым смыслом, которая могла бы соревноваться в интеллекте с человеком. На стадии композиционного этапа в системах с искусственным интеллектом творчество реализуется как поиск в пространстве возможных комбинаций.

Ключевые слова: искусственный интеллект; творческий процесс; базы знаний здравого смысла; машинное творчество.

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