

APPROACHES TO ARTIFICIAL INTELLIGENCE

Адерихо А. А. (МСФ), Кипнис И. Ю.

Белорусский национальный технический университет
Минск, Беларусь

The problem of AI has long been one of the main problems. Many philosophers, mathematicians and other researches from different scientific fields tried to define the concept of an Artificial Intelligence. Some of them are discussing here.

Philosophy. Aristotle tried to formulate the laws governing the rational part of the mind. He developed an informal system of syllogisms for proper reasoning, which in principle allowed one to mechanically generate conclusions, given initial premises. Bertrand Russel introduced a logical positivism: this doctrine holds that all knowledge can be characterized by logical theories connected, ultimately, to observation sentences that correspond to sensory inputs. Newell and Simon approaches developed a GPS program based on the means-ends analysis - is a technique for controlling search in problem solving computer programs. This kind of analysis classifies things in terms of the functions they serve and oscillates among ends, functions required, and means that perform them.

Mathematics. Kurt Godel formulated an incompleteness theorem – it shows that in any language expressive enough to describe the properties of the natural numbers, there are true statements that are undecidable: their truth cannot be established by any algorithm. Alan Turing developed a Machine (Turing's machine) that was capable to compute any computable function; also it tried to dialogue with a man so that a man couldn't be capable to determine whether he has dialogue with a machine or with a person. Steven Cook and Richard Karp designed the theory on NP-completeness that shows the existence of large classes of canonical combinatorial search and reasoning problems that are NP-complete. Any problem class to which an NP-complete problem class can be reduced is likely to be intractable.

Decision theory, pioneered by John Von Neumann and Oskar Morgenstern combines probability theory with utility theory (which provides a formal and complete framework for specifying the preferences of an agent) to give the first general theory that can distinguish good actions from bad ones.

Linguistics. Chomsky showed how the behaviorist theory did not address the notion of creativity in language — it did not explain how a child could understand and make up sentences that he or she had never heard before. There were many works in knowledge representation - it's the study of how to put knowledge into a form that a computer can reason with.

УДК 811.111:681.7

THE HISTORY OF PHOTOGRAPHY

Зеленский Н.А., Никитин С.С. (ЭФ), Ладутько Н.Ф.

Белорусский национальный технический университет

Минск, Беларусь

"Photography" is derived from the Greek words *photos* ("light") and *graphein* ("to draw"). The word was first used by the scientist Sir John F.W. Herschel in 1839. It is a method of recording images by the action of light, or related radiation, on a sensitive material. Alhazen (Ibn Al-Haytham), who lived around 1000AD, invented the first pinhole camera (also called the *Camera Obscura*) and was able to explain why the images were upside down.

The first photographic image was made with a camera obscura by Joseph Nicéphore Niépce in 1827. Niépce's photograph required eight hours of light exposure to create and after appearing would soon fade away.

Louis Daguerre was the inventor of the first practical process of photography. In 1839 after several years of experimentation and Niépce's death, Daguerre developed a more convenient and effective method of photography. Daguerre's process 'fixed' the images onto a sheet of silver-plated copper. He polished the silver and coated it in iodine, creating a surface that was sensitive to light. Then he put the plate in a camera and exposed it for a few minutes. After the image was painted by light, Daguerre bathed the plate in a solution of silver chloride. This process created a lasting image, one that would not change if exposed to light.

The use of photographic film was pioneered by George Eastman who started manufacturing paper film in 1885 before switching to celluloid in 1889. His first camera, which he called the "Kodak," was first offered for sale in 1888.