

BASIC TERMINOLOGY IN ARTIFICIAL INTELLIGENCE

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Abstract

Special terminology on artificial intelligence and intelligent systems began to form in the 60s of the twentieth century. The first stage of terminology formation is always distinguished by the presence of many synonymous terms that are used by various schools and groups of specialists. At this stage, terms quickly appear and some of them also quickly disappear. By the mid-70s, the terminology in the field of artificial intelligence began to be established. There are terms that are recognized by the vast majority of experts. All these terms (with rare exceptions) are English in origin, since it was in the USA that intensive research was carried out in this area. Finally, the basic terminology was fixed in the first half of the 80s. From this period, dictionaries and encyclopedic reference books on artificial intelligence began to be published.

Key words: AI, Analogous reasoning, Backpropagation, Inductive reasoning, Machine Learning.

The difficulty of creating an explanatory dictionary of artificial intelligence is associated with the interdisciplinary nature of research in this area. Since artificial intelligence uses methods traditionally developed in logic, psychology, linguistics, cybernetics, discrete mathematics and programming, there are many terms and other sciences. The discussion of the explanatory dictionary showed that there are two extreme cases: to include in it terms that are used only in artificial intelligence and are not borrowed by it from other sciences, or to include in it all the terms of sciences related to artificial intelligence, if they are found in the works of specialists in this area. The compilers of the dictionary made an intermediate decision, which, of course, immediately confronted them with the problem of boundaries. Using the collective experience of specialists from a number of countries and the USSR, the compilers tried to determine this natural boundary, linking it with the frequency of occurrence of terms borrowed into artificial intelligence.

There is a lot of disagreement among scientists and experts about the future of artificial intelligence. While some admire the promise of self-learning computers and robots, others, such as Stephen Hawking [1], doubt it. According to Stephen Hawking, robots could take over the planet if artificial intelligence research is not done properly.

A few weeks ago, the news featured a robot that wanted to make humans its pets. It could have been programmed like this. Another piece of news is a "disillusioned" robot killing a man on an automobile assembly line in Japan. We do not know for sure what the progress in the field

of artificial intelligence is. We also don't know if it will be a good thing or if Stephen Hawking's fears will come true. Regardless, we need to know the buzzwords used in the world of artificial intelligence so that we can study articles in the field and not get lost in the maze of terms. I've put together a short but important list of terms used in artificial intelligence so that the next time you read an article on this topic, you don't have to Google the words used in the article.

Analogous reasoning: The term “analogous” usually refers to non-digital data, but when it comes to the field of AI, analogical reasoning is the process by which people (scientists) draw conclusions based on past results. It's more like predicting stock markets. Maps and charts are built from past data, and similar reasoning is applied to predict the outcome of any process or experiment [2].

ANN: Artificial Neural Networks: Artificial neural networks form the basis of many experiments in the most extreme areas of reasoning. Systems that cannot solve complex problems are modified to contain artificial neural networks in such a way that they can think for themselves and solve complex problems. Artificial neural network is based on the biological neural network and is probably the scariest of all the terms used in artificial intelligence.

Backpropagation: Kind of like reverse encoding. The result is already there, but the process of achieving the result is determined by transferring related processes to a system ready for AI purposes.

Back-chaining: Sounds like back-propagation, but the goal here is to find out if there is any data that can be used as evidence of the current goal. In this system, experts also work from the already existing solution to the processes that helped achieve the solution, and in the process identify evidence that the processes may depend on them.

CBR: Case Based Reasoning: A method by which problems are solved based on similar cases solved in the past.

Deep Learning: A process that uses specialized algorithms to model and learn from complex datasets; this technique is also used to establish relationships between data and datasets.

Forward chaining: A process in which machines learn forward from a given point - using a sequence of "if-then" sub-processes to achieve a desired goal. The goal is to figure out a system that works for a given set of problems [3].

Inductive reasoning: A process in which evidence and data sets are used to achieve certain goals. This shouldn't be much different from regular programming, as it works with existing datasets rather than creating them. The process of collecting data and aggregating it based on its nature is called data mining, and inductive reasoning uses datasets generated from data mining.

Machine Learning: Another scary term used in artificial intelligence, machine learning refers to machines that operate without programs to complete tasks. Machine learning comes and

goes and improves as the lifespan of a system increases. It uses past performance patterns to achieve current goals.

NLP - Natural Language Processing: Another popular term used in artificial intelligence, natural language processing is based on speech recognition or gesture-based input. The point here is to understand human language as commands. The more you interact with the machine using NLP, the better it understands and processes your commands.

Reduction: The process of cleaning up code to eliminate unwanted solutions. But with code reduction (reduction), the number of decisions machines can make is limited.

Strong AI: Strong refers to the field of artificial intelligence that works to provide brain capabilities to AI machines; in essence, it makes machines as smart as humans.

Weak AI: Most AI systems on the market today are weak AI (artificial intelligence). Weak AI machines can still make their own decisions based on reasoning and past datasets.

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