

Historical Development of The Formation of Artificial Intelligence Vocabulary

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Abstract

This article examines the formation and historical development of Artificial Intelligence (AI) vocabulary from technological and linguistic perspectives. The study discusses the early theoretical foundations of artificial intelligence, Alan Turing's ideas concerning machine intelligence, the Turing Test, the Dartmouth Conference of 1956, and subsequent stages in the development of AI. Particular attention is paid to the emergence and semantic development of such terms as artificial intelligence, machine learning, deep learning, neural networks, natural language processing, computer vision, large language models, and generative AI. The rapid development of big data, neural networks, generative models, and digital technologies in the twenty-first century has significantly contributed to the expansion and diversification of AI-related vocabulary. The article also considers the penetration of AI terminology into such fields as graphic design, photography, education, medicine, economics, and other professional domains, resulting in the emergence of new terminological units. The findings demonstrate that AI vocabulary is developing as a dynamic, interdisciplinary, and continuously expanding terminological system.

Purpose of the Study. The purpose of this study is to develop and validate approaches to the application of machine learning methods to improve the accuracy and reliability of financial flow forecasting in logistics systems based on an analysis of their structure, influencing factors, and operational characteristics.

Keywords: Artificial intelligence, AI vocabulary, AI terminology, machine learning, deep learning, neural networks, generative artificial intelligence, large language models, computational linguistics, digital technologies.

Introduction

Today, the concept of artificial intelligence has become one of the most widely used and rapidly developing concepts in science, technology, and society. The term artificial intelligence refers to a scientific and technological field aimed at developing computer systems and machines capable of performing tasks that normally require human intellectual abilities, including learning, reasoning, analysis, problem-solving, and decision-making.

The development of artificial intelligence has contributed not only to the advancement of technological systems but also to the emergence and expansion of new lexical and terminological

units. Each new technological approach, algorithm, model, or practical application contributes to the emergence of new terms. Consequently, AI vocabulary is no longer limited to technical terminology but is increasingly enriched by terms associated with linguistics, medicine, education, economics, law, graphic design, photography, and other fields.

From this perspective, AI vocabulary should be studied not merely as a collection of technical terms but as a dynamic and interdisciplinary lexical system that is continuously developing in response to technological and social changes.

The Early Formation of Artificial Intelligence Vocabulary

Ideas related to artificial intelligence emerged long before the modern term artificial intelligence became established. In the 1920s, Czech playwright Karel Čapek popularized the term robot in his play R.U.R. (Rossum's Universal Robots). The concept of the robot subsequently became associated with automated and mechanical systems capable of performing tasks traditionally carried out by humans.

By the middle of the twentieth century, developments in computing created opportunities for scientists to investigate whether machines could perform tasks resembling human intellectual activities. In 1950, Alan Turing published his influential paper Computing Machinery and Intelligence, in which he examined the question of whether machines could demonstrate intelligent behavior. He proposed what he called the "imitation game," which later became widely known as the Turing Test.

This period was important in the formation of the initial conceptual layer of AI vocabulary. [16.09.2026 17:19] Зyxpa ИЃpar: Terms and concepts associated with machine intelligence, computing machinery, imitation game, and intelligent machines contributed to the development of terminology describing the relationship between machines and human intelligence.

The Formation of the Term "Artificial Intelligence"

The establishment of artificial intelligence as an independent scientific field is closely associated with the 1956 Dartmouth Summer Research Project on Artificial Intelligence. During this period, the term artificial intelligence became established in scientific discourse and subsequently developed into the general name for a broad field of research and technology. During the 1950s–1970s, a number of AI-related terms emerged, including problem solving, reasoning, symbolic AI, heuristic search, and natural language processing. Programs such as Logic Theorist and General Problem Solver demonstrated the possibility of using computers to solve logical and problem-oriented tasks.

Thus, during this period, AI vocabulary primarily consisted of terminology related to logical reasoning, problem-solving, knowledge representation, and machine-based decision processes.

Expert Systems and the Expansion of AI Terminology

During the 1970s and 1980s, expert systems became an important area of artificial intelligence research. These systems were designed to simulate or reproduce the knowledge and decision-making processes of human experts in specific domains.

New terms such as knowledge base, inference engine, knowledge representation, and expert system entered the vocabulary of artificial intelligence.

This stage represented an important development in AI terminology because the emerging lexical units began to describe not only theoretical concepts but also practical computer systems, their components, and operational processes.

The “AI Winter” and Further Terminological Development

During the late 1980s and early 1990s, many of the expectations associated with artificial intelligence were not fully realized. As a result, reductions in funding and research interest contributed to a period commonly referred to as the “AI winter.”

However, this period did not result in the complete disappearance of AI terminology. On the contrary, the subsequent development of statistical approaches and data-driven methods created the foundation for a new generation of AI concepts and terms.

The Emergence of Machine Learning and Deep Learning Terminology

Beginning in the 1990s, advances in computational power, the increasing availability of data, and improvements in algorithms contributed to the growing importance of machine learning as one of the central concepts in AI vocabulary.

Machine learning refers to computational methods that enable systems to identify patterns in data and improve their performance on particular tasks through experience and data.

The subsequent development of deep learning further expanded AI vocabulary. Terms such as neural network, artificial neural network, convolutional neural network, and recurrent neural network became increasingly important.

This development contributed to the specialization and diversification of AI vocabulary. In other words, within the broader concept of artificial intelligence, a number of specialized terminological subsystems emerged to describe different technological approaches and applications.

The Rapid Expansion of AI Vocabulary in the Twenty-First Century

Since the beginning of the twenty-first century, the development of big data, cloud computing, graphics processing units, and deep neural networks has significantly expanded the scope of artificial intelligence applications.

As a result, numerous new terms have become increasingly prominent in AI vocabulary:

Term Meaning

Artificial Intelligence A field concerned with computational systems capable of performing tasks associated with human intelligence

Machine Learning A set of computational methods through which systems learn patterns from data

Deep Learning An approach based on multilayer neural networks

Neural Network A computational model inspired by the structure and functioning of biological neural systems

Natural Language Processing A field concerned with computational processing and analysis of human language

Computer Vision Technologies for automatically analyzing and interpreting visual data

Generative AI AI systems capable of generating new text, images, audio, video, or other forms of content

Large Language Model A language model trained on large amounts of textual data

AI Ethics The study of ethical issues associated with the development and use of AI

AI Governance Principles, policies, and mechanisms for managing and regulating AI systems

Generative Artificial Intelligence and the Emergence of a New Lexical Layer

In recent years, the rapid development of **generative artificial intelligence** has contributed to an unprecedented expansion of AI vocabulary. Terms such as large language model (LLM), prompt,

prompt engineering, text-to-image, text-to-video, AI-generated content, multimodal AI, and foundation model have become increasingly common. Some of these terms directly describe technological processes, while others refer to new methods of interacting with AI systems. For example, a **prompt** refers to an instruction or input provided by a user to an AI system, while **prompt engineering** refers to the process of designing and optimizing such instructions in order to obtain more effective results. The term **AI-generated content** is used to describe textual, visual, audio, video, or other content produced with the assistance of artificial intelligence.

The Influence of AI on Graphic Design and Photography Terminology

The integration of artificial intelligence into graphic design and photography has also contributed to the emergence of new professional and specialized vocabulary. Terms such as AI image generation, image enhancement, generative fill, background removal, image restoration, AI photo editing, and text-to-image generation are increasingly used in these fields. In graphic design, AI-based tools can assist with image generation, object modification, background replacement, color optimization, and the creation of multiple design alternatives. In photography, AI technologies can be used for image restoration, noise reduction, object recognition, portrait enhancement, and other image-processing tasks. Consequently, the development of AI technologies has contributed not only to changes in professional practices but also to the formation of a **new specialized terminological layer** in graphic design and photography.

Conclusion

The formation and development of AI vocabulary are closely connected with the historical development of artificial intelligence technologies. During the early stages, AI vocabulary primarily consisted of concepts related to machine intelligence, logical reasoning, and problem-solving. In subsequent periods, the development of expert systems, machine learning, neural networks, deep learning, natural language processing, and computer vision significantly expanded the lexical and terminological structure of the field.

In the twenty-first century, the emergence of big data, generative models, and large language models has resulted in the formation of a **new, dynamic, and interdisciplinary layer of AI vocabulary**. The active use of terms such as generative AI, large language model, prompt engineering, multimodal AI, and AI-generated content demonstrates that AI terminology is continuously changing in response to technological innovation.

Therefore, AI vocabulary should be regarded as an **open and dynamic terminological system** that is continuously enriched under the influence of technological progress, interdisciplinary integration, and emerging social needs. The historical, structural, semantic, and functional study of AI vocabulary is consequently becoming an important area of research in contemporary terminology and lexicography.

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