УДК 004.6

# MODERN TRENDS IN BIGDATA AND DATASCIENCE

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**Annotation.** This article big data analytics is discussing. It also discusses the characteristics and unique aspects of the new profession of data science, on the example of Google AdSense service discussed, which collects information about users to display contextual advertising. Data science works inextricably with mathematics, whether it be mathematical statistics, probability theory or linear algebra. That's why data scientist characterized as a scientist whom knowledge must be able to apply using certain software tools - in many respects this distinguishes a mathematician from a data scientist. Particular attention is paid to the prospects and possibilities of the use of machine learning in the modern world.

**Keywords:** big data, IT, data science, Google AdSense, technology.

The modern world in the era of informatization and globalization is developing at a rapid pace, the flow of data and their number is increasing exponentially.

All this leads to the emergence of a new phenomenon, which has received the name "big data" in science and practice.

In order to somehow gain competitive advantages, respond faster to market changes and significantly improve efficiency, it is necessary to analyze and process a very large amount of different information. To interact with huge amounts of data, programmers needed to improve the tools to work on the analysis of all this data.

Thus, in the early 2000s, the concept of Big Data appeared, which at first was of interest only to a very narrow circle of specialists. Now everyone who is interested in the field of IT knows this word.

Big Data is becoming an increasingly popular and strategically important area of IT development.

Global information has always been of exceptional importance.

The results of processing a huge amount of information are used to identify trends and patterns.

For large companies, statistics and data analysis have always been at the heart of doing business in large markets, but with the advent of a huge amount of information, an analytical approach has become much more in demand [1].

To collect and process big data, special software systems and technologies have been developed. Moreover, companies that collect and sell data are being created and successfully operate - all this has already become part of modern business.

The widespread use of Big Data has led to the emergence of a new trend - data science (Data Science).

Nowadays, many large corporations are using Data Science to make a good impression on their customers by providing personalized offers.

A prime example is the Google AdSense service, which collects information about users to display contextual advertising.

Obviously, data science has created a demand for new professions in this field, one of which is Data Scientist. A Data Scientist is a data engineer with the skills of a mathematician, programmer, and analyst.

Data Science in recent years can be called a profession that is in the mainstream of science and technology.

Specialists who have a good command of the mathematical apparatus, are oriented in the field of programming - are in great demand in the labor market.

Considering in more detail the features of this profession, the following can be noted.

A Data Scientist is a specialist who works inextricably with mathematics, whether it be mathematical statistics, probability theory or linear algebra.

Plus, this knowledge must be able to apply using certain software tools - in many respects this distinguishes a mathematician from a data scientist. A data scientist can also work in the field of machine learning.

Summarizing the above, it should be noted that a data engineer is a specialist who covers many areas in the field of information technology, including analytics, business intelligence, machine learning and much more.

At the same time, each of these areas can also represent a separate professional area of Data Science.

In the process of studying the features of Big Data and the prospects for the development of Data Science, special emphasis, according to the author, should be placed on such an area as machine learning.

The essence of machine learning comes down to extracting knowledge from data.

This is a scientific field that sits at the intersection of mathematical statistics, artificial intelligence and computer science, and is also known as predictive analytics or statistical learning [2].

Here are some examples of problems that can be solved using supervised machine learning algorithms:

– determination of the postal code by handwritten numbers on the envelope;

– finding the benignness of the tumor based on medical images; – detection of fraudulent activity in credit card transactions;

– predicting failures of high-tech and complex industrial equipment;

– identification and recognition of images obtained by unmanned aerial vehicles.

Summarizing the results of the study, the following conclusions can be drawn.

The emergence of a large amount of data in digital format, technologies for their storage and calculation, mathematical analysis tools leads to the transformation of business processes.

Obviously, along with the rapid accumulation of information, technologies for their analysis are also developing rapidly, and new areas in the research plane are also emerging, such as, for example, data science.

Data Science is a fairly broad field that includes dozens of activities that can solve a huge number of problems.

It is this fact that makes data science important to the modern world.

Prospects for further research are associated not only with the risks and difficulties of using Big Data, but also with the search for insights that can create added value for companies or useful services for citizens [3].

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# СОВРЕМЕННЫЕ ТЕНДЕНЦИИ В BIGDATA И DATASCIENCE

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**Аннотация.** В этой статье обсуждается аналитика больших данных. Также рассматриваются характеристики и уникальные аспекты новой профессии data science на примере обсуждаемого сервиса Google AdSense, который собирает информацию о пользователях для показа контекстной рекламы. Наука о данных неразрывно связана с математикой, будь то математическая статистика, теория вероятностей или линейная алгебра. Именно поэтому data science характеризуется как ученый, знания которого необходимо уметь применять с помощью определенных программных средств – это во многом отличает математика от data science. Особое внимание уделено перспективам и возможностям использования машинного обучения в современном мире.

**Ключевые слова**. Big data, IT, data science, Google AdSense, технология