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Problems of financial data and their solution with the help of machine learning technology

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Artificial intelligence smoothly penetrates human life, having a direct impact on work and rest. Various areas of artificial intelligence, such as machine learning, data mining and neural networks are rapidly developing over the past decades. Frank Tipler, Professor of Mathematical Physics at the University of Tulein believes: “There is no reason for a confrontation between people and artificial intelligence. Man is able to live in a narrow range of environmental conditions - in a thin oxygen-containing shell around a small planet. The entire Universe will be at the disposal of artificial intelligence. It will leave the earth without looking around” [1]. However, the problem of self-awareness of the human level in machines is still quite acute. Development of technologies that can replace human activity, began in the 50s of the last century. Nowadays the position of automated systems has progressed so far that they themselves accumulate information and work with it. Computers can recognize a human’s face, communicate and give individual advice.

The financial industry has enormous data sets and resources for analyzing them. That is why the introduction of artificial intelligence, including machine learning, in this area is successful. Machine learning in the financial services industry leads to lower operating costs by automating processes and increasing revenues by increasing productivity and improving user experience [4]. Companies also consider system flexibility and enhanced security. There are enough tools for processing financial data even in open access now, but it is necessary to use them wisely.

My research focuses on machine learning technology for solving financial problems such as algorithmic trading, fraud, customer support using chat bots, underwriting and credit scoring services, and a comparison of its characteristics with manual methods [3].

The frequency of transactions performed using machine learning technology is not manually reproducible, so almost every major financial company is ready to invest in this area. There is no need to manually follow the market: machine learning "predicts" the success of buying or selling stocks. In the event of internal conflicts of the company or, on the contrary, the conclusion of a transaction that a certain circle of people knows about, the human factor can play a key role: the machine is not yet able to predict success depending on the human mood. Security threats to finance are growing along with the growing number of transactions, users, and third-party integrations. The answer to the question of what is more effective: machine learning or a rule-based approach is ambiguous. The system responds promptly to suspicious behavior and immediately requests additional identification. A person despite the long-term processing can give a client a chance to remember a password or rely on intuition [2]. The other side of the issue is the fraud of company employees who use, for example, powerful computers for mining or engaged in smurfing.

The actual case for solving customer support tasks is the introduction of chatbots. Chatbots are useful in banking because they save money and increase customer interest. Factors such as round-the-clock service and quick query solutions optimize customer support.

Risk assessment is also a difficult problem. Machine learning algorithms help financiers to better evaluate borrowers by searching for personal information in social networks. Machine learning

clearly classifies a borrower as reliable or unreliable. In the case of intermediate results, when the automated approach incorrectly classifies the questionnaire, human assistance is needed [5]. It also comes in handy intuition and human attitude to the client: customer confidence in the bank will increase significantly. By the same, the employee can also find out the specific reasons for the problems in the scoring card.
During the analysis of the comparative characteristics of automated and manual methods for solving financial problems, I came to the following conclusions: machine learning as a process automation technology is an actual direction that needs to be introduced into production, but this can be done by fairly large financial companies that have the means and big data; the development of machine learning in a company must be approached responsibly: plan goals, hire qualified specialists and take into account the choice of models for solving various tasks; it is necessary to take into account the shortcomings of machine learning, as well as analyze the mistakes of other companies when working with technology; one should not forget about human intuition and fully trust the automation business; in some situations, a manual approach to solving problems can bring companies greater profits by attracting customers.

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