

REVIEW

of the scientific consultant for the dissertation work of Karyukin Vladislav Igorevich on the topic “The research and development of a module for an intelligent system for analyzing and evaluating the social mood of society in the media space of the Republic of Kazakhstan” for the degree of Doctor of Philosophy (Ph.D.) in the specialty “6D070300 - Information Systems.”

The dissertation work of Vladislav Karyukin is devoted to the development and research of a module for analyzing and evaluating the social mood of society in the media space of the Republic of Kazakhstan on topics affecting various socio-political aspects, using machine learning methods, neural networks, and marketing indicators of social mood.

The paper presents the features of automatic monitoring and analysis of social networks, which incentivized the growth of analytical systems to cover the enormous amount of published data. The study examined existing foreign (Hubspot, Buzzsumo, Sproutsocial, HootSuite, Brandmention, Snaplytics, IQBuzz, etc.) and domestic (Alem Media Monitoring, iMAS, OMSystem) platforms for analyzing the social media space, their features and shortcomings.

The analysis of the architecture and functionality of the OMSystem, a new information system designed to monitor news portals of Kazakhstan and social networks such as Facebook, VKontakte, Instagram, Twitter, and YouTube, is given. In addition, the OMSystem supports Russian and Kazakh sentiment dictionaries, machine learning and neural network methods, and social mood marketing technologies.

The experimental part of the study is based on building machine learning models using algorithms such as Naive Bayes, Logistic Regression, Support Vector Machine, K-nearest neighbor method, Decision Tree, Random Forest, and XGBoost and Neural networks such as Deep Neural Networks, Convolutional Neural Networks, and Recurrent Neural Networks. Furthermore, the evaluation of models and social metrics (the level of interest in the topic in society, the level of activity in the discussion of the topic in society, and the level of social mood) was carried out using the example of an analysis of the topic of vaccination against Covid-19.

The work also presents the electronic Social Mood (eSM) module, developed on the Python Django framework, which is an application that analyzes data received using the OMSystem. This module performs the following main functions: creating the main categories of topics for analyzing the social mood of society, extracting quantitative data on each of the topics from the OMSystem database, calculating the level of topic activity in society, the level of interest in the topic in society and the level of social mood, visual presentation of the results obtained in the form of charts and pivot tables.

Thus, the dissertation work is a thorough and complete scientific research from theoretical and practical points of view. The results of the dissertation were

presented in 12 scientific papers, of which 2 articles and 1 chapter in the book were published in journals and book series peer-reviewed in the Scopus database, 4 articles in journals recommended by the Committee for Quality Assurance in Education and Science of the Ministry of Education and Science Republic of Kazakhstan, and 2 articles in scientific conferences, peer-reviewed in the Scopus database, and 3 articles in the materials of international conferences.

Throughout his work, Vladislav Karyukin proved himself to be a responsible, independent, and diligent doctoral student, striving to achieve maximum results in scientific research. Therefore, I believe that the presented dissertation of Vladislav Karyukin meets all the requirements for a doctoral dissertation (Ph.D.) and is recommended for defense for the degree of Doctor of Philosophy in the specialty “6D070300 – Information Systems”.

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the National Academy of Sciences
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