

Brief information about the project

Name of the project	Development of a system for detecting disinformation in social media content during natural disasters using machine learning methods
Relevance	In the modern information society, the problem of disinformation is becoming increasingly relevant, especially in the context of social media, where the speed of information dissemination is extremely high. The detection of disinformation in the context of natural emergencies is of great social importance, as rapidly spreading false information during crises can negatively affect public perception, hinder the coordination of emergency services, and intensify panic. This necessitates the development of a comprehensive system capable of automatically detecting and classifying disinformation messages.
Purpose	The aim of the project is to develop technology for detecting disinformation on social media during natural emergency situations using machine learning methods.
Objectives	1. Development and research of models and algorithms for detecting disinformation in social media using machine learning methods; 2. Formation of a data corpus that includes messages from social media related to natural emergencies, marked for the presence of disinformation; 3. Development and training of a hybrid deep model combining the advantages of convolution and recurrent architectures using the attention mechanism for more accurate analysis and detection of disinformation in complex textual data; 4. Evaluation of the developed methods of data markup and detection of disinformation in social media; 5. Development of an application for the integration of a hybrid model that provides users with the ability to download text data, automatically analyze and identify disinformation, displaying classification results and accuracy metrics.
Expected and achieved results	As a result of the project implementation, the following outcomes are expected: development of a system for automatic detection and classification of disinformation in social media during natural emergencies; creation and annotation of a textual dataset related to emergencies; development and training of a hybrid machine learning model based on CNN, RNN, and attention mechanisms; achieving high classification accuracy (Precision, Recall, F1-score); development of a software application for text analysis and disinformation detection; publication of scientific articles in journals indexed in Scopus and Web of Science; obtaining a patent for the developed methods or software; as well as training qualified specialists. At the current stage of the project, the following results have been achieved: analysis of existing methods and

	approaches for disinformation detection has been conducted; data from social media has been collected and preprocessed; an initial dataset containing messages related to natural emergencies has been created; baseline machine learning models for text classification have been implemented; preliminary testing and evaluation of model performance have been carried out; approaches for data annotation and identification of disinformation features have been developed.
Research team members with their identifiers (Scopus Author ID, Researcher ID, ORCID, if available) and links to relevant profiles	Turarbek Assem – Scopus h-index: 3 Web of Science h-index: 1 Web of Science ResearcherID: https://orcid.org/0000-0002-4793-0446 Scopus Author ID: 57031944900 Bektemessov Zholaman - Scopus h-index: 3 Web of Science h-index: 2 https://orcid.org/0000-0002-0271-5363 Web of Science ResearcherID: AAJ-7765-2021 Scopus Author ID: 57219357475 Rakhimova Diana – Scopus h-index: 5 ORCID https://orcid.org/0000-0003-1427-198X Scopus Author ID: 57191430929 WoS: P-4962-2017 Omarov Bauyrzhan – Scopus h-index: 7 Web of Science h-index: Web of Science ResearcherID: AAX-5730-2021 Scopus Author ID: 56127983700 Kopbosyn Leila – Scopus h-index: 2 https://orcid.org/0000-0001-6224-2193 Scopus Author ID: 56367657100 Narbayeva Saltanat – Scopus h-index: 1 Web of Science ResearcherID: KBA-1599-2024 https://orcid.org/0000-0001-5230-3781 Scopus Author ID: 57216484412 Adetbekov Yeldos – Scopus h-index: 1 Scopus Author ID: 58096720300 Nurghali Azat – ORCID https://orcid.org/0009-0008-1856-197X
Usage	The results of the project can be applied by government authorities and emergency services for monitoring information flows during natural disasters. The developed system can also be used in media organizations, analytical centers, and research institutions for detecting and analyzing disinformation in social media. Additionally, the technology can be integrated into information security systems and content monitoring platforms.
Priority compared to real-world alternatives	The proposed project has several advantages compared to existing solutions. Unlike traditional systems designed for stable conditions, this system considers the specifics of information dissemination during emergency situations. The use of hybrid deep learning models (CNN, RNN, and attention mechanisms) improves classification accuracy

	and system adaptability. Furthermore, the project focuses on the Kazakh language as a low-resource language, making it unique for regional applications.
List of publications with links to them	1. Турарбек А.Т. Методы машинного обучения в определении сейсмической активности: монография. – Алматы: ИП «ЫРЫС», 2025. – 96 с. 2. Турарбек Ә.Т., Нұрғали А.А., Нарбаева С.М., Рахимова Д.Р. Применение методов машинного обучения для детекции фейковых новостей на казахском и русском языках // <i>Вестник АУЭС</i>. – 2026. – (в печати) URL: https://vestnik.aues.kz 3. Bektemessov et al. Numerical simulation of fakes spread in social networks// <i>Вестник КазНПУ</i>– 2026. – (в печати)
Patents	Within the framework of the project, it is planned to obtain a patent for the developed methods and software for disinformation detection. The patent will be registered in the National Institute of Intellectual Property of the Republic of Kazakhstan.