

«Approved by»

Vice-Rector in Charge of Research

International Affairs of

JSC «KazNTRU named after Satpaev»



A. Shokparov

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«Electronics, telecommunications and space technologies»

Almaty city

«8» December 2022 yy.

Chairman: Head of the Department of "Electronics, Telecommunications and Space Technologies", PhD, associate professor E. Tashtay.

Secretary: Engineer of the Department of "Electronics, Telecommunications and Space Technologies" Z.S. Ekeibekova.

Participants: (At least 2/3 of the department's members, representatives of the respective departments, according to the regulations on the dissertation council): Head of the Department of "Electronics, Telecommunications and Space Technologies", candidate of technical sciences E. Tashtay, *associate professors:* K.H. Zhunusov, N. K. Smailov, A. Khabay, A., A.O. Kasymov, K.S. Chejimbaeva, *senior lecturers:* K.N. Taisariyeva, A.E. Kuttybayeva, N.A. Junusov, S.E. Ibekeev, *teachers:* J.M. Dosbaev, G.S. Jobalayeva, G. Sharipova, A. Bazarbai, P. Akilzhan, *engineers:* K.Yssyraiyl, *external participants:* candidate of technical sciences, Head of the department of RET department of the International University of Information Technologies E.A. Bakhtiyarova, candidate of technical sciences, associate professor of the International University of Information Technologies L.B. Ilipbaeva, and Ph.D., associate professor of Kazakh National University named after Al-Farabi B. Omarov.

AGENDA

Discussion of the dissertation work submitted for the degree of Doctor of Philosophy (PhD) in the specialty "6D071900 - Radio engineering, electronics and telecommunications" on the topic "**Research of effective UAV detection using acoustic data recognition**" by Utebayeva Dana Zholdybayovkyzy, who is Ph.D. student of Department of "Electronics, Telecommunications and Space

Technologies", Institute of Automation and Information Technologies, Kazakh National Technical Research University named after K.I. Satbayev.

Domestic scientific advisor: Candidate of technical sciences, associate professor of "Radio engineering, electronics and telecommunications" department of the International University of Information Technologies L.B. Ilipbayeva.

Foreign scientific advisor: Phd Professor at Purdue University E. T. Matson, West Lafayette, Indiana, USA.

Reviewers:

Smailov, Ph.D., associate professor of the Department of "Electronics, Telecommunications and Space Technologies" of the Kazakh National Technical Research University named after K.I. Satpaev and candidate of technical sciences of the International University of Information Technologies, head of the department of "Radio engineering, electronics and telecommunications" E.A. Bakhtiyarova.

Introducing the researcher Utebayeva Dana Zholdybaykyzy and her dissertation research work

Listened to: Kazakh National Technical Research University named after K.I. Satpayev, Institute of "Automatics and Information Technologies", Head of the Department of "Electronics, Telecommunications and Space Technologies", Ph.D., Associate Professor E. Tashtay introduced the agenda.

In 2008-2012, Utebayeva Dana Zholdybaykyzy received her bachelor degree in the specialty "5B071900 - Radio engineering, electronics and telecommunications" from the Almaty University of Energy and Communications, and in the period from 2012-2014 she received the academic degree of Master of Technical Sciences in the specialty "6M070500 - Mathematical and computer modeling" from the International University of Information Technologies In the period of 2017-2020, she received her theoretical knowledge at the Kazakh National Technical Research University named after K.I. Satbayev with the degree of PhD in the specialty "6D071900 - Radio engineering, electronics and telecommunications".

The topic of the dissertation work of Utebayeva Dana Zholdybaykyzy "Research of effective UAV detection using acoustic data recognition" was approved by the Academic Council of the University on **June 30, 2020** on the basis of **Minute № 1203д**, and changes were made to the topic of the doctoral candidate's dissertation research on the basis of protocol **№812 of 06/06/2022**.

Scientific trips: According to the order **№1398д of December 21, 2018**, from January 9 to May 31, 2019, Utebayeva Dana Zholdybaykyzy underwent a foreign internship at the Embry-Riddle Aviation University located in Prescott, Arizona, USA. The supervisor was a PhD, Associate Professor of the Department of Electrical Engineering of the Embry-Riddle Aeronautical University A. Almahambetov. Further, from July 2019 to August 2020, she continued her scientific work as a

visiting scholar at Purdue University, in the CIT department. Supervisor: PhD, professor, E. Matson.

Based on the main scientific results of the dissertation work, 4 published papers have been published, and the main 5th journal article is in the editorial processing stage of a peer-reviewed journal with a high impact factor, included in the international Scopus and Web of Scientific databases (Switzerland, MDPI Drones), and 2 journal articles - published in publications recommended by the Committee for Quality Assurance in Education and Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan, other 2 articles - published in collections of international conferences (4th IEEE International Conference on Robotic Computing (IRC) 2020).

Chairman: According to the agenda, the turn is being given to the doctoral student Utebayeva Dana Zholdybaykyzy to present.

A scientific report by Dana Utebayeva Zholdybaykyzy was heard, in which she noted the goal, objectives, relevance, practical significance, and the volume of scientific research conducted in doctoral studies. The doctoral student for the degree of Doctor of Philosophy presented a report on the dissertation work in the form of a presentation.

In the course of the report, she focused on the following characteristics:

- 1) Goal of the research topic;
- 2) Relevance of the dissertation work;
- 3) The main research objectives;
- 4) Scientific novelty of the work;
- 5) Methods used in research;
- 6) Structure of drone recognition system working in real time;
- 7) Scientific concepts to be protected;
- 8) The main content of the sections of the dissertation work;
- 9) The main conclusions of the work.
- 10) Obtained results of the work.

Questions and answers given to the researcher:

Head of the Department of "Electronics, Telecommunications and Space Technologies", candidate of technical sciences E. Tashtay: Is the database collected in the proposed work a novelty of the work?

Speaker Utebayeva D.Zh.: The database of drones collected during the proposed work is not a novelty of the work. For the first time, this database composition was expanded, i.e., it was collected as a database classified into three classes, despite having different models, and was considered for monitoring using a real-time recognition system. However, the novelty of the work was the development of a system that processes the acoustic signals of this database in real time and performs recognition using an algorithm based on efficient hyperparameters.

An external participant, a scientist-researcher engaged in extensive research in the field of sound signal processing based on Deep Learning, Ph.D., associate professor of Al-Farabi Kazakh National University **B. Omarov** asked the following 11 questions. First question: Is the proposed database classified into classes as balanced?

Speaker Utebayeva D.Zh.: The proposed database does not list the classes in a balanced order because the classified acoustic data in each class is given in sufficient quantity to be recognized for its class. And part of the data allocated for the test was classified as unbalanced.

Associate professor B. Omarov, second question: How long is the full length of the database?

Speaker Utebayeva D.Zh.: The total length of the database is 7612 seconds, of which 7312 seconds were considered for training and 300 seconds were used for observation testing.

Associate professor B. Omarov, third question: How much time was spent on general training based on this database?

Speaker Utebayeva D.Zh.: It was about one and a half minutes for one epoch training based on the database. It took two to three hours to process the algorithm.

Associate professor B. Omarov, fourth question: What software environment was used for the implementation of this work?

Speaker Utebayeva D.Zh.: The experiment was performed in the Python (Spyder) software environment. KAPRE libraries were installed for processing audio data.

Associate professor B. Omarov, fifth question: What computer model was used for this experiment?

Speaker Utebayeva D.Zh.: The experiment was carried out on an "Intel(R) Core(TM) i5-8265U processor at 1.60 GHz" laptop.

Associate professor B. Omarov, sixth question: How was the case where the sound of the drone overlapped with the sound of other objects during the work considered?

Speaker Utebayeva D.Zh.: During the work, drone sounds were sent to the algorithm along with background noise. This is because, with the help of a neural network, the background noise class is trained separately, and the recognition process is realized as a result of classification into the class. However, the main purpose of this work is not to separate the background noise, but the inclusion of the drone sound, even if there is background noise, gives an imitation of the presence of a dangerous drone. Therefore, the class with the drone sound was immediately processed.

Associate professor B. Omarov, question seven: How are the incoming audio data files processed as 1 second long files?

Speaker Utebayeva D.Zh.: The drone sounds were first compiled with different lengths. The collected data is "downsampled" to 16,000 Hz and passed through a filter called "Cleaner", which is divided into 1 second lengths.

Associate professor B. Omarov, eighth question: What was the size of the matrix of the Melspectrogram selected by the job offer?

Speaker Utebayeva D.Zh.: The collected audio data is input as a 1-second file, as a result of which the first input layer of Melspectrogram takes 128×100 matrices and sends them to the next layers.

Associate professor B. Omarov, Question 9: How many epochs were there during training?

Speaker Utebayeva D.Zh.: During the training of the audio database, 30 epochs were first considered. Some layer hyperparameters were retrained and shifted to 25 epochs to obtain a "Good Fit" graph.

Associate professor B. Omarov, Question ten. In the course of the experiment, what percentage of the database was subjected to a validation test during the audio training phase?

Speaker Utebayeva D.Zh.: 30 percent of the database was left for validation during the training phase of the audio files during the experiment. In addition, another 300 files were tested.

Associate professor B. Omarov, Eleventh question: What method of processing neural layers and their thickness was considered?

Speaker Utebayeva D.Zh.: Empirical research was carried out to treat neural layers and their thickness.

Associate professor K.H. Junusov: Which layer processes the acoustic signal?

Speaker Utebayeva D.Zh.: As mentioned above, acoustic signal processing was considered processing through the first input layer of the algorithm.

PhD, Associate professor N. Smailov: How can you distinguish between the correctness of your proposed recognition accuracy graphs in the study?

Speaker Utebayeva D.Zh.: A lot of research has been done until the graphs of recognition accuracies proposed in the study converge to the norm of "Good Fit". Empirical research continued until an algorithm was found that provided "Good Fit" recognition accuracies. As a result, in the obtained graph, the distance between the training and test recognition graphs is close and the "unrepresentative" shape is not observed.

Head of the Department of "Electronics, Telecommunications and Space Technologies", candidate of technical sciences E. Tashtay: How many seconds should the recognition duration of a real-time recognition system be according to the generally accepted world standard?

Speaker Utebayeva D.Zh.: According to the generally accepted world standard, the recognition duration of the real-time recognition system is assumed to be 1-3 seconds. In the course of this work, it is considered to be processed for 1 second.

Head of the Department of "Electronics, Telecommunications and Space Technologies", candidate of technical sciences E. Tashtay: What is the practical significance of your research?

Speaker Utebayeva D.Zh.: The practical importance of your research is that it can be used for strategically important areas in the country. In particular, it is possible to use it for defense purposes in border regions of the country with neighboring countries, in customs buildings, administrative buildings, schools, kindergartens, airports, etc.

Head of the Department of "Electronics, Telecommunications and Space Technologies", candidate of technical sciences E. Tashtay: What documents do you have for your research submission?

Speaker Utebayeva D.Zh.: This work is carried out within the framework of the scientific project "Zhas Galym" of the Republic of Kazakhstan, IRN number AP14971907.

Statement of scientific advisors

Chairman: domestic supervisor, candidate of technical sciences, associate professor at International University of Information Technologies, L.B. Ilipbayeva gave her Review (Review attached).

Candidate of technical sciences, associate professor of the "Radio engineering, electronics and telecommunications" department of the International University of Information Technologies, **L.B. Ilipbayeva:**

This work was based on the detection of suspicious states of drone sounds, and was carried out by studying the processing of a recognition system that allows for real-time detection.

During the main study of the dissertation, 4 scientific papers were published based on the results of the research. The main 5th journal article related to the research topic is at the stage of editorial requirements and processing of the journal, which is included in the international Scopus database. At the moment, in the course of general research, 1 article has been published, included in the international Scopus database. 2 articles based on the results of dissertation research were published in journals recommended by the Committee for Quality Assurance in Education and Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan. In addition, 2 articles were published in publications in the collections of international conferences (2020 Fourth IEEE International Conference on Robotic Computing (IRC)).

According to the results of the work, all the assigned tasks were fulfilled, the relevance, scientific novelty and practical importance of the research work were fully disclosed and reliably proven in the dissertation work. And as an application of the work, the scientific project for "National Security and Defense" was won on the basis of the competition, and currently the research continues as a future work with the method of Software Defined Radio.

Based on the above, I recommend that the dissertation work of Utebayeva Dana Zholdybaykyzy on the subject proposed for receiving the degree of Doctor of Philosophy (PhD) is completed in accordance with the requirements of the Ministry of Science and Higher Education of the Republic of Kazakhstan "Rules for awarding scientific degrees" and I recommend that the dissertation work be sent for defense.

Chairman: The next word is offered to the Reviewers.

Statement of reviewers

The speech was given to E.A. Bakhtiyarova, Ph.D. of the International University of Information Technologies, department head of the "Radio engineering, electronics and telecommunications" department.

We all know the relevance of the issue of drone recognition due to the current military and interstate political situation in the world. I rate the research conducted by the doctoral student Utebayeva Dana Zholdybaykyzy in this direction and the presented dissertation work as important and very relevant from a practical point of view. During the study of the work, discussions were held with the dissertation student about models of drone databases. We discussed with the dissertation student how the proposed system is capable of recognizing FPV drones. And this proposed work is designed to adapt to training and recognition accordingly with minimal time processing by inputting any new drone data. Also, it is possible to make sure that sufficient research has been carried out, taking into account the expectation of a Q1 quartile article entering the Scopus database as a result of the researcher's work in this field.

The purpose of the work was determined and the tasks were set systematically. The relevance of the work was also justified. In conclusion, I believe that the dissertation work on the topic proposed for the degree of Doctor of Philosophy (PhD) by Utebayeva Dana Zholdybaykyzy has been completed in accordance with the requirements of the Ministry of Science and Higher Education of the Republic of Kazakhstan "Rules for awarding scientific degrees" and I recommend sending the dissertation work for defense.

The speech was given to N. K. Smailov, Ph.D., associate professor of the Department of "Electronics, Telecommunications and Space Technologies" of the Kazakh National Technical Research University named after K.I. Satbayev.

Currently, the use of unmanned aerial vehicles (UAVs) has increased significantly. We all know that drones are often used for video surveillance, military reconnaissance, delivery and other tasks, especially in remote areas. Due to the many uses of these drones, illegal activities with them have also increased. The issue of recognizing these vehicles in international customs zones, airport security and local laws is becoming more and more important. And for these reasons, this proposed work on their recognition is relevant. The researches and results obtained by the dissertation student Utebayeva have a high recognition rate. I consider that the proposed method is relevant.

Doctoral student **D.Zh. Utebayeva's** work on the topic "Research of effective UAV detection using acoustic data recognition" meets the requirements of the thesis, and the results obtained are good. I propose to submit the work for defense and submit the dissertation work for the degree of Doctor of Philosophy (PhD) in the specialty "6D071900 - Radio engineering, electronics and telecommunications".

Chairman: Dear colleagues, if there are any participants who want to speak again and have suggestions, please allow me.

Dissertation work's discussion

Head of the Department of "Electronics, Telecommunications and Space Technologies", c.t.s., associate professor E. Tashtay: He noted that a lot of work has been done on the dissertation work. He mentioned that it is possible to present the research work for defense, taking into account the opinions of reviewers.

C.t.s., associate professor E. Tashtay: From the present report of the doctoral student, the research results obtained during the experiment are presented, which are relevant and work in real time. Completed research tasks are presented. In the future, I recommend working on obtaining a patent based on the results of this research. And I offer support for sending the dissertation work for defense.

Phd doctor, associate professor of Kazakh National University named after Al-Farabi **B. Omarov** who was invited as an external expert in this field: The real-time system, which has been developed at a high level of research and accepted at the international level, is a system that can recognize within 3 seconds, and the system proposed by the researcher is able to process and recognize audio data of 1 second duration. This is a very good indicator. The innovations introduced by the dissertation are large-scale, in particular, the database of drone sounds, which is not found in open data, their database obtained with different models and load states, and the ability to edit the structure of the algorithm that can be processed in a short time with the help of a simple computer, can be highlighted. At the same time, the main innovation of the work is that the input audio data can be processed in real time in a different way than traditional methods. The proposed Melspectrogram defined the layer well and rationally, and as a result significantly reduced the number of neuron cells and layer thicknesses in the general algorithm. And the time spent on training is very effective. The fact that the general drone can identify drone sounds in such a complex situation with 98% recognition accuracy is a very good indicator. Further, research as a National Security Award-winning research project can demonstrate the practical significance of the work. It is also possible to apply the method of work to other objects. The dissertation student has achieved the originally set goal and research tasks. I believe that it is completely possible to present the research work for defense.

After the discussion, 19 participants of the seminar voted openly.

RESULT OF OPEN VOTING:

«Yes» - 19,

«No» -no one,

« neutral » - no one.

Chairman: Dear colleagues, let's summarize the results of the discussion on the work of the dissertation student. In general, the thesis work is researched and written at a good level. However, I am in favor of submission to the defense, suggesting that the dissertation wait until the full publication of a journal article appropriate to the research topic in progress. According to the results of the meeting of the department, if there are participants who oppose the proposal to send the dissertation work of the doctoral student Utebayeva Dana Zholdybaykyzy to defense, I ask you to put forward your suggestions. If you do not mind, then we recommend to defend the work based on the results of the department meeting. Those who took part in the meeting unanimously supported the dissertation proposed by Utebayeva Dana Zholdybaykyzy on the topic "**Research of effective UAV detection using acoustic data recognition**" and recommended it to the dissertation council of KazNTRU named after K.I. Satbayev for protection for the degree of Doctor of Philosophy (PhD) in the specialty "6D071900 - Radio Engineering, Electronics and telecommunications. I propose to accept the following conclusion.

Decision making for the department

After reviewing and discussing the dissertation work of Utebayeva Dana Zholdybaykyzy, Ph.D. student of Department of "Electronics, Telecommunications and Space Technologies" Institute of "Automatics and Information Technologies" Kazakh National Technical Research University named after K.I. Satbayev, the following conclusion was made.

CONCLUSION

Relevance of the research topic. In recent years, unmanned aerial vehicles have become widespread and very popular. These vehicles are increasingly used in the world's military and political situations, in hard-to-reach places, for purposes such as video surveillance, agronomy, military intelligence, delivery and transportation. Also, the affordable production of unmanned aerial vehicles in the last decade has created the problem of using these vehicles for various purposes. Careless or malicious use of these vehicles can endanger people, their lives and protected institutions and border areas of countries. These reasons warn that the danger of unmanned aerial vehicles is increasing. Recently, there have been several drone incidents in the country. In particular, drone pilots of the Republic of Uzbekistan, one of the five countries bordering our country, were registered in the border areas during unauthorized flights. At the same time, the Headquarters of the National Security Forces of the Border Service of the Republic of Kazakhstan confirmed the fact of the crash of the drone of the Republic of Uzbekistan, and negotiations were held between the relevant services of the Republic of Kazakhstan and the Republic of Uzbekistan. Similar events took place in Nur-Sultan, above the

building of the Ministry of Defense of the Republic of Kazakhstan. Such situations are increasing day by day at the world level. In this regard, it raises the issue of recognition of unmanned aerial vehicles and its research is a very urgent issue.

As a result of the research, a system is being developed that can detect the sound of drones in real time.

The degree of novelty of each scientific result, conclusion and conclusions made by the researcher:

In the dissertation, the research goals and tasks set by the researcher at the beginning are considered step by step, studies are conducted and the results are obtained. Dissertation work level meets the requirements. The main scientific results of the research:

In this study, they investigated architectures such as SimpleRNN, LSTM, bidirectional LSTM, and GRU based on their practical application for real-time UAV sound recognition system. Common UAV sounds are grouped into three main classes: loaded UAVs, unloaded UAVs, and background noise. In the next stage, the accuracy level of the UAV recognition system was evaluated using all measures of multi-class classification tasks. As a result, the GRU architecture (64) was found to be an effective model with high predictability. According to the objective of the work, this model was able to recognize loaded and unloaded drones with 98% accuracy and background noise with 99% accuracy. Thus, based on the assumptions, it is proposed that SimpleRNN, LSTM, BiLSTM and GRU architectures can be used in UAV payload detection task due to their better content-based recognition ability than CNN models. Within this study, the work found the following solutions:

1) Mel-spectrogram hyperparameters with fixed parameters for UAV sounds were developed during empirical experimental research.

2) Hyperparameters of the Algorithm have been developed, which allow efficient processing of acoustic signals in less time, and the structure of RNN networks based on a smaller number of neural layers has been developed for real-time systems.

3) The real-time recognition system is adapted to recognize UAV states in the presence of different weight masses.

4) For the first time, all RNN cell types were investigated in the research problem by recognizing the sounds of different objects.

The proposed recognition structure of the work allowed for real-time detection and estimation of drone loads. The future work of the research continued within the framework of the "Zhas Galym" postdoctoral program. That is, extensive research on distance-based drone audio recognition by augmenting the downloaded UAV audio dataset; and processing research in a bimodal manner within the Software Defined Radio method.

Theoretical and practical significance of work. It is important to recommend this work for use in military and political situations, agronomy, military intelligence areas, detection of suspicious objects used for purposes such as delivery and transportation, customs, airport, school, kindergarten, crowded government

buildings, educational institutions and border areas. The proposed research is being investigated by IRN project number AP14971907 for National Security with a new method that works in combination with the bimodal method.

Reliability of results. The reliability of the results of research conducted within the framework of the dissertation is determined by the use of mathematical methods during the work, high recognition accuracy of experimental results, theoretical prerequisites of the obtained results and conclusions obtained by the authors, publications of the research results on the topic of the dissertation work in peer-reviewed scientific journals and discussions at conferences, as well as being confirmed by the successful acceptance into the project that finances state research projects.

Personal contribution of the doctoral student on the work done in the dissertation. In the course of the research of the thesis, the processing of the structure that allows the input audio data to be processed as an input layer in real time; processing of the reduced structure of the number of neural cells and layer thicknesses of the proposed algorithm; and the assignment of a system capable of identifying the complex sounds of unmanned aerial vehicles with 98% recognition accuracy is considered the contribution of the dissertation. Setting research tasks and discussing the results was carried out together with the scientific supervisors.

Proof of publication of the main conclusions and results of the dissertation in full publications

The main scientific results of the dissertation have been published in 4 publications on the subject under consideration, and the 5th main journal article is at the stage of editorial processing and publication. That is, 4 published works have been published, and 1 journal article is in the stage of editorial processing of a peer-reviewed journal with a high impact factor included in the international Scopus and Web of Science databases (Switzerland, MDPI Drones), 2 journal articles - Republic of Kazakhstan Science and Higher published in publications recommended by the Committee for Quality Assurance in Education and Science of the Ministry of Education, 2 articles - publications in collections of articles of international conferences (2020 Fourth IEEE International Conference on Robotic Computing (IRC)).

The name of the relevant passport of the dissertation

The dissertation of Utebayeva Dana Zholdybaykyzy on the topic "**Research of effective UAV detection using acoustic data recognition**" submitted for the degree of Doctor of Philosophy (PhD) corresponds to the specialty "6D071900 - Radio engineering, electronics and telecommunications".

Compliance of the dissertation with the requirements of the "rules for awarding scientific degrees" of the control committee in the field of education

and science of the Ministry of Science and Higher Education of the Republic of Kazakhstan

Utebayeva Dana Zholdybaykyzy's dissertation work on the topic "**Research of effective UAV detection using acoustic data recognition**" submitted for the degree of Doctor of Philosophy (PhD) meets the requirements of the "Rules for Awarding Scientific Degrees" of the Control Committee in the Field of Education and Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan.

Based on the above, the thesis work of Utebayeva Dana Zholdybaykyzy is recommended for the search for the degree of Doctor of Philosophy (PhD) in the specialty "6D071900 - Radio engineering, electronics and telecommunications".

DECISION:

1. The dissertation work of the candidate Utebayeva Dana Zholdybaykyzy for the degree of Doctor of Philosophy (PhD) in the specialty "6D071900 - Radio Engineering, Electronics and Telecommunications" on the topic "**Research of effective UAV detection using acoustic data recognition**" of the department "Electronics, telecommunications and Space technologies" is approved by the result meeting No. 6 of December 8, 2022.

2. Utebayeva Dana Zholdybaykyzy's thesis on the topic "**Research of effective UAV detection using acoustic data recognition**" in the specialty "6D071900 - Radio engineering, electronics and telecommunications" for the degree of Doctor of Philosophy (PhD) should be submitted to the Dissertation Council of Kazakh National Technical Research University named after K.I. Satbayev.

**Head of the department
"Electronics, telecommunications
and space technologies", c.t.s.,
associate professor**



E. Tashtay

Secretary of the meeting



Z. Ekeibekova

Secretary in English



Zh. Dosbayev