

Republican competition of scientific research works of students in the section «Space Engineering and Technology 2021»

In L.N. Gumilyov ENU, a republican competition for scientific research works of students was held in the section, which received 7 works (15 students, 7 scientific advisors).

Having considered the scientific works of students, the competitive commission of the university decided to submit for rewarding:

Diploma of the Ministry of the I degree 1 work:

1) Bolatzhan Karagat, Altynbek Zhandaulet work on the topic "Modeling of cryptographic protection of space communication channels", carried out under the guidance of the candidate of technical sciences, associate professor of the department "Space technology and technology" NAO Eurasian National University named after L.N. Gumilyov Moldamurat Khuralay.

Purpose of the work: research and development of a software and hardware model of cryptographic protection of information when transmitting it through a space communication channel. The results obtained: the relationship between cryptographic algorithms and chaotic systems was investigated; a software model has been developed using deterministic chaos for encrypting text and graphic data.

Diplomas of the Ministry II degree 2 works:

1) Mamyt Botakuz Asangyzy work on the topic "Energy calculation of satellite communications of the X-band channel", carried out under the guidance of the candidate of pedagogical sciences, senior lecturer of the Department of Space Engineering and Technology, NAO Eurasian National University named after LN Gumilyov Dinara Mirzabekovna Kalmanova.

The purpose of the scientific work is to study the communication channels of the satellite system (SSS) and select the most profitable channel, taking into account the small mass of the satellite. Analyze the purpose and capabilities of Planet Labs' Build 14 Dove platform. In this paper, we examined the X - band communication channel, as well as the goals and capabilities of the Build 14 Dove platform from Planet Labs. In the theoretical part, the main points were given such as the satellite communication system, various satellite communication channels, as well as a comparison of different communication channels and the choice of the most profitable channel, taking into account the small mass of the satellite.

2) Dzholdasova Dilyara Anarbekovna, Kuzich Samuil Nikolaevich, Kozlov Danil Andreevich work on the topic "Integration of VR technologies for special training of aviation technical personnel", carried out under the leadership of the head of the department "Aviation equipment and technologies" Tuleushova Rakhila Zhilkibaevna and teacher of the department "Aviation equipment and technologies" Zuev Dmitry Vyacheslavovich JSC Academy of Civil Aviation.

The purpose of the scientific work is the development, testing and implementation of technologies for the design of interactive training programs on technological processes of aircraft repair based on 3D and VR to improve the practical competence of aviation industry specialists in accordance with the requirements of international standards and recommended practices. The main results are the introduction of VR training technologies for the training of aviation technical personnel.

Diplomas of the Ministry of the III degree 3 works:

1) Tolybaev Karamatdin Jolmurza uly, Mameshev Ashim Alimovich work on the topic "Development of an information and analytical system for the fall areas of the Baikonur cosmodrome on the example of the operation of promising launch vehicles" Daukeeva Utegenova Anar Urantaevna.

The relevance of research work lies in environmental issues during record launches of space rockets of various weights. Novelty - for the first time, a multicriteria analysis of

geoinformation data is used for environmental monitoring and designation of areas of fall of separating parts of launch vehicles.

2) Akhmedzhanov Sayat Marpuruly work on the topic "Research of technological features of the use of satellite communications in the spacecraft range in the climatic conditions of Kazakhstan", carried out under the guidance of PhD, Associate Professor of the Department of Space Engineering, Institute of Telecommunications and Space Engineering, NAO Almaty University of Energy and Communications named after G. Daukeev Baimuratov Olimjon Abdukhakimovich.

Purpose of the work: study of the technological features of Ka-band communication in the zoned climatic conditions of Kazakhstan. The novelty lies in the comparative analysis of the models.

3) Tegen Alikhan Serikuly, Kushumova Aruzhan Baktygereevna work on the topic "Development of an intelligent control system for an unmanned aerial vehicle", carried out under the guidance of Candidate of Technical Sciences, Associate Professor of the Department of Space Engineering and Technology, NAO Eurasian National University named after LN Gumilyova Moldamurat Khuralay.

The aim of the work was to create algorithms and hardware solutions for an autonomous software and hardware robotic complex for work in extreme conditions. The main methods were methods of mathematical and computer modeling. The main result is the creation of a conceptual and information-logical model of a robotic complex with artificial intelligence.

The minutes and diplomas were sent to the Ministry of Education and Science for the signature of the minister.

Congratulations to the participants and winners. We wish you continued success.